Systematic review

Do micro-credit, micro-savings and micro-leasing serve as effective financial inclusion interventions enabling poor people, and especially women, to engage in meaningful economic opportunities in low- and middle-income countries?

A systematic review of the evidence

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List of abbreviations

2SLS	two-stage least squares regressions
3ie	International Initiative for Impact Evaluation
ADéFI	Action pour le Développement et le FInancement des micro-entreprises
AIDS	acquired immunodeficiency syndrome
ANCOVA	analysis of covariance
ANOVA	analysis of variance
ASSIA	Applied Social Science Index and Abstracts
AUSAid	Australian Agency for International Development
BPR	Bank Perkreditan Rakyat
BRAC	Bangladesh Rural Advancement Committee
BRDB	Bangladesh Rural Development Board
CGAP	Consultative Group to Assist the Poor
CINAHL	Cumulative Index to Nursing and Allied Health Literature
DEReC	Development Assistance Committee Evaluation Resource Centre
DFID	Department for International Development
DID	difference in differences
FINCA	Foundation for International Community Assistance
GBP	UK pound sterling
GIZ	Gesellschaft für Internationale Zusammenarbeit (German International Aid Corporation)
GNI	gross national income
GSDRC	Governance and Social Development Resource Centre
HIV	human immunodeficiency virus
IBSS	International Bibliography of the Social Sciences
IFC	International Finance Corporation
ILO	International Labour Organisation
IPA	Innovations for Poverty Action
IV	instrumental variables
J-PAL	Jameel Poverty Action Lab
LMICs	low- and middle-income countries
MDGs	Millennium Development Goals
MFI	microfinance institution

MIT	Massachusetts Institute of Technology
MIX	Microfinance Information Exchange
NGO	non-governmental organisation
OLS	ordinary least squares
PSM	propensity score matching
R4D	Research for Development, DFID
RCT	randomised controlled trial
RDD	regression continuity design
ROSCA	rotating credit and savings association
SEEP	Small Enterprise Education and Promotion Network
SEWA	Self Employed Women's Association
TROPHI	Trials Register of Promoting Health Interventions
TRY	Tap and Reposition Youth
UMKRB	Upper Manya Kro Rural Bank
UN	United Nations
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNESDOC	United Nations Educational, Scientific and Cultural Organisation documents
USAID	US Agency for International Development
VND	Vietnamese dong
VSLA	Village Savings and Loan Association
WWPS	Worldwide Political Sciences Abstracts

Executive Summary

Background

Micro-leasing, micro-credit and micro-savings are three financial inclusion interventions which have the potential to transform the lives of those with limited access to financial services. In theory they have the potential to enable investment in income generating activities, consumption smoothing and financial planning. In December 2011 a working group of the United Nations Capital Development Fund (UNCDF) even explored microfinance as a tool for social protection through savings. In practice however, for a long time, we lacked convincing objective evidence of the impacts of these interventions, either negative or positive. While early evaluations suggested these interventions were promising, most recent evidence is less clear-cut about their effects. Furthermore, while they have been advocated as tools to enable women greater economic empowerment, we do not know whether interventions that specifically target female entrepreneurs are more or less effective. The results of the first randomised controlled trials (RCTs) on micro-credit in Manila and Hyderabad in 2009 challenged the idea that microfinance reduces poverty (Banerjee et al. 2009a, Karlan and Zinman 2011). In addition to the scientific discussion of the nature of available evidence about the impact of microfinance, whether positive or negative, or indeed the absence of any evidence either way, microfinance has also received much negative media attention over the last few years which has raised the profile of the debate and increased the pressure to address the question of the effectiveness of microfinance.

Specifically there are unanswered questions about the success of micro-leasing, micro-credit and micro-savings in enabling poor clients to engage in economic opportunities, which include starting a business or extending/growing an existing enterprise, for example opening a market stall, or sowing a cash crop. There are further questions about the extent to which these opportunities are meaningful in terms of financial outcomes. We do not know how, for whom, and in what circumstances these interventions are successful (or not), nor whether specifically targeting women is more or less effective for combating economic gender inequalities than more mainstream interventions.

This review set out to address these questions using systematic review methodology which employs a replicable, rigorous and structured approach to identifying, selecting and synthesising good quality relevant evidence on any given topic. In addition to reviewing the evidence of impact, we developed a theory of change, also called a causal pathway.

The potential causal pathways through which access to finance can impact on economic growth are complex (Levine 2004); our previous work highlights this specifically in relation to microfinance (Korth et al. 2012, Stewart et al. 2010b). This review specifically examines two key steps in the logic pathway: engagement in economic opportunities and the outcomes of this engagement for clients. Specifically we examine microfinance's impact on the following outcomes: starting a business or investing in someone else's including: setting up a micro-enterprise or extending/growing an existing enterprise, opening a market stall, or sowing a cash

crop. This review also considers the financial outcomes of clients' engagement in these kinds of economic opportunities. These include outcomes such as 'returns to capital', 'increases (or decreases) in capital stock', 'increases (or decreases) in profit', 'fixed asset investment', etc. We have captured the wealth outcomes reported in included studies and classified these in terms of income and assets. They include both increases and decreases in income, expenditure and accumulation of assets, whether financial assets (i.e. savings) or non-financial assets. Each is considered at the individual, household and business level.

Methods

Our protocol for this review was peer reviewed and published in June 2011. Throughout the review, we drew on the expertise of potential users, including policy advisors and microfinance organisations, seeking their input into where to search for relevant literature, on our initial findings and on how best to disseminate this work.

In order to identify all the relevant literature we searched systematically for evaluations of micro-leasing, micro-credit or micro-savings in low- and middle-income countries (LMICs), looking in six specialist trial and systematic review databases, 25 more general electronic bibliographic databases and Google Books. We also searched 31 organisational websites, contacted key individuals in the field, conducted citation searches for key publications, scanned the included literature from five related systematic reviews, and searched the reference lists of initially included papers. Our search results were screened in two stages and those papers that met our inclusion criteria were then coded by a team of four researchers to ensure accuracy and consistency, avoid bias, and maintain clarity. All relevant studies were assessed using predetermined quality criteria, and the findings of those studies judged to be 'good enough' were included in the review.

The findings of these studies were then synthesised using two approaches: (i) identification of whether each intervention was having statistically significant positive, negative, varied or no effects on the lives of clients, and (ii) narrative synthesis of findings using matrices. We developed a causal chain to unpack how microfinance impacts on poor people and mapped the available evidence of effectiveness on to this causal chain. While the limited evidence base made it difficult to conclude with confidence for any of our review questions, we gained greater understanding of the issues which enabled us to draw out implications for policy and practice.

Findings

Microfinance is a particularly challenging area to evaluate using rigorous research designs, which in turn made it difficult to systematically review. Challenges included the complexity of microfinance itself, as well as the difficulties of evaluating a social intervention across varied development contexts.

We identified over 14,000 citations that were assessed against our inclusion criteria and reduced to 84 relevant studies. Of these, 17 were judged to be of good enough quality for inclusion in this review. The interventions assessed in these studies varied widely and there was variation in their findings, with both positive and

negative impacts identified. There was no rigorous relevant evidence about micro-leasing available so we are unable to say whether micro-leasing actually increases or decreases poor people's engagement in economic opportunities or influences subsequent financial outcomes. Our findings with regards to micro-credit and micro-savings are summarised below in relation to our key research questions.

Do micro-credit and micro-savings enable poor people to engage in economic opportunities and, if so, which type of economic opportunities?

We looked for causal relationships between micro-credit and micro-savings and engagement in economic opportunities. In simple terms micro-credit should enable the poor to invest in income generating assets such as stock for sale. Micro-savings, on the other hand, ought to enable those with a variable income to improve their financial planning, for example saving money for annual farming costs such as seed and fertiliser. Savings are therefore less likely to increase engagement in economic opportunities, although they may sustain engagement for those who already have an income.

The available evidence suggests that micro-savings does not significantly increase poor people's engagement in economic opportunities. There is some evidence that micro-credit influences poor people's engagement in economic opportunities. The evidence on combined micro-credit and micro-savings suggests that these do not impact on income diversification, although borrower/savers are more likely to have more than one business.

Does microfinance and engagement in these economic activities impact on clients' income?

We would expect microfinance, when combined with economic opportunities, to impact on income in various ways. Micro-credit is expected to increase incomes eventually, although this may not become a reality for some time due to the incurred debt which must be repaid. Micro-savings should, in theory, enable better financial planning, which might smooth income, and potentially increase longer-term income, for example by enabling accrued savings to be spent on extending a business, or sustaining a business by covering seasonal shortfalls.

The available evidence shows that micro-savings using a commitment account increases the value of savers' businesses, but does not increase their business profits (in Malawi). Ordinary savings accounts have no effects on clients' income. Micro-credit appears to have a largely positive impact on borrowers' income, although these data are not completely reliable and may be prone to bias. Data from Ghana show a positive association between micro-credit and income in some areas but a negative one in others, and in some areas those who have been borrowers for longer have lower incomes. Combined micro-credit and micro-savings appear to increase income in India and Kenya, but not in Indonesia. These studies are, however, prone to bias.

Does microfinance and engagement in these economic activities impact on clients' savings?

In theory microfinance is likely to have varied effects on clients' savings. While the availability of savings accounts, and particularly commitment accounts, may encourage and facilitate saving any available profits, the requirement within micro-credit to make debt repayments might be expected to decrease levels of savings, at least until those debts have been paid off. Many micro-credit schemes require borrowers to accumulate savings before credit is made available, and sometimes throughout the loan period.

The evidence shows that micro-savings does significantly increase people's savings in Malawi and Kenya, although in Kenya this is only true for women. The best available evidence on micro-credit (from Bosnia and Herzegovina) suggests that micro-credit has reduced people's level of savings, while slightly less reliable evidence from Uganda and Zimbabwe suggests that borrowers' savings increase. In Peru credit is found to have no impact on savings. Data from Kenya and Indonesia find no significant effects of combined micro-credit and micro-savings on levels of savings, although these data are not 100 percent reliable.

Does microfinance and engagement in these economic activities impact on clients' accumulation of non-financial assets?

In theory micro-credit is expected to increase clients' accumulation of non-financial assets for use in their businesses. However, the requirement to repay debts may lead borrowers to sell non-productive non-financial assets to raise funds quickly. Micro-savings ought to enable clients to accumulate funds gradually and therefore enable them to invest in non-financial assets in the longer term.

Reliable evidence from Malawi shows that micro-savings using a commitment account increases savers' accumulation of non-financial assets; however, ordinary accounts have no significant impact. Three slightly less reliable studies of micro-credit find no significant impact of micro-credit on the accumulation of non-financial assets at the household level, although two did find a significant impact at the business level. One further study from Bangladesh found a significant association between women taking out loans and their accumulation of non-land assets; however, this evidence is not sufficient to establish a causal relationship.

Evidence on the impact of combined micro-credit and micro-savings is not 100 percent reliable but suggests mixed effects with regard to the accumulation of non-financial assets: in Indonesia there was no effect found while in Kenya researchers found a positive significant impact of combined credit and savings on the accumulation of non-financial assets. There is a negative association in Ethiopia between combined credit and savings and clients' holding of assets and also their need to sell goods to pay for basic needs, while there is no association between engagement in the programme and the ownership of livestock.

Does engagement in these economic activities impact on clients' expenditure?

The theoretical relationship between microfinance services and expenditure is complex. It is not always clear what changes in levels of expenditure mean, as they can relate to increased investment in productive goods (such as a bicycle or sewing machine), an increased quality of life (such as better nutrition) or merely an indication of more cash to spend.

Reliable evidence from Malawi shows micro-savings has no significant impact on expenditure. Evidence from Kenya similarly shows no impact on business expenditure or on gifts and remittances, although it does suggest micro-savings significantly increases spending on foodstuffs and personal items such as alcohol and clothing. High-quality evidence from Bosnia and Herzegovina showed no significant effect of micro-credit on business consumption but found a significant decrease in consumption of food at home among clients with businesses who have low levels of education. Slightly less reliable studies suggest that micro-credit increases expenditure in Thailand, Bangladesh and Vietnam although this is contradicted by other similar studies in Peru, Zimbabwe and Uganda. There is a positive association between expenditure and loans in data from Bangladesh although this is not evidence of a causal relationship.

Combined micro-credit and micro-savings in India appear to have increased spending on housing improvements and consumer goods, but not on food; however, this evidence is not 100 percent reliable. Two studies do show an association between household expenditure and participation in combined credit and savings programmes in Zanzibar and Ghana although the evidence from Ghana applies to some regions and not others, and both these studies are not robust enough to establish a causal relationship.

Overall findings

While it is difficult to generalise from the available evidence, what we found can be summarised as follows:

1. We found no studies of the impact (positive or negative) of micro-leasing, either on engagement in economic opportunities or on the financial outcomes of such engagement.
2. We found no evidence that micro-savings enables engagement in economic opportunities, although in some cases, but not all, it increases income, savings, expenditure and the accumulation of non-financial assets. The most rigorous evidence on micro-savings comes from studies in Malawi and Kenya. The first shows that commitment savings accounts[1] increase levels of non-financial assets among savers while the evidence from Kenya suggests savings accounts increase female market vendors' levels of savings and expenditure.
3. Micro-credit sometimes increases engagement in economic opportunities, but not always. The most rigorous evidence is from Bosnia and Herzegovina and shows that micro-credit leads young people to start new businesses; however, this was only true of those with relatively high levels of education or vocational training. Micro-credit can also increase income in some circumstances, but reduces it in others. It has similarly mixed impacts on levels of savings and accumulation of assets, and in most cases reduces expenditure, although the advantages or disadvantages of the latter are not entirely clear.
4. Even when combined, the provision of micro-savings and micro-credit has little impact on clients' engagement in economic opportunities. Combined

[1] Commitment savings accounts require clients to agree to saving a certain amount until a certain date. Having made this commitment, they are unable to withdraw this money sooner.

services have mixed impacts on income, the accumulation of non-financial assets and on expenditure. There is little evidence about the impact of combined services on levels of savings.

There is not enough evidence to ascertain whether or not these financial interventions have different impacts at the individual, household or business levels, nor can we identify patterns in the exact circumstances in which microfinance has positive impacts for clients. Based on the studies in this review we cannot tell whether group or individual lending models are more effective forms of micro-credit. We also cannot tell whether combining micro-credit, micro-leasing or micro-savings with other complementary interventions such as business training makes a difference. While some reviewed studies targeted women specifically and others disaggregated outcomes by gender, there is not enough evidence to allow us to conclude whether financial interventions targeted at women are more or less effective for them.

Our causal pathway analysis highlights the contradictory nature of the evidence available, as well as the many gaps in the evidence base.

Discussion

The varied nature of the evidence makes it difficult to draw conclusions; however, it is clear that both micro-credit and micro-savings can reduce poverty but do not in all circumstances nor for all clients. Given these varied results, it is important to consider whether there is potential for harm in offering either of these services, or indeed in not doing so. While the lack of financial services may limit the ability of the poor to withstand shocks or to increase their wealth, micro-credit also brings the risk of increased debt and loss of collateral. It is harder to envisage a potential for harm in having a voluntary savings account. This logic, combined with the mixed evidence for positive impacts suggests that micro-savings is the 'safer' intervention and that arguably the poorest of the poor should not be offered micro-credit without careful consideration of the implications for their lives of increased debt.

We have also drawn methodological lessons from this work. It is frustrating to have conducted a review which is large in many senses, but is at other times so narrow as to exclude interesting evidence. We strongly recommend that a different approach to the commissioning of systematic reviews is adopted in international development, one which steps back from the urgency of assessing whether or not a broad programme has an impact, and first produces detailed and comprehensive maps of the evidence in any given area.

Conclusions and implications

We anticipate that users of this research will want to undertake a process of interpretation and application of the results of this review. However, on the basis of our findings we draw out the following implications for policy, practice and research:

Implications for policy

- As with all credit products, there is a need for caution given the potential for both good and harm to clients. In particular, because micro-credit makes some people poorer and not richer, there is an imperative to be particularly cautious when targeting the poorest of the poor. There is less risk if services are targeted at those who already have some financial security, such as savings (often integrated into micro-credit programmes) or another source of income, which will allow them to make loan repayments even if their businesses do not generate a profit immediately.
- Micro-savings appears to be a more promising intervention for clients, and might potentially be extended to the poorest of the poor as it has limited scope for harm. Savings services, without linked credit, should therefore be made more widely available for the poor.
- Micro-credit benefits some clients and the potential for increasing income and reducing poverty for some should be carefully balanced with the possible risk to others.
- Rigorous evaluation of pilot programmes is required prior to roll-out in order to minimise the risks of doing harm.
- There is, as yet, a lack of evidence about whether interventions that target women benefit them more than those which do not specifically target women. While care should therefore be taken to avoid excluding women from financial interventions, extra effort to focus micro-credit and micro-savings exclusively on women as opposed to including them in mainstream interventions are not warranted by the evidence base.

Implications for practice

- Practitioners, as well as policy-makers, need to be cautious when deciding whom to target with micro-credit services. Micro-credit ought only to be targeted at the poorest of the poor with considerable care because some clients will be made poorer as a result of taking out a loan, the consequences of which could be devastating. Services should be targeted at those who already have some financial security, such as savings or another source of income, which will allow them to make loan repayments even if their businesses do not generate a profit immediately.
- Those implementing microfinance services should note that micro-savings using commitment accounts is a promising intervention for clients.

Implications for research

- Rather than establishing conclusively whether or not microfinance reduces poverty, we anticipate the value of future research will be in identifying how, and in what circumstances, these financial inclusion interventions can work for the poor.
- There is a need to conduct more primary research to unpack the different stages of the causal pathway as the evidence base in this

complex area remains small. When choosing study designs researchers should carefully consider potential risks of bias. Our review suggests that RCT designs are mostly likely to provide robust assessments of impact. There is a need for focused questions and validated outcome measures.

- There is a need for greater standardisation of outcomes considered within impact studies, as well as greater standardisation of outcome measures. Research needs to consider longer-term outcomes.
- There is a need for the development and implementation of standardised minimum reporting requirements to ensure lessons can be learnt from the research that has been done.
- New studies are needed which contrast interventions targeted at women with those that are not. Analyses disaggregated by gender should be routine in all impact evaluations.
- More research is also required which explores different models of microfinance in order to provide more valuable informative evidence to guide decisions around which models are funded and implemented in which circumstances.
- There is a need for studies that assess whether combining micro-credit, micro-leasing or micro-savings with other complementary interventions is more or less successful.
- Micro-leasing is an under-researched area with potential for reducing poverty but also for increasing over-indebtedness. Efforts should be made to evaluate any existing and planned programmes to inform future decisions about this intervention.
- Reporting of all research needs to be improved, and greater clarity encouraged for reports published online without peer review.

While there is much to be learnt from systematic reviews, having conducted two systematic reviews on the impacts of microfinance we suggest that:

- No new systematic reviews of the effectiveness of micro-credit or micro-savings are conducted until there is a significant increase in the volume of primary research.
- Systematic maps be drawn up of the literature related to broad policy areas such as microfinance and/or financial interventions before any further focused reviews are undertaken that address specific questions. Such maps can be used to identify more focused questions to be addressed in future primary research and in systematic reviews.
- Systematic reviews are still new in international development and there is a need to gather learning from teams undertaking reviews so that lessons can be learnt for the extended use of this methodology in other areas of development.
- When searching for relevant literature for development reviews it is important not to limit oneself to electronic databases as a considerable part of the literature included in this review was not published in mainstream journals or indexed in online electronic databases of research.

1. Background

This chapter provides a general introduction to financial inclusion of the poor and microfinance specifically. It describes the theoretical foundations for microfinance as an economic and a development tool, and outlines why women's economic empowerment is thought to be particularly important. It explains how the scope and the aims of microfinance have shifted and how recent evaluations of its impact have challenged the growing claims for its effectiveness. We outline existing systematic reviews in this area and explain why a new review was called for. We present the scope of the review, define the key concepts and present our detailed review questions.[2]

1.1 Policy, practice and research background

1.1.1 Microfinance as part of financial inclusion

Only 20 percent of people in developing countries have access to formal financial services (World Savings Bank Institute 2004). Of these, women, who are disproportionately represented among the world's poor, have more limited access to formal financial services, and have less bargaining power than men regarding the spending of household wealth (UNDESA 2009). Due to an association between poverty and financial exclusion, various interventions are now aimed at those once considered 'unbankable'. These include skills to increase access to financial resources (such as financial literacy), technical developments to extend access geographically and to new sections of communities (such as mobile banking), and the financial services themselves. One of the many tools to enhance financial inclusion, which some call the democratisation of financial services (APPGM 2011), is microfinance.[3] The term 'microfinance' describes financial services that are aimed at poor people who have traditionally been excluded by the formal financial industry. It is only of late, with the commercialisation of the microfinance industry since the 1990s, that the formal financial sector has become interested in poor clients and started offering services and products to them. In this context, the vocabulary used has changed from 'micro-credit' in the 1970s and 1980s, to 'microfinance' in the 1990s, to the wider programme of interventions known as 'financial inclusion' in the 2000s.[4] This review focuses on financial services for the poor, specifically microfinance, with a specific focus on gender and the potential for microfinance to reduce gender inequalities.

Since the 1970s microfinance has come to be seen as an important development policy and a poverty reduction tool for men as well as women; by 2010 over 200 million people were served by thousands of microfinance institutions (MFIs) (Maes and Reed 2012). Microfinance now includes a suite of financial tools which aim to

[2] Authorship, funding and citation details for the review are provided in Appendix 1.1.
[3] Microfinance does not, however, equate to financial inclusion: the latter includes a wider suite of issues and interventions of which microfinance services are only one part.
[4] This is seen in the UK Department for International development (DFID), for example, in its incorporation of its work on microfinance into its work on financial sector development (APPGM 2011).

provide banking services to the 'unbanked' through the provision of small cash loans (micro-credit), the lending of productive assets (micro-leasing), facilities to save (micro-savings), and most recently insurance policies (micro-insurance) and money transfers. These instruments are seen as reducing and mitigating risks and vulnerabilities experienced by poor people (Hulme et al. 2009). Some even argue (e.g. Littlefield et al. 2003, Simanowitz and Brody 2004, World Savings Bank Institute 2010) that microfinance is a key tool to achieve the Millennium Development Goals (MDGs).[5] There is an assumption that extending access to financial services through microfinance will increase wealth and reduce poverty (Grameen 2009, Khandker 2005).[6] Kofi Annan, then the United Nations Secretary General, described micro-credit in 2005 as 'a critical antipoverty tool – a wise investment in human capital. When the poorest, especially women, receive credit, they become economic actors with power. Power to improve not only their own lives but, in a widening circle of impact, the lives of their families, their communities, and their nation' (quoted on the United Nation's 2005 Year of Microfinance website, UNCDF 2005).

Improving poor women's access to financial services through microfinance has been proposed as a means to fulfil their practical needs, as well as contribute to their strategic needs in terms of gender equality (Kabeer 2001). By enabling women's engagement in economic opportunities microfinance is thought to increase their power within their households and communities, as well as increasing their standard of living and that of their children (Kay 2002). It is especially access to savings that can provide opportunities for asset accumulation, protection against shocks, and reducing vulnerabilities by managing risk and cash flows. As a result women, and in particular female-headed micro-enterprises, are often the focus of microfinance initiatives (ACCION 2009). Despite this, women's access to these financial services appears to vary around the world (Ellis et al. 2006, Naidoo and Hilton 2006, UNDESA 2009), which may be due to related factors such as their lower levels of employment and income (Aterido et al. 2011). Women also face particular challenges starting up new businesses including their own limited skills and knowledge, lack of access to technology and limited mobility, as well as external factors such as discriminatory laws and regulations (UNDESA 2009). Even where women do access microfinance and have the potential to engage in economic opportunities, the potential for these services to contribute to their empowerment is debated and an emphasis put on the need for additional strategies, rather than relying on micro-credit alone (Mayoux 2009).

Some argue that there is no need to target women in order to empower them, as achieving economic development per se results in greater gender equality (in Duflo 2011). With gender issues being mainstreamed by major development agencies, women's concerns and experiences are considered as 'an integral part of the design, implementation, monitoring and evaluation of policies and programs in all

[5] Mohammed Yunus (2006), the founder of the Grameen Bank, even claims that access to credit is a human right.

[6] Care should though be taken to avoid the assumption that increased access is an end goal in itself. Simply making financial services and products available to poor people of itself will not necessarily lead to poverty reduction.

political economic and societal spheres, so that women and men can benefit equally, and inequality is not perpetuated' (Gobezie 2011). Such gender mainstreaming within microfinance, coupled with its potential to alleviate poverty, may therefore be improving women's lives indirectly, irrespective of any direct benefits.

In addition to these social and development arguments for microfinance, there is an economic case that leads us to expect that improved financial access through microfinance will lead to increase incomes as poor people work themselves out of poverty, and furthermore that targeting women may have the greatest impacts. As Armendariz and Morduch (2010) explain, provision of credit in capital-poor, credit-constrained economies should provide relatively high returns on investment compared to capital-rich economies where opportunities are already maximised. Furthermore, by reducing credit constraints and providing financial services in environments where credit is hardest to access, and to groups such as women who are most-commonly excluded from the formal market, the potential for profits is even higher (de Mel et al. 2008, 2009).

The evidence regarding such positive impact is challenging and controversial, partly due to the difficulties of reliable and affordable measurement, of attributing cause and effect, the methodological challenge of proving causality, and because impacts are highly context-specific (Brau and Woller 2004; Hulme 1997, 2000; Makina and Malobola 2004). Despite this, instead of limiting the claims for microfinance to its initial one of income generation and poverty alleviation, we see the claims for its effectiveness broadened to include improving the local and national economy through enterprise development and employment creation, to include social impacts such as empowerment for women, and extended beyond the alleviation of poverty to the prevention of poverty (APPGM 2011). Such diversification of its mission statements (or what Bateman (2010) calls 'goal rotation') beyond poverty reduction has been criticised (APPGM 2011), even by those within the microfinance industry, in talk of 'mission drift' (Armendariz and Szafarz 2009, Woller 2002). Professor Muhammad Yunus himself recently identified a 'branding problem' for the microfinance industry (in APPGM 2011: foreword), and called for the term 'micro-credit' only to be used for pro-poor non-collaterialised lending programmes, and not for commercial programmes (quoted in Microfinance Focus 2012).

While many of the first institutions offering microfinance were not-for-profit local NGOs (non-governmental organisations) driven by a development paradigm, microfinance is now a global industry and has become more commercialised (Brau and Woller 2004, Robinson 1995). Hulme and colleagues indicate 'a notable historical shift from thrift (micro-savings) as the foundation of finance for the poor in the early 20th century, to debt (micro-credit) in early 21st century' (Hulme et al. 2009). One aspect of the commercialisation of the microfinance industry is its formalisation, i.e. microfinance institutions transforming themselves into banks and turning to banks for funds (Matin et al. 1999). The other aspect of more commercial microfinance is that commercial financial institutions – such as banks – are entering the fray. In the context of the commercialisation (both the turn towards profitability by MFIs and the entrance of private financial institutions into the microfinance field), concerns that the purpose of microfinance is shifting are

rife in the industry. While a double-bottom line of financial sustainability and social impact seems acceptable to most, there is a fear among those who Morduch (2000) calls the welfarists, that in the context of commercialisation, financial sustainability, rather than social impact, will become the measure of success.

1.1.2 Recent debates on the effectiveness of microfinance

While David Hulme (1997) indicated that research up to the 1990s tended to focus on how to improve the industry, rather than on how to prove impact, studies about and questions regarding the impact of microfinance are not new (see Copestake et al. 2002, Goldberg 2005, Hulme and Mosley 1996, Rogaly 1996). Some within the microfinance industry argue that the market is an adequate proxy for impact, i.e. client retention and high repayment rates show that poor people are happy with microfinance (Wrenn 2005), and that accumulating all the anecdotal stories of the positive impact of microfinance is sufficient. Academic studies though have found mixed impacts, ranging from positive impacts on household income and consumption, to modest or no impact, to negative impacts.

The 2000s saw a rapid increase in research attempting to measure the impact of microfinance (for overviews, see Goldberg 2005, Odell 2010). Yet, despite various studies 'the question of the effectiveness and impact on the poor of [microfinance] programs is still highly in question' (Westover 2008:7). Roodman and Morduch (2009, 2011) similarly conclude that '30 years into the microfinance movement we have little solid evidence that it improves the lives of clients in measurable ways.' Even the World Bank's report *Finance for all?* indicates that 'the evidence from micro-studies of favourable impacts from direct access of the poor to credit is not especially strong' (World Bank 2007:99).

Recently these debates on the effectiveness of microfinance became heated when the findings of the first three RCTs in microfinance - in India, Kenya and the Philippines by the Massachusetts Institute of Technology (MIT)'s Jameel Poverty Action Lab (J-PAL) (Banerjee et al. 2009a, Dupas and Robinson 2009, Karlan and Zinman 2010) - raised questions about the impact of microfinance on improving the lives of the poor. These studies did not find a strong causal link between increased access to microfinance and poverty reduction or social well-being for the poor. In response to these RCTs, six of the biggest network organisations in microfinance – Accíon International, FINCA (Foundation for International Community Assistance), Grameen Foundation, Opportunity International, Unitus[7], and Women's World Banking – pointed to anecdotal evidence of the positive impact of microfinance, while also highlighting the weaknesses of the MIT studies. Their criticisms included the short timeframe and small sample size, and the difficulty of quantifying the impact of microfinance. Rosenberg (2010) of the Consultative Group to Assist the Poor (CGAP) reacted to these six network organisations: 'But let's be straightforward here. The main value proposition put forward on behalf of micro-credit for the last quarter century is that it helps lift people out of poverty by raising incomes and consumption, not just smoothing them. At the moment, we

[7] In July 2010 Unitus unexpectedly announced its suspension of financing microfinance. Within the industry there was talk of it closing after "huge financial windfall" (Paulson 2010), furthering concerns about the commercialisation of MFIs, and 'mission drift'.

don't have very strong evidence that this particular proposition is true, and I don't think we should be putting out public relations material that fudges the issue or suggests that we do have such evidence.' And Odell's (2010) review of the evidence of the impact of microfinance for the Grameen Foundation also did not settle the debate. This vigorous debate between researchers and practitioners continued to rage on blog sites (Banerjee et al. 2009b, Easterly 2010) and in the media, (e.g. *Boston Globe* [Bennett 2009], *Economist* [2009], *Financial Times* [Harford 2009], *Seattle Times* [Helms 2010], *New York Times* [MacFarquhar 2010]).

By the time David Roodman released his book *Due diligence* in January 2012 the heat had been taken off the debate somewhat, with 'opposing sides' listening and engaging more, which the mostly positive or engaging responses to Roodman's book show (Counts 2012, Dunford 2012, Reed 2012), despite his book not providing evidence of positive impact.[8] Also in early 2012 a further two RCTs on micro-credit were published, mostly confirming what the previous RCTs found.

The increase in RCTs addressing questions of the effectiveness of microfinance has been accompanied by a debate about methodology and how best to assess the impact of these interventions.

Hence there is clearly a strong need for rigorous systematic reviews of the evidence of the impact of microfinance interventions on the poor to bring together the available evidence. As we will see below, past work suggests that microfinance works for some people and not for others. Rather than establishing conclusively whether or not microfinance reduces poverty, we anticipate the value of future reviews will be in identifying how, and in what circumstances, these financial inclusion interventions can work for the poor.

1.1.3 Measuring the impact of microfinance

RCTs and other study designs to assess the impact of microfinance: the debate thus far[9]

The uncertainty about the effectiveness of microfinance is not easy to resolve given the challenges of measuring impact in development (Blattman 2011c, Haddad 2011), and in microfinance in particular (Karlan and Appel 2011). For one, it is extremely difficult to isolate the impacts of microfinance, because to do so, you must identify what would have happened without it (i.e. establish the counterfactual), and this is a considerable challenge (Asian Development Bank 2011).

For some time observational studies were used as evidence of effectiveness of microfinance, but these contained not only problems of attribution, but also of selection bias. To try to create a counterfactual, and mimic randomisation, quasi-experimental research designs were used. When using quasi-experimental designs, a comparison group is constructed retrospectively using statistical techniques and

[8] Roodman (2012) argues that the question of the effectiveness of microfinance can be considered by its goals of lifting people out of poverty (of relevance to the focus of this review), increasing people's freedom, and building institutions. He found that only for the third goal is there convincing evidence of its achievement.

[9] It is important to note, that in conducting this systematic review, we considered all potentially relevant evidence and subjected each study, irrespective of study design, to the same critical appraisal. We have not preferenced RCT evidence in and of itself.

potential biases are controlled for as best as possible in analyses. The methods used include before–after and with–without comparisons, cross-sectional regression, propensity score matching (PSM), difference-in-differences (DID), regression discontinuity design (RDD), and instrumental variables (IVs) (Asian Development Bank 2011). But these each contain inherent problems; the replication study of the influential Pitt and Khandker (1998) study highlighted many of these (Roodman and Morduch 2009, 2011). In 1998 the World Bank economist Shahid Khandker, along with Mark Pitt (an economist at Brown University) published their findings, in which they used a fixed-effect regression technique and land holdings as an instrumental variable to estimate the impact of three micro-credit programs in Bangladesh. Through these they tried to address selection bias of participants and programme placement. They found positive impacts on reducing poverty, and this study has since been influential in cementing perceptions about the positive impact of micro-credit on the lives of poor people. John Morduch (1998) critiqued the Pitt and Khandker study for its use of an IV approach. Following this criticism Pitt (1999)[10] adjusted their model, and found even larger positive impacts on reducing poverty, and in 2005 Khandker did a follow-up study with more recent data, and again found positive impacts.

But the replication study of the 1998 Pitt and Khandker study by Roodman and Morduch (2009) raised serious questions about its validity. Roodman and Morduch (2009) found various methodological problems, especially on statistical robustness. A public and spirited exchange has since taken place (Pitt 2011a, 2011b, Roodman 2011c, Roodman 2011a, 2011b). The validity of the 1998 Pitt and Khandker study was also more recently questioned by Duvendack and Palmer-Jones, who used the same data but applied PSM, and found overstatement of impacts by Pitt and Khandker (Duvendack and Palmer-Jones 2011a). These replication studies highlighted the challenge of inferring causality in non-experimental designs (Asian Development Bank 2011), and made clear the challenge for econometrics of dealing with selection bias due to unobservable characteristics (Duvendack et al. 2011).

Experimental research designs, on the other hand, have the potential, not only to address these potential sources of bias, but also to isolate causal relationships and measure effect sizes. While such study designs have only been recently used in the field of microfinance, they are increasingly common. Since 2009 six randomised control trials (RCTs) about the impact of microfinance on the poor have been released.[11] The main benefit of RCT design is its internal validity.[12] RCTs primarily include randomisation of the intervention (i.e. those who receive the service) and control (i.e. comparison) groups, the collection of data before and after the intervention is implemented (White 2011), and careful consideration of sample size and selection method to ensure sufficient evidence to allow conclusions on impact to be drawn (Abadie and Imbens 2009).

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[10] Note that Morduch (1998) and Pitt (1999) have not been formally published, but are available online.

[11] A further two RCTs on microfinance are being conducted by IPA (Innovations for Poverty Action) in Mexico and Mali.

[12] Duvendack et al. (2011) identify the main threats to internal validity as the randomisation procedures, adherence to treatment, attrition (both drop-outs and graduates), behavioural responses of participants to randomisation, and spill-over and spill-in effects.

In 2009 Banerjee and colleagues (2009a) released a paper about the field experiment on the impact of access to micro-credit on the poor they conducted with Spandana in Hyderabad in India, in which they found no effect on poverty levels. The same year saw Karlan and Zinman (2009) releasing their publication on the impact of access to micro-credit in Manila in the Philippines, with similar results of no change in poverty. The first field experiment about the impact of micro-savings (through a commitment savings account) was undertaken by Dupas and Robinson (2009) in rural Kenya, where they found a positive impact on business investment and household expenditure and income.[13] In 2011 the findings of an RCT about access to micro-credit in rural Morocco was released, showing 'little or no effect on average consumption as well as on other outcomes such as health, education, etc.' (Crépon et al. 2011:1). In an RCT in Mongolia Attanasio et al. (2011) compared the impact of individual and group lending, and found mixed effects, with the impact of individual lending in general weaker than that of group lending, but with no evidence of change in income levels due to either lending model. A further RCT was conducted in Bosnia and Herzegovina on the impact of individual micro-credit provided by a non-profit MFI (Augsburg et al. 2012). They found that 'access to credit allowed borrowers to start and expand small-scale businesses but that the impact on consumption and other outcome variables was heterogeneous' (Augsburg et al. 2012:i).

This turn[14] to experimental research design to show effectiveness has not only taken place in the microfinance – and development - field, but for various other policy interventions. Esther Duflo and colleagues (2004) stated: 'Rigorous evaluations through randomised experiments can revolutionise the social policies of the 21st century as randomised experiments have revolutionised the 20th century medicine.' Her book, written with Abhijit Banerjee, *Poor economics* (Banerjee and Duflo 2011), as well as Dean Karlan and Jacob Appel's (2011) book *More than good intentions*, are seen as the standard bearers of this approach to development.

But using an RCT as an evaluation tool of social and development interventions has been hotly debated – see, for example, Algoso (2011), Banerjee and Duflo (2011), Bellemare (2011), Blattman (2011a), Blattman (2011b), Buckley (2010), Carr (2011), Deaton (2009), Devarajan (2011), Donaldson 2009, Glennerster and Kremer (2011), Goldacre (2011), Haddad (2011), Kristof (2011), Lindley (2011), Ravallion (2009, 2011), Subramanian (2011) and Week (2011). Hughes and Hutchings (2011) indicate differing epistemologies as underlying the debate on the use of RCTs in social settings. The positivists, they argue, view RCTs as the 'gold standard' of evaluation, and judge other evaluation designs in the light of how close they replicate RCTs. An hierarchical order, based on internal validity, would thus be RCTs, pipeline designs, with/without comparisons, natural experiments and general purpose surveys (Duvendack et al. 2011). Constructionists, on the other hand, question objective measurement of social change through, for example, RCTs, and

[13] A further two RCTs on micro-savings with preliminary findings have been conducted in Chile (on insurance through savings) and Malawi.

[14] Rogers (2010) indicates that basing public policy on empirical evidence is not new, but includes experimental designs in the 1960s, action research in the 1970s, performance indicators in the 1980s, and in the 1990s and 2000s methods such as case-control designs and propensity scores taken from epidemiology, statistics, philosophy and complexity science.

prefer the use of qualitative and participatory research designs. As always, in practice neither is without problems. While the most reliable method to establish a counterfactual is in theory an RCT (Duflo et al. 2004), in practice in social settings these are expensive to run, take time, raise ethical concerns, run the risk of spill-over effects, are not double-blind, and lack contextual complexity, theoretical framework and external validity[15] (Algoso 2011, Bamberger et al. 2010, Barrett and Carter 2010, Bhargava 2008, Cartwright 2007, Chambers et al. 2009, Duvendack et al. 2011, Jones 2009, White 2011). For others it is the lack of theory, and concerns about time-sensitivity and surrogate endpoints that weaken RCTs (Deaton 2009, Labrousse 2011). Furthermore, in the microfinance field, identifying a community that has not already received microfinance interventions in order to run a prospective trial is not straightforward (Odell 2010).[16] White (2011) also highlights that RCTs are inappropriate to evaluate a small number of interventions. And given that RCTs measure the average estimate of effect, the distribution of impacts remains unknown (Deaton 2009), unless such stratification is built into an RCT from the start. Finally, Rogers (2010) identifies three types of interventions, and while RCTs might work for simple single linear interventions, the impacts of complicated (involving multiple components or processes) and complex (dynamic and emergent) interventions – which is what most development interventions are - cannot so easily be measured. This is similar to Auerswald's (2011) appeal that 'the fundamental issue is not the purity of the methodology employed ... but rather the inherent complexity of the world being studied.'

Yet, despite these various challenges, in terms of dealing with self-selection bias and showing causality, a well planned and executed experimental research design arguably remains the best available tool to show causality and thus to measure effectiveness. Furthermore, Cook et al. (2008), Deeks et al. (2003) and Kunz et al. (2007) have showed that quasi-experimental designs generate similar findings to RCTs when designed carefully with appropriate statistical methods and careful matching on relevant characteristics. And Rogers (2010:195) reminds us that '[t]he quality of evidence about effectiveness should be judged not by whether it has used a particular methodology, but whether it has systematically checked internal and external validity, including paying attention to differential effects.' A further factor to consider is that while an RCT can indicate *what* (on average) the impact of an intervention is, it does not shed light on *why* that impact occurs, which Blattman (2011c) and Deaton (2009) argue matters more than whether it works. Hughes and Hutchings (2011) refer to this as a mechanism-based approach[17], and for them the best scenario is when counterfactual and mechanism-based approaches are used together. Thus considering good quality experimental *and* non-experimental study designs can help to say not just whether microfinance works, but also why (or why not) it works, for whom and in what circumstances (Rogers 2010). And given that 'microfinance is not a single tool but a collection of

[15] Econometric studies have higher external validity since they draw on a bigger data pool across a larger geographical span, but their internal validity is lower.
[16] Duvendack et al. (2011) highlight as specific problems of microfinance RCTs, proper randomisation of intervention allocation and/or double blinding.
[17] An example of this approach is process tracing – for more on this see George and Bennett (2005) and Reilly (2010).

tools' serving different clients with different services in difference contexts (Odell 2010), answers to what, for whom, in what circumstance and why are crucial.

Systematic reviews

A systematic review is a methodology of identifying, synthesising and assessing the findings of various rigorous studies (both quantitative and qualitative) to answer a focused question. Petrosino and colleagues (quoted in van der Knaap et al. 2008:49) describe systematic reviews as 'the most reliable and comprehensive statement about what works'. For this reason they are increasingly applied in the development field; big international development donors such as DFID, USAID (US Agency for International Development) and AUSAid (Australian Agency for International Development) have recently started using the systematic review as a methodology to assess the effectiveness of various development interventions to support evidence-informed policy decision-making. It is the commitments made by such development donors to measure effectiveness of aid – through the 2002 Monterrey statement, the 2005 Paris Declaration on aid effectiveness and the 2008 Accra Agenda for action – that means systematic and rigorous assessment of development interventions are needed. Systematic review methodology was pioneered in health care in the 1980s as a means to collate and synthesise the findings of RCTs, but has since been extended to fields of health promotion, social welfare, education, and crime and justice (Ashman and Duggan 2004, Cordingley 2004, Davies 2004, EPPI-Centre 2011, Wilson et al. 2003), and most recently development (see articles in the new *Journal of Development Effectiveness*). Initiatives such as the International Initiative for Impact Evaluation (3ie), the Evidence-based Policy in Development Network, and the International Development Coordinating Group set up in the Campbell Collaboration in 2011 reflect this growth in systematic reviews in the development field.

One of the key advantages of following a systematic review methodology is the rigour and transparency followed in summarising research evidence. Especially in such a highly-charged political field as development, such thoroughness and openness makes engagement on what works, and what not, easier. A systematic review further highlights what is lacking in terms of rigorous impact studies. And while systematic reviews in health care were not per se concerned with why something works, since their adoption in the field of social policy, this has become important. By considering a theory of change when developing the protocol of a systematic review, and then revisiting it once the evidence has been sourced, we can consider why some interventions work (or not). Developing such a causal pathway helps in considering context, which is crucial for development interventions, and enables policy-makers and practitioners to better design interventions – see Weyrauch and Langou (2011) for the need to shift from impact evaluations to policy change.

Yet systematic reviews of evidence of effectiveness are not a silver bullet answer to questions of importance in development. For one, a process of analysis is required to translate the synthesised findings into policy-relevant recommendations. Further, the practice in systematic reviews of upholding RCTs as

a gold standard[18] in a hierarchy of evidence for evaluating impact is hotly debated in the development field, as indicated above. Conducting systematic reviews in a rigid manner in a field that is complex and dynamic is near impossible. For Hagen-Zanker et al. (2012) adhering to the principles of systematic reviews, namely rigour, transparency and replicability, remains important though. Another consideration is what Clemens and Demombynes (2010) call luxury versus necessity, and what we call transparent pragmatism rather than purity (Stewart et al. *in press)*; achieving rigour in research is costly, both financially and time-wise, leading practitioners to accept 'less' rigorous research wherein less is made of quantifiable outcomes. In this context Hulme (2000) argues for achieving 'fit' as an acceptable level of rigour.

1.2 The rationale for a new systematic review

It is in a context of increasing variety in the interventions offered within microfinance, and the claims made for their success, that DFID funded two systematic reviews in 2010: one of micro-credit worldwide (Duvendack et al. 2011), and another of micro-credit and micro-savings in sub-Saharan Africa (Stewart et al. 2010a, 2010b). A third systematic review was funded by 3ie. The latter initially set out to focus on women's empowerment (Vaessen et al. 2009), but has subsequently focused only on women's control of household finances (Vaessen et al. 2010). Our review (Stewart et al. 2010b) was completed in late 2010. In this review we concluded that micro-credit and micro-savings have mixed impacts on the poor in sub-Saharan Africa, with both positive and negative impacts on their wealth and their livelihoods. Through the development and testing of a causal pathway, we were able to conclude that micro-savings appears to be a more successful intervention in sub-Saharan African than micro-credit, both in theory and in practice. Duvendack and colleagues (2011) focused on worldwide impacts, with the majority of the review addressing the shortcomings of the methodologies employed in the available studies, and very little information about or discussion of microfinance itself. We still await publication of the third review. The scope of these recent and ongoing reviews is illustrated in Figure 1.1 below, which makes it clear that the work which we will pull together in this current review and the new areas which we cover below.

It was noted, back in 2006, that 'there exists a noticeable gap in the microfinance literature on the impact of savings on clients, micro-enterprises, households, communities, and financial institutions' (Devaney 2006). Given the findings of our sub-Saharan African review regarding the potential for savings, and the limited consideration of evidence of savings in Duvendack and colleagues review[19] (Roodman 2011b), further review was clearly needed of the impacts of micro-

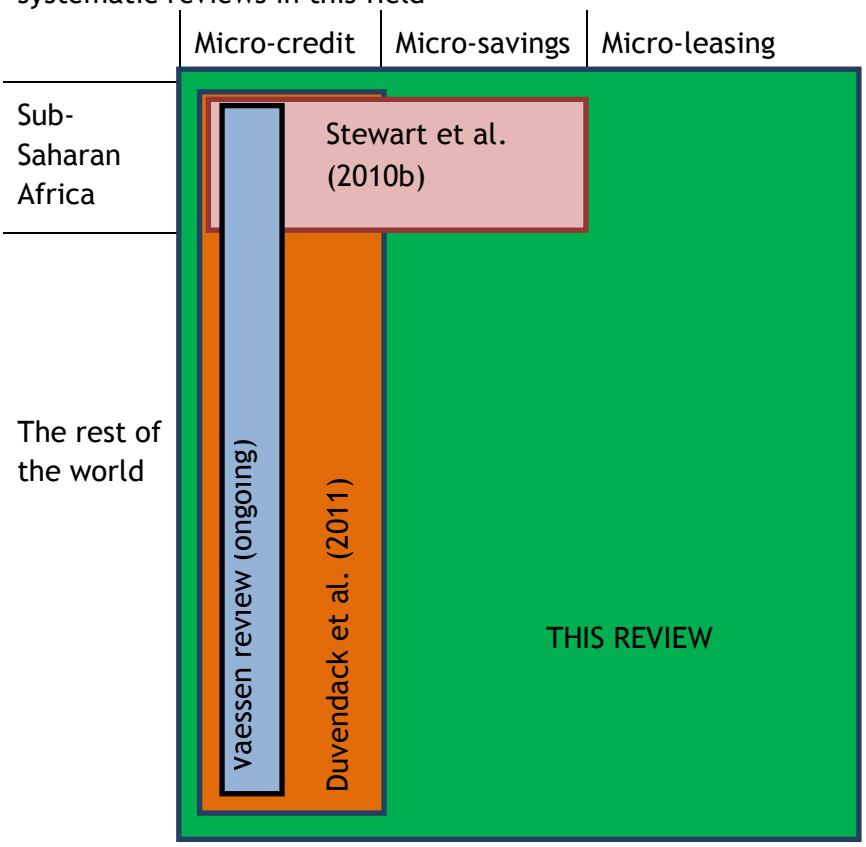
[18] The methodological minimum standard for assessing causality and attributing impact is measurement of double-difference according to the Campbell Collaboration (2011).

[19] While the title of Duvendack and colleagues' review (2011) implies that they look at evidence of other microfinance interventions in addition to credit, they in fact searched only for evidence of micro-credit and then reported findings from those studies on credit which also considered savings. Despite this later inclusion of evidence on micro-savings, this was not actually a systematic review of the evidence on micro-savings as their searches and their inclusion criteria did not focus on savings.

savings worldwide. There is also within DFID considered to be a need to bring together the evidence on micro-credit from all three systematic reviews to consistently consider questions regarding the impact on financial inclusion, and in particular on women entrepreneurs.

With concerns about the effectiveness of micro-credit, micro-leasing has become an increasingly attractive alternative. Micro-leasing is the leasing of assets to the poor to alleviate poverty by enabling those usually unable to access productive assets to generate income. In the main, there are two types of leasing, financial leasing (after the period of leasing the asset is owned by the lessee) and operational leasing (after the period of leasing the asset returns to the lessor) (Deelen et al. 2003, Goldberg 2008). This form of micro-loan should, in theory, be more successful in enabling the borrower to increase their income as, unlike cash loans, the leased resource is inherently productive. Furthermore, the lessee and the lessor both stand to benefit. There are two distinct financial lease models: financial leases in which the lessor retains the financial responsibility for the leased asset, and operational leases in which the lessee takes on this role. While we are aware of evaluations of micro-leasing (Dowla 1998, Heyn 2001, Pinder 2001), micro-leasing has not yet been considered within a systematic review and there is clearly a need to identify and review the evidence of impact of this promising form of microfinance.

Figure 1.1: Interventions this review covers in relation to completed and on-going systematic reviews in this field



This review considers micro-credit, micro-savings and/or micro-leasing when they impact on:

- engagement in economic opportunities; and/or
- the outcomes of economic engagement.

Lastly, while all three systematic reviews on microfinance either have considered, or will consider, the evidence on women's empowerment, none of them focus on the impacts of micro-credit, micro-savings or micro-leasing on the financial inclusion of women and their engagement in economic activities. The MDGs include 'the promotion of gender equality and empowerment of women'; however, the UN (United Nations) has voiced concerns that specific action is needed to achieve this objective, particularly in the current economic climate (UNDP 2008, 2009). Three core dimensions of women's economic empowerment have been identified as (UNDP 2008):

i. Economic opportunity.

ii. Legal status and rights.

iii. Voice, inclusion and participation in economic decision-making.

Despite moves to prioritise women's financial inclusion, it is not yet known whether generic initiatives are benefitting women, or whether those that target women specifically are more effective. Lending to women is known to be a key part of many micro-credit programmes as women were historically more marginalised from formal financial services than men, women make up the majority of the world's poor and poorest, women are primarily responsible for household welfare, and because women are perceived as responsible borrowers who invest more in their families and who pay back monies owed (Cheston and Kuhn 2002, Young 2010). In fact, in the late 2000s AUSAid estimated that worldwide two-thirds of microfinance clients were women (quoted in APPGM 2011:35). The father of the micro-credit movement, Mohammad Yunus (1999:72), wrote 'Poor women see further and are willing to work harder to lift themselves and their families out of poverty. They pay more attention, prepare their children to live better lives, and are more consistent in their performance than men. … Thus money entering a household through a woman brings more benefits to the family as a whole.' In the 1990s the World Bank started focusing on micro-credit to women as part of its 'women in development' focus (Young 2010). While women in general are seen as doing better with the loans they are provided, Tom Murphy (2011) reminds us that women (and girls) should be the focus of microfinance, not because of their gender as such, but because they are marginalised.

The evidence to support the emphasis on women and female-headed enterprises is, however, not yet established. Systematically reviewed evidence from sub-Saharan Africa is inconclusive (Stewart et al. 2010b). Data from Uganda suggest that women's decision-making power increases when they have access to micro-credit (Wakoko 2004). A trial in South Africa found a marked improvement in women's ability to negotiate safe sexual practices (Pronyk et al. 2008), but this was likely to be due to other arms of the intervention that focused on women's empowerment, as opposed to micro-credit alone. De Mel and colleagues (2009), in their trial of providing capital to micro-enterprises in Sri Lanka, found that men's businesses did better with the additional capital, yet women's did not, while a study of Zambuko in Zimbabwe found no evidence that women's control over business earnings increased, although there were indications of greater consultation by men and more joint decision-making (Barnes et al. 2001). In light of this varied evidence,

and uncertainty as to the impacts of these microfinance interventions on women and their businesses, there is clearly a need to collate and review all the available evidence on what enables women to become engaged in meaningful economic opportunities, and also whether those interventions which specifically target women are more or less successful than those that don't. This new review explores both of these areas.

The scope of this review has been developed through discussions with DFID policy leads on financial inclusion from the Private Sector Department, and the research lead on gender from the Growth Research team. Together we have agreed to focus on whether and how micro-credit, micro-savings and micro-leasing serve as effective financial inclusion interventions enabling poor people, and especially women, to engage in economic opportunities in low- and middle-income countries (LMICs). The specific review questions are outlined in section 1.4 below.

There is clearly a strong need for rigorous systematic reviews to bring together the available evidence of the impact of microfinance interventions on the poor, and women. As we will see in this review, past work suggests that microfinance works for some people and not for others. Rather than establishing conclusively whether or not microfinance reduces poverty, we anticipate the value of future reviews will be in identifying how and in what circumstances financial inclusion interventions[20] work for the poor.

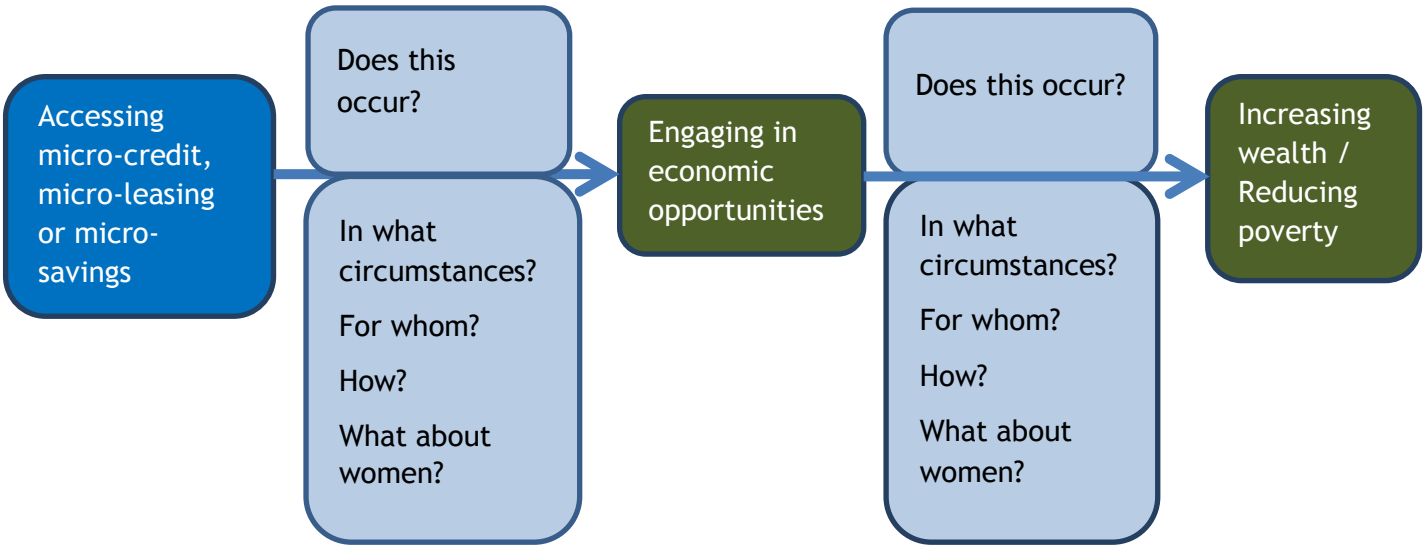
1.3 Definitional and conceptual issues

This section outlines and defines the key concepts that are addressed in this review, illustrated in our simple causal pathway below. Bauchet and colleagues (2011) give the narrative of micro-credit as providing small loans to capital-constrained micro-entrepreneurs who then earn a high return on the loans to be able to repay a relatively high interest rate, and re-invest in their businesses to grow further, and eventually move out of poverty. Figure 1.2, while an over-simplification of the complexities of microfinance, illustrates the main assumptions explored in this review and highlights in red the questions we address (criteria for which studies have been included and excluded from the review are listed in Appendix 1.2.).

We review the available evidence of impact and develop and test a complex causal pathway to explore the circumstances in which micro-credit, micro-leasing and micro-savings are effective, how and for whom. In doing so, we explore the following model asking (i) whether access to micro-credit, micro-leasing or micro-savings enables people to engage in economic opportunities, and (ii) whether such engagement increases their wealth, defined for the purposes of this review as financial wealth (see section 1.3.3 for more detail). In each step we ask whether this occurs, and if so, in what circumstances, for whom, how and in particular whether it benefits women.

[20] With regard to micro-credit, for example, APPGM (2011) identifies three types of micro-credit providers, namely commercial, sustainable not-for-profit and donation-supported not-for-profit.

Figure 1.2: A simple causal pathway to demonstrate the focus of this review



1.3.1 Interventions: micro-credit, micro-leasing and micro-savings

This review focuses on three of the largest financial inclusion services: micro-credit, micro-leasing and micro-savings, and considers each in isolation, and in combination with one another and with other wider interventions.

Micro-credit: The provision of small loans to the poor, usually in cash, although occasionally in kind (e.g. provision of livestock in Rwanda [Lacalle et al. 2008]). Interest rates vary considerably, but are often between 20 percent and 40 percent per year.[21] Roodman (2012) hints that as MFIs mature, rigid terms tend to be relaxed, leading to, among other things, lower interest rates. While a number of MFIs charge a flat rate on the full amount borrowed, there is a shift to charge interest on the declining balance. Further, charging a variable interest has become more common, meaning that the rate is not fixed over the loan period but rather fluctuates, based on another interest rate, usually the prime rate. Concerns about high interest rates have to do with the 'morality' of the poor having to pay high costs and potential profiteering off their backs. It raises a seeming conundrum between what poor borrowers can afford to pay, and the financial viability of increasingly commercialised MFIs. Other issues of micro-credit are transparency, reliability and flexibility (Roodman 2012). While traditionally, micro-credit has been offered using a group model with shared collateral, loans are increasingly available to individual borrowers. Both broad approaches to micro-credit are considered in this review.

Micro-leasing: 'Financial leasing is a contractual arrangement between two parties, which allows one party (the lessee) to use an asset owned by the other

[21] An extreme case is that of Compartamos in Mexico which, after its initial public offering in 2007, charged an interest rate of 85% (before value added tax) per year; this led to charges of profiteering.

(the lessor) in exchange for specified periodic payments. The lessee uses the asset and pays rental to the lessor, who legally owns it' (Gallardo 1997). Micro-leasing is thus the leasing of assets to the poor to alleviate poverty by enabling those usually unable to access productive assets to generate income. In the main, there are two types of leasing, financial leasing (after the period of leasing the asset is owned by the lessee) and operational leasing (after the period of leasing the asset returns to the lessor) (Deelen et al. 2003, Goldberg 2008).

Micro-savings: The availability of deposit services, sometimes purely stand-alone savings accounts, but often linked to credit, either as a compulsory condition of having a loan, or sometimes part of a combined intervention in which a group saves, and then members are allowed to borrow from their shared savings resource. The types of micro-savings services thus vary, are offered by various types of providers, and function both as protection (to ameliorate the impact of shocks) and promotion (to build an asset base) (Hulme et al. 2009).

Other linked interventions: Micro-credit, micro-leasing and micro-savings can be provided alone, or in combination with each other. They are also often provided in combination with other financial interventions including micro-insurance and money transfer facilities, training in the effective use of financial services, such as market skills training, and as social, educational or health interventions. Examples of the latter include the provision of gender empowerment training and support in negotiating sexual relationships (Pronyk et al. 2008); and the provision of a combination of support for smallholder farmers about how to switch to export crops, with in-kind credit, as part of a programme known as DrumNet (Ashraf et al. 2008).

Where possible, we have documented the sequence of financial inclusion instruments accessed by clients in order to understand the implications for their impacts on clients' engagement in economic opportunities and the impacts of this on their wealth. This review aims to understand not only whether these interventions work, but also how and in what circumstances. As explained in our methodology, this has been achieved through the characterisation of the interventions (outlined in section 2.2.4) and through our synthesis (outlined in section 2.4 – see particularly section 2.4.1.4).

Actual take-up of microfinance, not access

There are two different aspects of microfinance that are examined in the impact literature: the impact of access to services and the impact of take-up of services. While examining the impact of offering people financial services is of interest, as is whether and how best to increase take-up, these issues are outside the scope of this review. We are interested in the impact of using services.

While the offer of a savings account and actually having a savings account could be argued to be similar interventions (both enable someone to make deposits and save money should they wish to), the offer of a loan, and actually taking a loan are qualitatively and significantly different (the offer of a loan comes with no obligation whereas having a loan comes with requirements for repayments and consequences of late or non-payment). A number of studies have explored the

impact of access to (the opportunity of) micro-credit and argued that this reflects the policy decision of whether or not to offer these services (for example, Karlan and Zinman 2010). Furthermore, it cannot be assumed that 100 percent of people offered a loan actually take one. We want to explore the extent to which use of microfinance services impacts on engagement in economic opportunities and, where this engagement occurs, whether these economic opportunities are meaningful. We are therefore not including studies of the impact of access to micro-credit in this review.

1.3.2 Outcomes: engaging in economic opportunities

We consider the impacts of these interventions on clients' engagement in economic opportunities. These opportunities include starting a business or investing in someone-else's. This may include setting up a micro-enterprise, or extending/growing an existing enterprise, opening a market stall, or sowing a cash crop.

Furthermore, we sought out data on the time taken for these interventions to impact on clients' engagement in economic opportunities, in order to identify whether prolonged participation in micro-credit, micro-savings or micro-leasing is likely to increase or decrease clients' engagement in economic opportunities. Unfortunately data on the time lapse between intervention and follow-up were rarely available and reported inconsistently. Some studies reported change over time, but the time since the services were first accessed (e.g. since a loan was first taken out, or a savings account opened) was not reported.

1.3.3 Outcomes: increasing wealth

This review considers the financial outcomes of these interventions. These include outcomes such as 'returns to capital', 'increases (or decreases) in capital stock', 'increases (or decreases) in profit', 'fixed asset investment', etc. We have captured the wealth outcomes reported in included studies and classified these in terms of income and assets. They include both increases and decreases in income, expenditure and accumulation of assets, whether financial assets (i.e. savings) or non-financial assets. Each is considered at the individual, household and business level.

We note that increases in expenditure may not necessarily equate to improvements for the poor, as while more spending might suggest a higher standard of living, it may also relate to a reduction in financial security and a reduced scope for consumption-smoothing in times of limited income.

We also acknowledge that income-smoothing may be important as well as simply increases in income. Where available within the reviewed studies we highlight impacts on income-smoothing; however, this is not something which is always measured and without consideration of longer-term outcomes, may be hidden among the focus on shorter-term increases and decreases in income which are easier to measure.

Where available, specific details of non-financial accumulated assets have been noted and a distinction made between immediately productive assets (the purchase

or lease of which will be considered engagement in economic opportunities), potentially productive assets (such as extending the size of the house), and non-productive assets (such as food or clothing).

We hoped that we would be able to distinguish in this review between the impacts of single and multiple usage of financial services on these wealth parameters to understand the cumulative impacts of engagement with microfinance. Unfortunately this is not possible due to the limited number of studies and the levels of available detail within them, for example, on the number and nature of services accessed over time. We had also hoped to consider both short- and long-term impacts of microfinance on indicators of wealth, but none of the studies included in the review measured outcomes beyond two years making this impossible. This is discussed further in our results.

1.3.4 Geographical location: low- and middle-income countries

This review focuses on low-income, lower-middle-income, and upper-middle-income countries as defined by the World Bank (http://data.worldbank.org/about/country-classifications). The main criteria for classifying countries are based on gross national income (GNI) per capita. A full list of countries that meet the World Bank criteria, according to 2010 GNI per capita, was compiled and used to screen studies for inclusion.

Further, DFID has recently identified 27 priority countries[22], as well as announcing a focus on fragile states (DFID 2011). For the purpose of this review, we drew on Dickson et al. (2011)'s working definition of a fragile state, referred to as a country that lacks capacity and/or willingness to deliver core services needed to the population, in particular to the poor (DFID 2005). A list of 46 fragile states categorised by DFID was used (see Appendix 2.1) (Chapman and Vaillant 2010).

1.3.5 Considering how these interventions might work to increase wealth and reduce poverty for poor clients in low- and middle-income countries

Consideration of the extent to which microfinance impacts on financial outcomes for clients requires further consideration of causal pathways. Given the differing nature of micro-credit (which is a largely dynamic intervention, with obligations for collateral often shared with others, regular repayments and high interest rates) and micro-savings (which can, in most circumstances, be a 'static' intervention), we explore these from three different, yet related, starting points: one of micro-credit which includes studies with an element of micro-savings, another of micro-savings alone, and a third of micro-leasing (see Figure 1.3).

In Figure 1.3 we present how microfinance clients might choose to spend or save their money and how this impacts on their financial wealth and security. Savings accounts, on the one hand, if clients have excess money to save, can, in theory, enable accumulation of financial assets and thus increase security and the scope to

[22] These are: Afghanistan, Bangladesh, Democratic Republic of Congo, Ethiopia, Ghana, India, Kenya, Kyrgyzstan, Liberia, Malawi, Mozambique, Myanmar, Nepal, Nigeria, Occupied Palestinian Territories, Pakistan, Rwanda, Sierra Leone, Somalia, South Africa, Sudan, Tajikistan, Tanzania, Uganda, Yemen, Zambia and Zimbabwe.

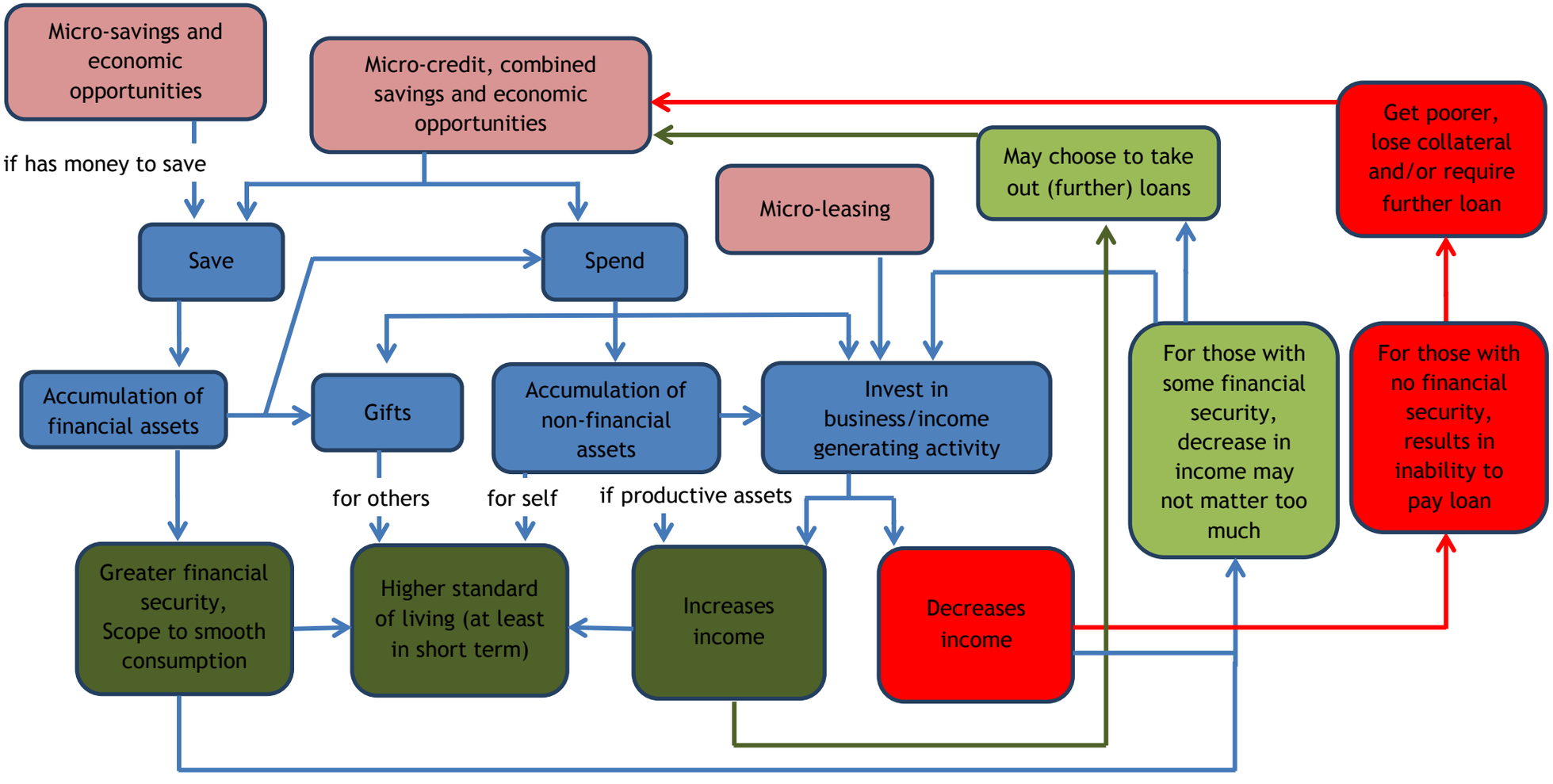
smooth consumption. If these clients have a fall in their income at any stage, these savings have the potential to provide a cushion and these clients may choose to invest their savings in their businesses in the future.

Micro-credit clients, on the other hand, have a requirement for repayment. While accumulating non-financial assets or making gifts to family members may increase their own and others' standards of living in the shorter term, this will not enable them to repay their loan unless they also increase their income. For conventional micro-loans which usually have a high interest rate, clients have to make considerable return on a small capital investment quickly (often within a week), to be able to make their repayment. Some clients will have some financial security which may help with repayments, but for the poorest of the poor a failure to increase their income sufficiently will result in the loss of the collateral used to secure the loan in the first place and/or a requirement for further loans and a potential cycle of debt. This is not to say that the poorest of the poor will necessarily face more difficulty in repaying proportionate loans, but that the risks to their quality of life are more severe if they are unable to make repayments.

We have included micro-leasing in this theoretical pathway and indicated how this intervention has the potential to impact more directly on clients' businesses.

Figure 1.3 deliberately includes both positive and negative outcomes of micro-savings, micro-credit and micro-leasing to illustrate how varying outcomes are feasible and to suggest, if only to a limited extent, how the various elements interrelate.

Figure 1.3: A theoretical causal pathway of how micro-savings and micro-credit impact on the financial outcomes of economic opportunities



1.4 Review questions

This systematic review has been guided by the conceptual framework (see section 1.3) and the review questions. The conceptual framework and questions posed in the review were developed through detailed discussion with DFID and informed all aspects of the review methodology including the search strategy, the inclusion and exclusion criteria, data extraction and the approach to synthesis.

The review addressed the following questions:

Do micro-credit, micro-savings and micro-leasing serve as effective financial inclusion interventions enabling poor people, and especially women, to engage in meaningful economic opportunities in LMICs?

i. Do micro-credit, micro-savings and micro-leasing enable poor people to engage in economic opportunities, and if so, which type of economic opportunities?

ii. Does engagement in these economic activities impact on their income, savings, expenditure and accumulation of productive or non-productive assets?

iii. Do these impacts occur at the individual, household or business level?

iv. Where these interventions are effective, how, for whom, and in what circumstances?

v. Where these interventions are delivered in combination with each other and/or with other complementary interventions, such as market development skills, are they more likely to be successful?

vi. Which interventions work better for women, particularly female-headed micro-enterprises?

vii. When interventions specifically target women, particularly female-headed micro-enterprises, are they more successful than those that do not?

In order to develop and test a causal pathway, we drew on the research evidence to describe (where the information was available) (i) the nature of the intervention, its context, its target group(s) and its intended outcomes. Our intention was that by combining this with information with (ii) the evaluations conducted, the populations considered, the outcomes measured and the findings reported, we would be able to consider the effectiveness of micro-credit, micro-savings and micro-leasing according to specific populations, contexts and circumstances, and address each of the questions above. In actual fact, as described in more detail below, in many cases the evidence base is limited in scope and quality making it difficult to draw complete or confident conclusions on any of these questions.

2. Methods used in this review

This chapter outlines the methods we used in this review. It explains how we engaged with the prospective users of this review to ensure it is relevant and useful. We present the kinds of studies we sought for inclusion in the review, how we conducted our searches and how we filtered the search results to ensure we included only the relevant evidence. We explain how the relevant studies were then characterised to enable us to address our review questions, and the criteria used to judge the quality of relevant studies before synthesising the good-enough quality studies to elicit our findings. Lastly, we explain the steps we have taken to assure the quality of our own methods.

2.1 User involvement

2.1.1 Approach and rationale

We engaged with potential users of this review in a number of ways including:

- Circulating our review protocol for feedback
- Requesting relevant literature for inclusion in the review from a range of stakeholders (see section 2.4 below)
- Inviting feedback on our draft report
- Disseminating our final review.

To this end we identified individuals within our own networks and invited them to forward correspondence to others in the field as part of a 'snowballing' exercise. We also exploited social media – drawing on Twitter – to ensure this exercise was as broad as possible.

We sought to incorporate the perspectives of four groups of potential users in this project:

- Those who have commissioned this research, specifically DFID's Research and Evidence department.
- Those who provide microfinance services in order to ensure that our review is relevant and our findings available to them.
- Those who research microfinance services, in order to ensure that our review includes all of the relevant research literature, and that our findings form part of the accumulating evidence base.
- Those who use microfinance services, in order to understand why they access microfinance services and how they use them.

2.1.2 Methods used

We identified and selected individuals in the following ways:

- By liaising closely with DFID's policy leads and asking for recommendations of other individuals who may have an interest in this review.
- By identifying individuals and organisations who provide and/or research microfinance services from among the authors' networks. These were all approached for relevant literature to include in this review. They included:
  - Milford Bateman, Freelance consultant and Visiting Professor of Economics, University of Juraj Dobrila, Pula, Croatia
  - Svetlana Baguduinova from the International Finance Corporation (IFC) Women in Business Unit
  - Daryl Collins who conceived and directed the most recent version of the financial diaries in South Africa (see www.financialdiaries.com) and a senior associate at Bankable Frontier Associates, Boston, USA (www.bankablefrontier.com)
  - Gabriel Davel, CEO, National Credit Regulator, Midrand, South Africa
  - Ralph De Haas, Lead Economist, Office of the Chief Economist, European Bank of Reconstruction and Development
  - Maren Duvendack, International Food Policy Research Institute, USA (author of systematic review on microfinance and a PhD on the impact of microfinance in India and Bangladesh)
  - Saul Estrin, Head of Department of Management, London School of Economics, UK
  - Susan Johnson, Lecturer in International Development, University of Bath, UK
  - Kathleen Odell, Assistant Professor of Economics, Dominican University, USA
  - Jon Robinson, Professor of Economics, Department of Economics, University of California Santa Cruz, USA
  - David Roodman, Senior Fellow, Centre for Global Development, Washington DC, USA
  - Joni Simpson, Job Creation and Enterprise Development Department, International Labour Organization (ILO)
  - Jim Tanburn, Co-ordinator, Donor Committee on Enterprise Development (www.enterprise-development.org/)
  - Chris Woodruff, Professor of Economics, Warwick University, UK
  - Khula Enterprise Finance, a financial organisation in South Africa working with small and medium-sized businesses
  - Micro-Enterprise Alliance, a membership association of African organisations and individuals working in the field of micro-enterprise development
  - The Finmark Trust, a non-profit organisation operating in southern Africa whose purpose is to make financial markets work for the poor.
- By contacting the participants in 'Making Finance Work in Africa', an initiative to support the efforts of African countries to boost economic

growth and fight poverty by encouraging and facilitating financial sector development.

- By consulting with the EPPI-Centre, with whom this review has been registered, and drawing on our networks, we identified peer reviewers with expertise in the methodology, topic area and policy context.
- By gathering the perspectives of the users of microfinance services in Johannesburg, South Africa, through a recently completed study on poverty and livelihoods (De Wet et al. 2008).

These perspectives helped us interpret the findings of this review.

Views collected via the means above were considered and incorporated into the study team's decisions when we:

- Finalised our search strategy deciding exactly where to look for literature for the review and which terms to use
- Revised our protocol following peer review
- Selected studies for inclusion in the review
- Refined our initial findings and conclusions from the review
- Decided how best to disseminate our review.

2.2 Identifying and describing studies

2.2.1 Defining relevant studies: inclusion and exclusion criteria

For the purpose of this review, if different analyses were conducted on the same data, they have been grouped together as one 'study'.

Studies were included and excluded from our review according to the following criteria (see Appendix 1.2):

Intervention: We included only micro-credit, micro-savings or micro-leasing interventions. While micro-insurance and money transfers are also considered part of microfinance, they are recent activities and are not considered 'core' activities of microfinance for the purposes of this review. We included services owned or managed by service users or by others. The impact literature includes studies of the impact of *access* to financial services and studies of the impact of *use* of these services. We focus on the impact of use of services.

Study design:[23] We included only impact evaluations, defined as comparative studies that set out to measure impact (i.e. outcomes, results or effects). These will include: RCTs (sometimes referred to as field experiments); quasi-experimental studies, including those with an ex ante control group selected in

[23] Duvendack and colleagues provide a detailed and technical discussion of the methodological approaches used to assess micro-credit interventions and their strengths and pitfalls in their 2011 review (Duvendack et al. 2011). Rather than repeat the technicalities here, we refer readers with an interest in the intricacies of research methodology to their review.

advance of the intervention, and those with a retrospectively constructed comparison group. These include studies described in the different literatures as: panel data, longitudinal studies, pipeline studies, interrupted time series, natural experiments, and with-and-without studies. We will distinguish further between the study designs employed to measure impact and their quality when we quality appraise relevant studies and synthesise their findings, see section 2.3 below). Both quantitative and qualitative data were included and synthesised accordingly. Studies that do not measure impact of micro-credit, micro-savings or micro-leasing were excluded from the review.

Low- and middle-income countries (LMICs): This review includes LMICs as defined by the World Bank (http://data.worldbank.org/about/country-classifications). The main criteria for classifying countries are based on GNI per capita. A full list of countries that meet the World Bank criteria, according to 2010 GNI per capita, was compiled and used to screen studies for inclusion.

Population: We focused on impacts on poor people, namely those who are recipients of the services of microfinance institutions. In addition, we focused on women (of any age), including any female recipients of micro-savings, micro-credit and micro-leasing interventions, and specifically those who head micro-enterprises.

Outcomes: We consider whether or not recipients of these microfinance interventions engage in economic opportunities. In addition, we identified the financial impacts of these interventions, specifically income, savings, expenditure, and accumulation of both productive and non-productive assets. These impacts were considered at the individual, household and business levels.

Language: We searched for literature in English and therefore the majority of the literature we identified was in English. However, this was not always the case. We had scope within our team to access papers in English, Dutch, German, Portuguese, French, Spanish, Afrikaans, Zulu and Sotho languages and did not exclude any relevant papers in these languages. We committed to listing any potentially relevant literature in other languages in appendices but none was identified.

2.2.2 Identification of potential studies: search strategy

We scanned the studies reported in five published and ongoing systematic reviews (Dickson et al. 2010 Duvendack et al. 2011, Stewart et al. 2010b, Vaessen et al. 2010, Yoong et al. 2010, searched six specialist trial and systematic review databases (JPAL, 3ie, EPPI-Centre Library, Cochrane Library, Campbell Library and DFID's R4D site) and 25 more general electronic bibliographic databases (see Appendix 2.3), as well as Google Books. We also searched 31 organisational websites (see Appendix 2.4), contacted key individuals in the field, searched reference lists of relevant papers and conducted citation searches for key papers.

Micro-credit

Reports on micro-credit (and some of micro-savings in sub-Saharan Africa) were identified from three other systematic reviews which have searched exhaustively for all relevant impact evaluations: Stewart et al. (2010b), Duvendack et al. (2011)

and Vaessen et al. (2010)[24]. While we are confident that these reviews have already identified all relevant impact evaluations of micro-credit, to ensure that we have not missed any recent impact evaluations of micro-credit published since the searches were conducted for these reviews, we also searched the sources detailed below for micro-credit as well as micro-savings and micro-leasing.

Micro-savings, micro-leasing and micro-credit

Reports of micro-savings, micro-leasing and micro-credit were identified from the following sources:

- Specialist sources for published systematic reviews, protocols for on-going reviews, and trials:
    - The Cochrane Library (including CENTRAL for trials)
    - Campbell Collaboration Library
    - EPPI-Centre Library
    - J-PAL
    - 3ie's Database of Impact Evaluation
    - DFID's R4D site

- Online bibliographic databases (see Appendix 2.3 for search terms):
    - Africa Bib (Africa Periodicals Database and Africa Women's bibliography)
    - African Journals Online
    - Arts and Humanities Citation Index (via EBSCO) and included within the Science Citation Index
    - ASSIA (Applied Social Science Index and Abstracts)
    - British Library for Development Studies
    - Business and Dissertation Abstracts (via ProQuest)
    - CAB abstracts (database of applied life sciences)
    - CINAHL (Cumulative Index to Nursing and Allied Health Literature)
    - Conference Proceedings Citation Index – Science (via EBSCO) and included within the Science Citation Index
    - DEReC Development Assistance Committee Evaluation Resource Centre
    - EconLit (Database of economic literature)
    - ELDIS (an online library of development literature provided by the Institute of Development Studies, Sussex, UK)
    - FRANCIS (a multilingual, multidisciplinary database covering the humanities and social sciences)
    - GDNet knowledge base (http://cloud2.gdnet.org/cms.php?id=research_papers_landing_page)
    - IDEAS Economics and Finance Research
    - IBSS (International Bibliography of the Social Sciences)
    - JOLIS (the database of 14 World Bank and International Monetary Fund libraries)
    - Psycinfo (database of psychology literature)

[24] This citation is the review protocol. We are grateful to the authors who kindly provided us with their list of identified relevant studies to scan for inclusion in our own review in advance of publication of their own full review.

- PRISMA (instead of Latindex)
- Search4Development Netherlands
- Social Science Citation Index (via EBSCO) and included within the Science Citation Index
- Sociological abstracts
- TROPHI (Trials Register of Promoting Health Interventions)
- UNESDOC (United Nations Educational, Scientific and Cultural Organisation documents)
- WWPS (Worldwide Political Sciences Abstracts)

We chose not to search two sources as they did not prove as relevant as we had hoped when we planned our review: The WHO library database (WHOLIS) - initial searches revealed no relevant hits so decided not to search this database (not focusing on health outcomes in this review); and Social Assistance in Developing Countries Database (version 5) - this database collates evidence on cash transfers and not other forms of microfinance therefore isn't relevant for this review.

- Search for books via Google books
- Citation searches using Google Scholar and ISI for the following key papers evaluating the impact of microfinance:
    - Ashraf N, Giné X, Karlan D (2008) *Finding missing markets (and a disturbing epilogue): evidence from an export crop adoption and marketing intervention in Kenya*. Policy Research Working Paper 4477. The World Bank Development Research Group.
    - Banerjee AV, Duflo E, Glennerster R, Kinnan C (2009a) *The miracle of microfinance? Evidence from a randomised evaluation*. Washington DC: CGAP.
    - Dupas P, Robinson J (2009) *Savings constraints and microenterprise development: evidence from a field experiment in Kenya*. National Bureau of Economic Research.
    - Karlan D, Zinman J (2010) Expanding credit access: using randomised supply decisions to estimate the impacts. *Review of Financial Studies* 23(1): 433–464.
    - Odell K (2010) *Measuring the impact of microfinance: taking another look*. Washington DC: Grameen Foundation.
    - Pronyk PM, Kim JC, Abramsky T, Phetl G, Hargreaves JR, Morison LA, Watts C, Busza J, Porter JDH (2008) A combined microfinance and training intervention can reduce HIV risk behaviour in young female participants. *AIDS* 22(13): 1659–1665.
    - Roodman D, Morduch J (2009) *The impact of micro-credit on the poor in Bangladesh: revisiting the evidence*. Working Paper No. 174. Washington DC: Centre for Global Development.
    - Ssewamala FM, Ismayilova L, McKay M, Sperber E, Bannon W Jr, Alicea S (2010) Gender and the effects of an economic empowerment program on attitudes toward sexual risk-taking among AIDS-orphaned adolescent youth in Uganda. *Journal of Adolescent Health* 46(4): 372–378.

- Searching the reference lists of related systematic reviews including:
    - Dickson K, Bangpan M, Armes, D (2010) *Which interventions, that have sought to increase young women's access to economic assets in low-income and fragile state settings, have been effective? A protocol*. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.
    - Duvendack M, Palmer-Jones R, Copestake JG, Hooper L, Loke Y, Rao N (2011) *What is the evidence of the impact of microfinance on the well-being of poor people?* London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.
    - Stewart R, van Rooyen C, Dickson K, Majoro M, de Wet T. (2010b) *What is the impact of microfinance on poor people? A systematic review of evidence from sub-Saharan Africa. Technical report*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.
    - Vaessen J, Bastiaesen J, Bonilla S, Holvoet N, Leeuw F, Lukach R, Rivas A (2010) *The effects of microcredit on women's control over household spending in developing countries*. 3ie Synthetic Reviews – SR003-1.
    - Yoong J, Rabinovich L, Diepeveen S (2010) *What is the evidence of the impact on family wellbeing of giving economic resources (micro-credit, cash or asset transfers) to women relative to the impact of giving them to men?* RAND Corporation.

- References on the following key websites (see Appendix 2.4):
    - Africa Microfinance Network
    - African Enterprise Challenge Fund
    - African Development Bank
    - Centre for Global Development, Washington DC, USA
    - CGAP
    - DFID, UK
    - Donor Committee on Enterprise Development
    - FINCA
    - Finscope
    - GIZ (the German International Aid Corporation, previously known as GTZ)
    - Governance and Social Development Resource Centre (GSDRC)
    - Grameen Bank
    - Innovations for Poverty Action (IPA)
    - IFC
    - International Food Policy Research Institute
    - International Fund for Agricultural Development
    - International Growth Centre
    - ILO's (ILO) Social Finance Unit
    - ILO's Women Entrepreneurship Development
    - Microfinance Gateway
    - Microfinance Information Exchange (MIX)
    - Microfinance Network

  - MicroSave
  - Overseas Development Institute
  - Policypointers
  - Rockefeller Foundation
  - Search4development Netherlands
  - Small Enterprise Education and Promotion (SEEP) Network
  - United Nations Capital Development Fund (UNCDF)
  - United Nations Development Programme (UNDP) Poverty Centre
  - USAID
  - World Bank
  - World Bank Enterprise Surveys
  - World Bank's Sustainable Banking with the Poor project
- Requesting papers from key contacts, listed in section 2.1.2 above.
- Reference lists of included papers as they were identified
- The J-PALs impact studies of microfinance, and the published reviews and impact evaluations on the website of 3ie.

Searches of all sources were limited so as to identify studies conducted since 1990. Brau and Woller (2004) argue that before the mid-1990s academic journals published very few articles on microfinance, but the publication of peer-reviewed articles on the topic has since increased.

We employed the EPPI-Centre's specialist software, EPPI-Reviewer (version 4), to keep track of and code studies found during the review.

2.2.3 Screening studies: Applying inclusion and exclusion criteria

Inclusion and exclusion criteria were applied successively in the following steps:

i. Two researchers (RS and CvR) independently scanned 100 titles and abstracts for studies of micro-credit, micro-leasing or micro-savings, compared their results and discussed how they were applying the inclusion criteria. One researcher (RS) then continued scanning all remaining titles and abstracts, excluding those which were not of microfinance interventions. If in any doubt, she included studies at this stage.

ii. Two researchers (RS and CvR) independently scanned 100 full reports to assesses whether or not they met all of the inclusion criteria (outcome evaluations; of micro-credit, micro-leasing or micro-savings interventions; assessing relevant impacts on the poor; in LMICs; since 1990; comparing outcomes among those receiving the intervention and those without). If in any doubt, a study was included. As their decisions matched 100 percent, they then divided the remaining full texts between them and applied the inclusion criteria separately. In order to be confident that they weren't excluding any relevant studies by mistake, a further 100 of the studies excluded by either reviewer were double-checked and again 100 percent consistency in decisions was achieved.

iii. When coding studies and applying the quality criteria, a further 200 studies were again checked by at least two researchers (of RS, CvR and MK) to ensure

relevance to this review and some excluded (see Figure 3.1 for details of included studies and the reasons for excluding some).

2.2.4 Characterising included studies

Included literature was characterised using a coding tool (see Appendix 2.5).

Literature was described in terms of the date of publication and language.

Papers describing the same study were combined on the database as 'linked documents'. A note was also added to the database record if more than one study drew on the same dataset.

Each microfinance intervention being evaluated was then characterised according to whether it included micro-credit, micro-leasing or micro-savings, and whether these were provided in partnership with micro-insurance, money transfers and/or other non-financial services such as financial literacy or business training. Both the combination and the sequence of the interventions were noted. The provider of the intervention and the recipients were also described, including whether the study specifically targeted particular populations, as well as the country or region in which the intervention was offered and the setting (i.e. in an urban or rural environment). Using the country codes, studies were also categorised according to whether they took place in low-income, lower-middle or upper-middle-income countries, whether or not they were 'fragile states', and whether or not they were DFID priority countries. The model of microfinance institution was noted in terms of the financial backing (whether formal banks, government, NGO or self-help models) and in terms of the recipients (whether group, individual, or a combination of both).

The intervention was further characterised according to the 'dose' (e.g. size of loan and repayment period) and the timescales of both the interventions and the study were noted. This included the length of time the clients had been engaged in microfinance (e.g. first, second, third loans) and the length of exposure assessed by the study (i.e. whether impacts are being assessed a number of weeks, months or years after the client accessed the financial service).

The study itself was then characterised according to its design. The outcomes assessed were described in relation to engagement in economic opportunities, and specific financial impacts such as income. The study methods were recorded including details of sampling of both intervention and control groups, data collection and analysis. Steps taken by the authors to account for potential biases were noted. The potential for bias and any mitigating actions by the authors were used to weigh the evidence according to quality, as explained in detail in section 2.3 below.

If studies lacked information to allow us to characterise the intervention, population, study design or biases within the methodology, we sought related publications which might contain this missing information. If this information was still unavailable, these studies were excluded from the review. The results of our searching and screening, including the numbers of studies excluded for missing information, are reported in Chapter 3.

2.3 Assessing quality of studies

We drew heavily on EPPI-Centre methods and those employed in our sub-Saharan African microfinance review (Stewart et al. 2010b), adapting the tool for appraising studies used in that review. First, we weighed the studies by study design and then applied the quality criteria to all studies.

2.3.1 Weighting studies by study design

We included in our review a range of study designs. While the terminology varies according to the academic discipline, we used the following dimensions to indicate the risk of bias within study design:

i. Retrospective (e.g. panel data) vs prospective ex ante studies (e.g. trials).

ii. Random allocation to those with the intervention and control groups without it vs no randomisation.

iii. Comparing groups with and without the intervention using before-and-after data vs comparing groups with and without the intervention that have no data prior to the intervention.[25]

As explained below, and based on these principles, when synthesising findings and drawing out implications we distinguished between data from:

- RCTs (i.e. prospective studies with random allocation to intervention and comparison groups including before-and-after data for both groups).
- Other quasi-experimental studies which compare groups with and without the intervention using before-and-after data. These included some form of compromise, either because they were not ex ante or because they did not randomise participants to receive (or not receive) the intervention. Some did, however, use random sampling to retrospectively choose who to include in the intervention and control groups. These included studies described in the different literatures as 'panel studies', 'controlled before-and-after studies', 'longitudinal studies', 'pipeline studies' and 'natural experiments'.
- Simple comparison studies which compare groups with and without the intervention (which also included 'panel data', 'pipeline studies' and 'natural experiments'), but in these cases there were no data collected before the intervention. The findings of these studies (in cases where they also met our quality criteria specified below) are reported as evidence of association between microfinance and other variables, but not as evidence of causality.

2.3.2 Assessing the quality of studies irrespective of their study design

Our assessment of quality in our previous review (Stewart et al. 2010b) may be judged too lenient by systematic review experts (although perhaps too stringent by

[25] Studies which only include before-and-after data with no comparison group were excluded from this review on the basis of our inclusion / exclusion criteria as explained in section 2.2.

others), but our intention has always been to learn the most we can from the available reliant evidence, and to be transparent to allow the reader to interpret our results. We do not believe it is possible to eliminate risks of bias, but only to minimise them. We have therefore again adopted an approach of 'good enough' quality.

In assessing the quality of studies we considered three areas:

- Risks of bias due to lack of information available to the reader
- Risks of bias due to the appropriateness of the model tested
- Risks of bias due to the way the study was conducted.

2.3.2.1 Risks of bias due to lack of information available to the reader

We sought information from reports about the following. While we acknowledge that information missing from reports may have been available from authors, the timing and budget for this review did not allow scope to contact authors for additional information. We were therefore limited to seeking information from within written reports about the following:

- Microfinance intervention
- Description of participants
- Selection of participants
- Attrition/drop-outs
- Data collection
- Data analysis
- Potential biases.

If information was not available on two or more of these key elements we judged our own assessment of the evidence to be at high risk of bias and excluded the study from the review. Furthermore, if a study report lacked information about the intervention we judged any information gleaned from it to be relatively meaningless as we did not know what was actually been researched. Studies with no information about the microfinance intervention assessed were therefore automatically excluded from the review.

2.3.2.2 Risks of bias due to the inappropriateness of the model tested

If the logic of assumptions inherent within the study design appeared flawed leaving us unconvinced that what was being measured was actually the impact of microfinance, the study was judged to be of poor quality, and excluded from the in-depth review.

If the study's findings were not apparent in the reported data or analysis of the study was judged to be of poor quality, the study was then excluded from the in-depth review.

2.3.2.3 Risks of bias due to the way the study was conducted

I. Selection bias (consideration of differences between intervention and control participants)

Selection bias is of particular importance in studies of microfinance, and particularly finance for enterprise, because both the service provider (bank or NGO) and the service user (client) make choices which are likely to mean clients are systematically different from non-clients, and because those who engage in and are successful in enterprise are unlikely to be the same as those who do not. This makes assessment of the impact of using microfinance services relative to not using them extremely difficult. In order to assess the risk of selection bias we looked for attempts by the researchers to avoid, measure and adjust for selection bias. This included sampling of groups randomly (for allocation to receive [or not] the intervention) and/or sampling of whom to collect data from. We sought out a comparison of characteristics of the groups, evidence that sensitivity analyses had been conducted to assess their importance (both fixed and random effects), and if the differences between groups are considerable then we expected authors to take these into account when interpreting any impacts. Consideration of differences between groups was considered less important if the study randomly allocated groups to receive (and not receive) the intervention, but we still required evidence that sensitivity analysis had been conducted.

Because of the importance of selection bias in these studies, our judgement as to whether a study was at high, medium or low risk of selection bias was considered to outweigh the other biases listed below, i.e. if a study had been weighted at high risk of selection bias it was automatically excluded, and if a study was judged to be at medium risk of selection bias it could not be rated better, even if all other risks had been appropriately minimised.

II. Selective reporting bias

We judged studies to have a low risk of selective reporting bias if authors reported on all outcomes they intended to measure as described in the aims of the study, and accounted for all participants and data collection points in the analysis or write-up. While this risk can be difficult to assess, identifying levels of drop-out (both in terms of drop-out from the study and drop-out from the intervention) provided one means to test the completeness of reporting within the study.

III. Placement bias (consideration of differences between intervention and control locations)

In studies where the intervention and control groups are drawn from different locations we would expect to see reporting about the two locations (distance between them, etc.), and equivalency testing to assess the importance of any differences. Studies employing pipeline designs and using PSM to identify controls that are 'similar' to the intervention group can be particularly prone to placement bias; so in these cases we were particularly careful to seek assurance of the sensitivity analyses conducted by the researchers. If the differences between groups from different locations were considerable then we would expect them to take these into account when interpreting any outcomes.

IV. Consideration of intervention integrity

If participants in the intervention group did not all receive the same intervention then it is difficult to be sure of what is being assessed. We sought a description of the variety within the intervention-participants' experience both within the group and over time. This included reporting of variation in loan size, length of time in the scheme, and number of loan cycles. We looked for indication that the authors had conducted subgroup analyses to explore whether factors such as loan size were impacting on the overall results and judged whether their consideration of intervention integrity was fully, partially or not at all sufficient to ameliorate this risk of bias.

V. Consideration of differences within groups

We also sought evidence that the authors had considered differences within groups more generally in order to disaggregate their findings, for example comparing impact of micro-credit on men and on women, or between different types of micro-enterprises.

VI. Explaining variation in outcomes

We sought evidence that the authors had considered 'the goodness of fit' of the model they were testing - the proportion of variance in outcomes explained by the model of the total variance in the population studied. (Unexplained variance could be due to random differences in a population or sample, which is acceptable. However, unexplained variance might be due to non-random, systematic factors that the authors should test for.) If the study did not report goodness of fit or explain variance, we could not be confident that the explanatory variables and causal pathways tested in the study actually explained much of the variation in the outcome/s. If the study did report goodness of fit but it was judged to be low (for example, with a large R^2) then we remained concerned that the unexplained variance might be due to non-random, systematic factors.

Synthesis of findings from included studies

2.3.3 Overall approach to and process of synthesis

Findings were synthesised using framework analysis, which applies pre-determined categories to the data and enables structured comparison and synthesis.

Quantitative statistical meta-analysis is only possible when studies are homogenous, measuring similar interventions in similar ways using comparable outcome measures, and when all the necessary data are available. If available and comparable, quantitative results from comparative studies would have been combined statistically in this review but this was not the case. However, meta-analysis is not limited to statistical meta-analysis: findings were therefore synthesised using structured qualitative matrices.

2.3.4 Selection of studies for synthesis

Studies were sorted into the matrix below. We then drew on the relevant studies which:

- Measured the impact of micro-credit, micro-savings and micro-leasing on the poor's engagement in economic opportunities (1a, 1b, 1c below)
- Measured the impact of micro-credit, micro-savings and micro-leasing on financial outcomes for the poor (2a, 2b, 2c below)
- Report impacts specifically for women (3a, 3b, 3c below)
- Report impacts of interventions which target women specifically (4a, 4b, 4c below).

We combined results for the good-enough quality studies (i.e. those with a medium or low risk of bias). Due to ongoing debates about the differing validity of various methods to assess impact, for the purposes of transparency, we have reported our findings in terms of

i. RCT evidence only (i.e. 1a, 2a, 3a, 4a only).

ii. Other slightly weaker study designs which examine change over time (with before-and-after data) in groups with and without the intervention (i.e. 1b, 2b, 3c, 3d only).

iii. Studies which only compare groups with and without microfinance indicating associations between variables but not establishing causality (i.e. 1c, 2c, 3c, 4c only).

Table 2.1: Framework for considering study designs and outcomes in this review

STUDY DESIGN	Assessing impact on the poor's engagement in economic opportunities	Assessing impact on financial outcomes for the poor	Assessing impacts on women specifically	Assessing impacts of interventions which target women specifically
RCTs	1a	2a	3a	4a
With-and-without, before-and-after studies	1b	2b	3b	4b
With-and-without (no before data) studies	1c	2c	3c	4c

2.3.5 Process used to combine/synthesise data

The variety of interventions, study designs, outcomes and outcome measures meant that statistical meta-analysis of findings would be inappropriate and mislead the reader about the weight of combined evidence.

Instead of conducting quantitative meta-analyses, we have undertaken qualitative meta-analysis. This has included reporting the direction of effect and the significance of the effect[26] as well as a narrative description of the combined findings of the included studies for each outcome.

Given our decision to include some studies in this review which still have some risk of bias, we have decided to use a 5 percent chance of probability as our cut-off – any finding within an individual study which has a greater than 5 percent chance of being due to chance alone is indicated in this review as being statistically insignificant at the 5 percent level.

2.3.6 Deriving conclusions and implications

The review team met to synthesise their findings and discuss the implications for policy, practice and research.

Initial conclusions and implications were circulated to our peer reviewers and funders for their input. Amendments were made in light of any feedback.

The review team held further meetings following formal peer review to decide our final conclusions and implications and finalise our report.

2.4 Quality assurance process

Our review processes, including our electronic search string, inclusion and exclusion criteria, coding sheets and synthesis, were piloted initially and discussed among the team before these tools were finalised.

As already indicated, we took specific steps to reduce researcher bias and ensure we included all the relevant literature in our review, including the following:

- The inclusion criteria were initially applied to a sample of papers by two researchers independently and inter-researcher correlation assessed. This was continued until 100 percent correlation was achieved. One reviewer then applied the inclusion criteria to titles and abstracts. As a further quality assurance check, a second reviewer then independently screened a selection of papers which had been excluded by the first reviewer. Any uncertainties were resolved through discussion – there were no disagreements. The same approach was taken to screening the potentially relevant full reports. One final check was added when three researchers quality assessed the final 'cut' of papers.
- The coding of included papers was conducted by three members of the review group working together in one room, discussing and comparing their decisions as they went along. Twenty percent of papers were coded fully by more than one reviewer to further ensure consistency in the way the coding frame was applied. A fourth member of the team was available to discuss any uncertainties. In the same way, two researchers also extracted findings

[26] Effect sizes themselves have not been reported as the exact outcomes measured and the tools used to measure them vary considerably making interpretation of effect sizes problematic.

from all included studies and compared their decisions. Where any uncertainty existed, a third reviewer checked the extracted findings.

- Synthesis was conducted by the team with a continuous process of analysis, discussion and reflection. Additional quality assurance was made available from the EPPI-Centre for all statistical meta-analysis, but this was not needed given the nature of the included evidence.

3. Results

This chapter begins by outlining how user involvement in this review helped to shape it. We go on to explain our search results and how we identified the 17 studies included in the review. We describe our included studies and present the results of our synthesis of their findings in detail. This includes the evidence of effectiveness with regards the impact of micro-leasing, micro-savings and micro-credit on clients' engagement in economic opportunities, as well as financial outcomes. We consider the circumstances in which microfinance is successful and present the available evidence on whether targeting women is more or less effective. These findings from our synthesis are presented in terms of 'answers' to each of our research questions. Lastly, we present a theoretical causal pathway and map on to it what we have learnt from the review.

3.1 Results from our user involvement

At the outset of this review we had a number of valuable discussions with our funders, as well as feedback from our peer reviewers. Initially, we applied to our funders to undertake a review on the impact of mobile banking on economic opportunities but, after some discussion about the available literature, we agreed that such a review would be premature given the scarcity of evidence on the subject. We therefore reconsidered the range of financial inclusion interventions and priority questions in this area. It was decided that a further review in the area of microfinance was warranted which looked at the worldwide evidence of impact of micro-credit, micro-savings and micro-leasing specifically, with a focus on their impact on clients' engagement with economic opportunities and the extent to which this engagement increased wealth. As discussed in section 1.2, women's economic empowerment is of particular importance and we therefore agreed to explore issues of gender relevance where possible.

Having agreed a scope, our draft protocol was formally peer reviewed, and further advice given about the outcomes of interest, the sources to search for relevant literature and how to characterise the identified studies. In turn, our draft report was sent for peer review and feedback incorporated.

In addition to our DFID contacts and our peer reviewers, our contacts via Twitter were helpful in suggesting possible contacts and online sources from which to gather relevant literature.

This being our second review in the area of financial inclusion, we have a network of colleagues who have shown interest in this work and we discussed our findings with them informally, via email, in person and at presentations and conferences. Our team will continue to work to ensure this second review is disseminated widely and contributes to ongoing debates and decisions about microfinance worldwide.

3.2 Studies included from searching and screening

Our searches, conducted in June and July 2011, yielded over 14,000 hits (see Table 3.1). By screening on title and abstract, excluding all studies which were not impact evaluations of micro-credit, micro-savings or micro-leasing in LMICs, these were reduced to 606 reports for which we searched out full texts. Of these 32 were not available, even after thorough online searching and inter-library loan requests in both South Africa and the UK.

Table 3.1: Initial search results

Source	Hits
Five relevant published systematic reviews and protocols	151
Six specialist systematic review and trials databases	384
25 online bibliographic databases	12,849
Books (via Google)	100
31 organisational websites	101
Requests to 19 contacts	24
Reference lists of relevant papers	139
Citation searching for eight key papers	496
Total hits	14,244

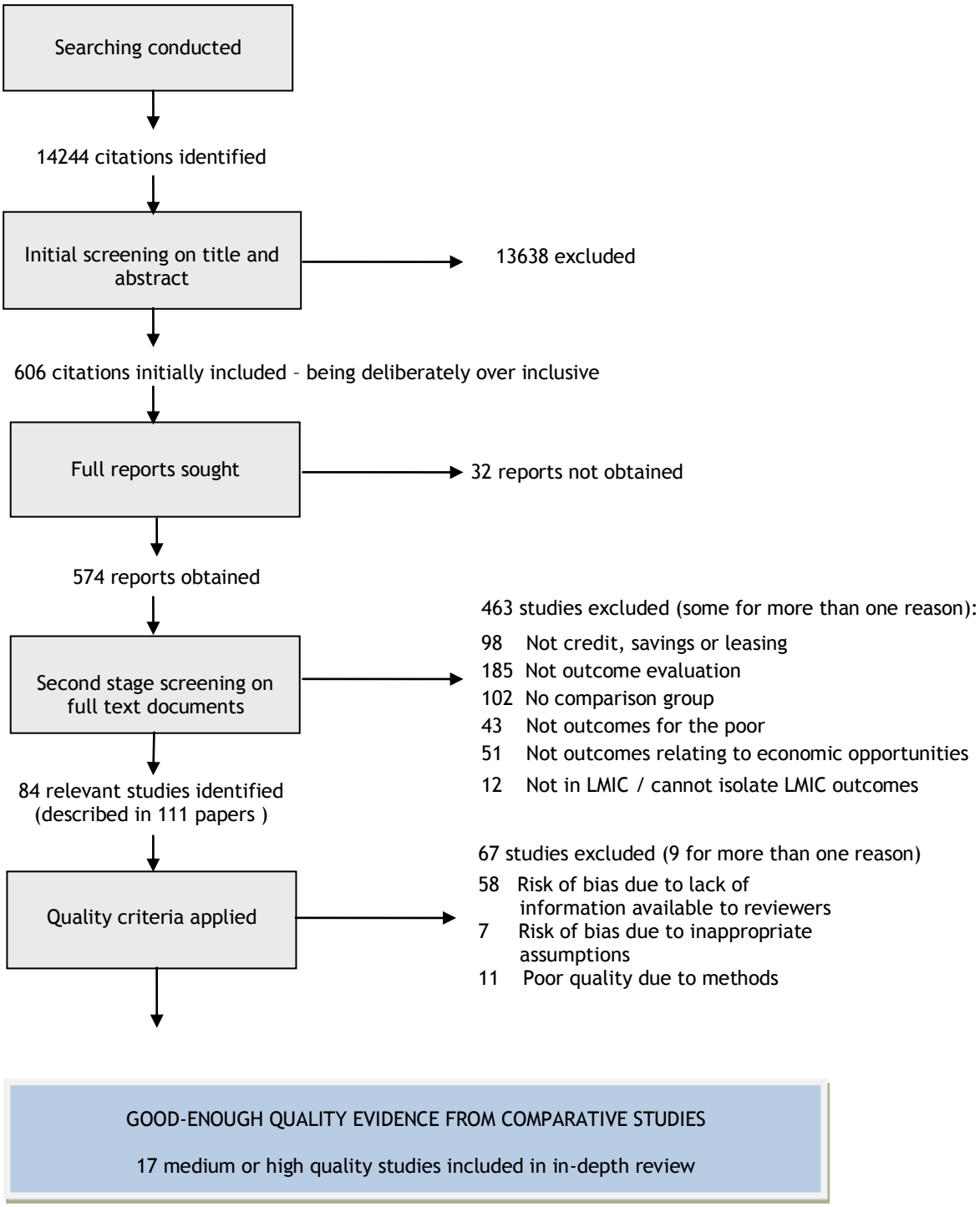
All full texts were then read and a further 463 excluded, leaving 111 reports describing 84 different studies (see Figure 3.1 for an overview of these screening processes).[27] Key studies and the reasons that we have excluded them are listed in section 5.2 of the references of this report.

The 84 relevant studies took place in 33 different countries[28], all of which are classified by the World Bank as LMICs. Perhaps not surprisingly given the history of microfinance, the country with the largest number of studies was Bangladesh (15). Of the 84 studies, 56 were conducted in DFID priority countries and 16 in fragile states.[29]

These 84 studies were then subjected to a thorough methodological review.

[27] Each study was often described in more than one report.
[28] These include: Bangladesh, Bolivia, Bosnia and Herzegovina, Côte d'Ivoire, Ecuador, Egypt, El Salvador, Ethiopia, Ghana, Haiti, India, Indonesia, Kenya, Madagascar, Malawi, Mexico, Mongolia, Morroco, Nicaragua, Nigeria, Pakistan, Paraguay, Peru, Philippines, Syria, Tanzania, Thailand, Tunisia, Uganda, Uzbekistan, Vietnam, Zambia, Zimbabwe.
[29] See Appendix 2.1 for details of country classifications of relevance to this review.

Figure 3.1: Filtering of papers from searching to synthesis



3.3 Results from our quality appraisal

Studies were assessed according to their

- Risk of bias due to the lack of information available to the reader
- Risk of bias due to the appropriateness of the model tested
- Risk of bias within the way the study was conducted.

The results of these assessments are presented below.

3.3.1 Results of our assessment of completeness of reporting

Of the 84 relevant studies critically appraised for this review, 67 were excluded: 58 on the basis of poor reporting making it impossible for our review team to assess the potential bias within studies or understand the significance of their findings. Of these 58, 28 were excluded because they provided no information about the microfinance intervention being assessed. Given the wide variety of microfinance interventions, simply knowing that the intervention group 'had a loan' and were compared to those who did not does not provide enough information to inform policy or practice.

3.3.2 Results of our assessment of study quality

The process of assessing study quality

Assessing the quality of relevant studies for this review was extremely challenging. The most stringent systematic review methodologies, advocated by organisations such as the Cochrane Collaboration, would simply exclude all studies which were not RCTs, yet there are good arguments for why such trials are difficult to conduct, as discussed in section 1.1.3. But some of those trials which have been undertaken assess not the effect of microfinance, but the effect of access to microfinance irrespective of whether or not the target population actually takes up loans. While both are valid questions, this review focuses only on the former.

While it is tempting to dismiss the entire evidence base on microfinance - Duvendack and colleagues' review (2011) essentially dismissed all studies of microfinance as biased - we believe it is important to learn what we can from the best studies available. We have therefore chosen to assess the level of risk in included studies and separate out the findings according to two key dimensions:

- Those at low risk of bias in which we have confidence or those at medium risk of bias which should be viewed with some suspicion
- Those which only have the potential to reveal associations as opposed to causal relationships.

It is important here to recognise an ongoing debate about perhaps the most famous of microfinance studies. Pitt and Khander's 1998 paper drew on data from a 1991/92 household survey in Bangladesh and found largely positive results about

the impacts of microfinance on poverty (Pitt and Khandker 1998).[30] These positive findings were further supported by a second study which combined this 1991/1992 data with a follow-up survey in 1998/99 data (Khandker 2005). Both of these studies, and a number of related papers which also draw on the 1991/1992 dataset, have been critiqued, re-analysed and found wanting in a very public debate (Duvendack 2010, Duvendack and Palmer-Jones 2011b, Morduch 1998, Pitt 1999, 2011a, 2011b, Roodman 2011a, 2011c, 2011d, Roodman and Morduch 2009, 2011).

This is also not the only 're-analysed' data set. Duvendack and colleagues (Duvendack 2010; Duvendack et al. 2011) and Augsburg (2006) have also re-analysed data from Chen and Snodgrass's (2001) study of combined micro-credit and micro-savings provided by SEWA Bank in India leading to similar words of caution about the potential biases within the methodology used in the original study.

We take from these discussions a number of key points:

- That the potential for statistical interpretation[31] of large non-experimental datasets leaves them prone to bias and therefore non-experimental studies included in this review need to be viewed with caution.
- That our quality appraisal of studies in this review does not extend to the point of re-analysing data, nor interrogating the models used or the assumptions within them in great detail.
- That our quality appraisal is reliant on clear reporting by authors, something which in many cases, as we have explained above in section 3.3.1, is extremely patchy.
- That we must apply our quality criteria consistently to all studies (including these controversial studies) despite the temptation to shift the goal posts to exclude those which have been criticised by other academics.

The outcomes of our assessment of study quality

Of the 84 studies assessed for quality, seven were excluded due to poor assumptions and 11 for poor quality methods. Seventeen were included in the review, two of which were judged to be at low risk of bias (Augsburg et al. 2011, Brune et al. 2011 – both RCTs) and 15 at medium risk of bias. All 17 studies were considered 'good enough' for inclusion in the review: these are the best 17 studies in terms of relevance and quality of the impact of micro-credit and micro-savings on the poor available to us within the bound of our inclusion criteria. None of these 17 studies evaluated micro-leasing, highlighting an important gap in the evidence base. A summary of these 17 studies, the designs employed and the type of impacts assessed are included in Table 3.2.

[30] This is important by our categorisation, because this study is based on only one data point, it only has the potential to show association and not establish causal relationships, however high quality its methodology.
[31] We are not implying at all that such interpretation would intentionally mislead the reader.

Table 3.2: Overview of included studies, their designs and the outcomes they assess

STUDY DESIGN	Assessing impact on the poor's engagement in economic opportunities	Assessing impact on financial outcomes for the poor	Assessing impacts on women specifically	Assessing impacts of interventions which target women specifically
RCTs	Augsburg et al. (2011) Dupas and Robinson (Oct 2011)	Augsburg et al. (2011) Brune et al. (2011) Dupas and Robinson (Oct 2011)	Dupas and Robinson (Oct 2011)	
With-and-without, before-and-after studies	Barnes et al. (2001a) Barnes et al. (2001b) Chen and Snodgrass (2001) Dunn and Arbuckle (2001) Gubert and Roubaud (2005) Kaboski and Townsend (2009)	Barnes et al. (2001[a]) Barnes et al. (2001b) Chen and Snodgrass (2001) Cuong (2008) Dunn and Arbuckle (2001) Erulkar and Chong (2005) Kaboski and Townsend (2009) Khandker (2005) Takahashi et al. (2010)	Barnes et al (2001b) Erulkar and Chong (2005) Chen and Snodgrass (2001) Kaboski and Townsend (2009)	Erulkar and Chong (2005) Chen and Snodgrass (2001)
With-and-without (no before data) studies	Brannen (2010)	Bahng (2009) Brannen (2010) Nanor (2008) Pitt and Khandker (1998)	Brannen (2010) Pitt and Khandker (1998)	

3.4 Further details of studies included in the review

The 17 studies included in our review originated from a number of different sources (see Table 3.3a).

Table 3.3a: Sources for our 17 included studies

Source	Hits
Five relevant published systematic reviews and protocols	Duvendack et al. (2011) = 8 Stewart et al. (2010b) = 7 Dickson et al. (2010) = 1
Six specialist systematic review and trials databases	J-PAL publications = 2 3ie evaluation database = 1
25 online bibliographic databases	IBSS = 1 CAB = 3 SSCI = 2
Books (via Google)	0
31 organisational websites	2
Requests to 19 contacts	2
Reference lists of relevant papers	5
Citation searching for eight key papers	2
Total hits	17 (nine of which were identified from two or more sources)

The 17 studies included in our review incorporated a wide range of interventions. All 17 included elements of micro-credit, although two of these focused only on evaluating the impact of micro-savings; eight focused on the impacts of loans, and seven on combined micro-credit and micro-savings. Of the 17 studies that assessed the impacts of micro-credit, one considered the impact of both group and individual loans, five examined the impact of individual loans, eight of group loans, and the remainder were unspecified.[32] (See Tables 3.3a and b for an overview and Appendices 3.1, 3.2 and 3.3 for more detail). All included studies are listed in section 5.1 of the references, and key papers which were excluded and the reasons for exclusion are listed in section 5.2.

[32] Appendix 3.4F summarises the outcomes of micro-credit evaluations, presented according to whether they used individual or group lending models. The interventions, outcomes and impacts are so varied across these studies that it is not possible to draw out clear conclusions as to which model might be preferable. Whilst group-based models may on first glance appear to have more positive impacts, the study designs employed in several cases indicate associations rather than causal relationships. Different studies also evaluate different numbers of outcomes. The question of whether individual or group micro-credit is more effective warrants more focused studies which compare the two approaches within one study design. While some research is beginning to tackle this question (Attanasio et al. 2011), this is outside the scope of this review.

The included studies were conducted in Bangladesh, Bosnia and Herzegovina, Ethiopia, Ghana, India, Indonesia, Kenya, Madagascar, Malawi, Peru, Tanzania (Zanzibar), Thailand, Uganda, Vietnam and Zimbabwe.

Thirteen studies included before-and-after and with-and-without data (therefore had the potential to demonstrate causality). Three of these employed randomised controlled study designs which can be problematic in that they require prospective study designs and rely on randomisation of participants to intervention and control groups, but nonetheless are recognised as being the most thorough approach to minimising risk of bias (see section 1.1.3). A further four studies only compared those with and without the intervention, therefore assessing associations between variables but not causality. (Table 3.3b includes citations for each of these.)

The reviewed studies generally have a time lapse of two years between intervention and follow-up (see Table 3.3b). This applies both to designs that included a baseline and those with only 'endline' data. Eight of the included studies had a two-year period between rounds of data collection, and three had a shorter period. Other studies merely measure change over time, but data on when the microfinance service was taken up is not available.

Table 3.3b: An overview of the included studies

	Study	Country	Intervention[33]	Study design	Our quality judgment
Studies which have before-and-after data (either prospectively or retrospectively collected) and therefore potential to show causality					
Those with the most rigorous study designs					
1.	Brune et al. (2011)	Malawi	Savings	RCT	Low risk of bias
2.	Augsburg et al. (2011)	Bosnia and Herzegovina	Credit	RCT	Low risk of bias
3.	Dupas and Robinson (Oct 2011)	Kenya	Savings	RCT	Medium risk of bias
Those with less rigorous study designs (findings of importance but should be viewed with caution)					
4.	Erulkar and Chong (2005)	Kenya	Credit and savings	Type of controlled before-and-after study (collect data before joining and 1-2 years later)	Medium risk of bias
5.	Takahashi et al. (2010)	Indonesia	Credit and savings	Type of controlled before-and-after study (collect data before joining and 1 year later)	Medium risk of bias
6.	Kaboski and Townsend (2009)	Thailand	Credit	Type of controlled before-and-after study (collect data before roll out in 1997-2001, and then in 2002-2003 'after' roll out)	Medium risk of bias
7.	Chen and Snodgrass (2001)	India	Credit and savings	2 surveys 2 years apart to see change over time (not strictly 'before' and 'after' data)	Medium risk of bias
8.	Dunn and Arbuckle (2001)	Peru	Credit	2 surveys 2 years apart to see change over time (only includes very small subset of 'new entrants' for whom we actually have 'before' and 'after' data)	Medium risk of bias
9.	Barnes et al. (2001a)	Uganda	Credit	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Medium risk of bias

[33] Some of the credit programmes include an initial compulsory savings component, but this isn't indicated here unless optional savings are also available.

	Study	Country	Intervention[33]	Study design	Our quality judgment
10.	Barnes et al. (2001b)	Zimbabwe	Credit	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Medium risk of bias
11.	Gubert and Roubaud (2005)	Madagascar	Credit and savings	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Medium risk of bias
12.	Cuong (2008)	Vietnam	Credit	Retrospective analysis of 2 surveys in 2002 and 2004	Medium risk of bias
13.	Khandker (2005)	Bangladesh	Credit	Retrospective analysis of 2 surveys in 1991/92 and 1998/99	Medium risk of bias
Studies which have no before data, so can only show association and not causality					
14.	Nanor (2008)	Ghana	Credit	Prospective data collection (no before data)	Medium risk of bias
15.	Brannen (2010)	Tanzania	Credit and savings	Prospective data collection through a survey, interviews and focus groups	Medium risk of bias
16.	Pitt and Khandker (1998)	Bangladesh	Credit	Retrospective analysis of a single panel (no before data)	Medium risk of bias
17.	Bahng (2009)	Ethiopia	Credit and savings	Retrospective analysis of a single panel (2007)	Medium risk of bias

3.5 Synthesis of all the good-enough evidence

Below we address each of our review questions in turn, bringing together the available evidence, presented in a narrative and matrices presenting directions of effect. We have numbered each key finding for ease of reference.

Do micro-credit, micro-savings and micro-leasing serve as effective financial inclusion interventions enabling poor people, and especially women, to engage in meaningful economic opportunities in LMICs?

i. Do micro-credit, micro-savings and micro-leasing enable poor people to engage in economic opportunities, and if so, which type of economic opportunities?

ii. Does engagement in these economic activities impact on their income, savings, expenditure and accumulation of productive or non-productive assets?

iii. Do these impacts occur at the individual, household or business levels?

iv. Where these interventions are effective, how, for whom, and in what circumstances?

v. Where these interventions are delivered in combination with each other and/or with other complementary interventions, such as market development skills, are they more likely to be successful?

vi. Which interventions work better for women, particularly female-headed micro-enterprises?

vii. When interventions specifically target women, particularly female-headed micro-enterprises, are they more successful than those that do not?

3.5.1 Do micro-credit, micro-savings and micro-leasing enable poor people to engage in economic opportunities, and if so, which type of economic opportunities?

Summary

- We looked for causal relationships between micro-credit, micro-savings and/or micro-leasing and engagement in economic opportunities. For the purpose of this review these opportunities include setting up a micro-enterprise, or extending/growing an existing enterprise, opening a market stall, or sowing a cash crop.
- In theory we would expect access to microfinance to increase clients' engagement in economic opportunities, although in different ways. In simple terms micro-credit should enable the poor to invest in income generating assets such as stock for sale. Micro-leasing, for example of a market stall or sewing machine, provides direct access to such assets. Micro-savings on the other hand ought to enable those with a variable income to improve their financial planning, for example saving money for annual farming costs such as seed and fertiliser. Savings are therefore less likely to increase engagement in economic opportunities, although they may sustain engagement for those who already have an income.
- There was no rigorous relevant evidence about micro-leasing available so we are unable to say whether micro-leasing actually increases or decreases poor people's engagement in economic opportunities.
- The available evidence reviewed by us suggests that micro-savings does not significantly increase poor people's engagement in economic opportunities.
- There is some evidence that micro-credit influences poor people's engagement in economic opportunities. Only the research from Bosnia and Herzegovina is reliable however, and the studies from Uganda, Zimbabwe and Peru should be considered with caution. The evidence shows micro-credit leads the better educated borrowers in Bosnia and Herzegovina to start new businesses, and appears to lead to income diversification in Uganda and Zimbabwe, including crop diversification and the starting of second businesses, although it leads to less diversification among the higher-income borrowers in Peru. These differences may be due to behavioural constraints.
- The evidence on combined micro-credit and micro-savings suggests that these do not impact on income diversification, although borrower/savers are more likely to have more than one business.

Each of the key points from our reviewed evidence is listed below. The detail of the findings within each study cited is presented in Appendix 3.4.

MICRO-LEASING

(1) We found a lack of comparative studies which consider the impact of micro-leasing on poor people's engagement in economic opportunities.

MICRO-SAVINGS

(2) There were no studies reporting whether micro-savings alone enabled people to start a new business, expand their business or diversify their

sources of income in some other way, and only one study which considered whether savings increased the number of hours worked each day (Dupas and Robinson Oct 2011).

Evidence from the most robust study designs (strong evidence of impact)

(3) One study in Kenya (Dupas and Robinson Oct 2011) found no significant effect of micro-savings on the number of hours worked per day.

MICRO-CREDIT

(4) There was one study with robust study design (an RCT) and low risk of bias which considered whether micro-credit alone enabled poor people to engage in economic opportunities (Augsburg et al. 2011). A further four studies with less robust designs and of medium quality measured the relative impacts over time among those within a micro-credit programme relative to those who were not clients.

Evidence from the most robust study designs (strong evidence of impact)

(5) One study (Augsburg et al. 2011) found borrowers were almost 6 percent more likely to own a business compared to the control group that did not receive a loan. It was clear from the study that this result was largely due to the creation of new businesses among the more highly educated of the borrowers.

(6) It also found that young people aged 16-19 worked significantly longer hours in households that had micro-credit than in those which did not. This was particularly the case in those households that already had a business at the start of the study and those where the borrower only had a primary education.

(7) This evidence comes from an upper-middle-income country (Bosnia and Herzegovina) and may not be applicable to lower-income settings.

Evidence from the other studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(8) There were four studies of micro-credit which were medium quality and measured the relative impacts over time among those within a micro-credit programme relative to those who were not clients.

(9) These studies were based in Thailand (Kaboski and Townsend 2009), Peru (Dunn and Arbuckle 2001), Zimbabwe (Barnes et al. 2001b) and Uganda (Barnes et al. 2001a).

(10) Two studies found that micro-credit had no significant effect on borrowers in terms of starting new businesses, developing existing businesses or other forms of income diversification compared to non-clients (Dunn and Arbuckle 2001, Kaboski and Townsend 2009). One of these studies found that among higher-income new borrowers micro-credit led them to reduce their income diversification (significant at the 5 percent level) (Dunn and Arbuckle 2001).

(11) Dunn and Arbuckle (2001) also found that credit had a positive impact on the number of non-household members employed in the primary business, and the total number of people (both household members and non-household members) employed in up to three businesses (at the 5 percent level). There were no significant impacts on the total number of people employed in the primary business or the total wages earned. In this study it is not clear whether household members included children.

(12) The third study of this type found more positive impacts of micro-credit on borrowers' engagement in economic opportunities (Barnes et al. 2001a). This Ugandan study found positive effects of micro-credit on the number of income sources borrowers had, on the diversity of crops grown, and on starting a new substitute business, as well as investing in land for cultivation.

(13) Lastly, Barnes and colleagues' study in Zimbabwe found that farmers receiving micro-credit diversify the crops they grow (Barnes et al. 2001b). Over the two years following departure from a micro-credit programme clients had diversified their income sources, potentially providing the households with greater income security. The greater diversification of income sources was not observed for the poorest households.

COMBINED MICRO-CREDIT AND MICRO-SAVINGS

(14) There were two studies of medium quality which considered the impact of combined micro-credit and micro-savings on clients' engagement in economic opportunities, and one which explored associations between these variables but was not able to establish causality. There was a lack of robust evidence about the impact, either positive or negative, of combined credit and savings on engagement in economic opportunities.[34]

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution.)

(15) Two studies explored the extent to which combined micro-credit and savings services impacted on clients' engagement in economic opportunities (Chen and Snodgrass 2001, Gubert and Roubaud 2005).

(16) Chen and Snodgrass (2001) found no significant impact on income diversification in India, while Gubert and Roubaud (2005) found no impact on employment in Madagascar.

[34] We acknowledge that there remain important questions about whether group or individual micro-credit is more effective. However, the available data are unclear (see Appendix 3.4F). Further studies are required to address this issue directly.

Evidence from comparative studies with data from one point in time (this evidence should be interpreted as an indication of associations between having micro-credit and the factors considered rather than the impact of micro-credit on the factors considered)

(17) One study from Zanzibar in Tanzania explored associations between micro-credit and engagement in economic opportunities and found that membership of the credit programme was linked to an increased number of income generating opportunities (Brannen 2010). This was greater for women who had been in the programme longer, although this was not the case for men.

3.5.2 Does microfinance and engagement in these economic activities impact on income?

Summary

- We would expect microfinance, when combined with economic opportunities, to impact on income in various ways. Micro-leasing should enable clients to increase their potential incomes, although the requirement to pay 'rent' on their leased assets may decrease income in the short term. In the same way, micro-credit is expected to increase incomes eventually, although this may not become a reality for some time due to the incurred debt which must be repaid. Micro-savings should, in theory, enable better financial planning, which might smooth income, and potentially increase longer-term income, for example by enabling accrued savings to be spent on extending a business, or sustaining a business by covering seasonal shortfalls.
- We found a lack of evidence about micro-leasing so are unable to conclude whether it increases or decreases the income of poor people's economic activities.
- The available evidence shows that micro-savings using a commitment account[35] increases the value of savers' businesses, but does not increase their business profits (in Malawi). Ordinary savings accounts have no effects.
- Micro-credit appears to have a largely positive impact on borrowers' income, although these data are not completely reliable and may be prone to bias. Data from Ghana show a positive association between credit and income in some areas but a negative one in others, and in some areas those who have been borrowers for longer have lower incomes.
- Combined micro-credit and micro-savings appear to increase income in India and Kenya, but not in Indonesia. These studies are, however, prone to bias.

[35] Brune and colleagues (2011) explored the impact of both ordinary savings accounts and commitment accounts. The latter allowed farmers to specify an amount and 'release date' when the bank would allow access to funds. Both ordinary and commitment savings accounts had the same annual interest rate of 2.5%.

Each of the key points from our reviewed evidence is listed below. The detail of the findings within each study cited is presented in Appendix 3.4.

MICRO-LEASING

(18) We found a lack of evidence from comparative studies which considered the impact of micro-leasing on poor people's income so are unable to draw any conclusions about its effectiveness, whether positive or negative.

MICRO-SAVINGS

(19) There was only one study of the outcomes of economic opportunities engaged in by micro-savings clients (Brune et al. 2011).

Evidence from the most robust study designs (strong evidence of impact)

(20) There was one study with robust study design (an RCT) which considered how engagement in economic activities by micro-savings clients impacted on their income, savings, expenditure and accumulation of assets (Brune et al. 2011) and this did so at the business level (as opposed to exploring impacts at the individual or household levels).

(21) While this study found that micro-savings increased the value of crops for those clients who had commitment savings accounts, the ordinary savings accounts had no such impact. The same study found no impact of either type of savings account on farm profits.

MICRO-CREDIT

(22) There were no robust studies of the impact of micro-credit on the outcomes of economic opportunities in this review. Five studies with less robust designs and of medium quality measured the relative impacts over time among those within a micro-credit programme relative to those who were not clients. One study also explored associations between variables but was not able to establish causality.

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(23) Five studies considered the impacts of micro-credit on income. These were conducted in Vietnam (Cuong 2008), Zimbabwe (Barnes et al. 2001b), Uganda (Barnes et al. 2001a), Peru (Dunn and Arbuckle 2001) and Thailand (Kaboski and Townsend 2009).

(24) These studies all found positive impacts, with the exception of Barnes and colleagues' study in Zimbabwe which found mixed results (Barnes et al. 2001b).

(25) In Vietnam, Cuong (2008) found a significant positive relationship between participation in the Vietnam Bank for Social Policies micro-credit programme and individual-level income. The size of loans also appears to have impacted positively on individuals' income levels. Credit was also

found to have a significant positive impact on both household and per capita income in Peru (Dunn and Arbuckle 2001). Client households were significantly more likely to have increased their income from agricultural crops in Uganda (Barnes et al. 2001a), but this result was not true of Zimbabwe where 'participation in Zambuko's program does not appear to have had an impact on the monthly net revenue in the households' enterprises' (Barnes et al. 2001b:95).

(26) Micro-credit was found to have a positive impact on business income in Peru (Dunn and Arbuckle 2001), Uganda (Barnes et al. 2001a) and Thailand (Kaboski and Townsend 2009). In Peru credit was found to have a positive impact on micro-enterprise revenue, both for current members and new entrants. However, this was only true for those borrowers who had three or more micro-enterprises and not for borrowers' primary enterprises (Dunn and Arbuckle 2001). In Uganda more clients increased their profits from business in the month prior to being surveyed, compared to non-clients (Morris and Barnes *undated*). In Thailand micro-credit was found to increase income from crop production (Kaboski and Townsend 2009).

(27) The results from Zimbabwe were more varied. There were no statistically significant differences between income levels among continuing clients over time compared to departing clients and non-clients, indeed the real value of continuing clients' household income decreased from 1997 to 1999, while that of the other two groups rose. Although we know that farmers receiving credit were more likely to diversify the crops they grew, there was no evidence that this led to greater business income. Continuing participation in micro-credit was found to have a negative impact on household poverty even having taken into account other exogenous factors that might affect income and poverty levels: 'Significantly more continuing clients and departing clients than non-clients fell into poverty during the assessment period' (Barnes et al. 2001b:60).

Evidence from comparative studies with data from one point in time (this evidence should be interpreted as an indication of associations between having micro-credit and the factors considered rather than the impact of micro-credit on the factors considered)

(28) One study from Ghana explored associations between micro-credit and the income from engagement in economic opportunities (Nanor 2008).

(29) This found a statistically significant positive association between participation in micro-credit and small businesses' profit levels in two of the districts studied: those that had loans also had higher profit levels. However, a significant negative association was found in a third district: those with loans had lower profit levels.

(30) There was also a significant negative association between the number of months clients spent in the credit scheme and the profits of small businesses in three of the districts: those who had been clients for longer had smaller profits.

COMBINED MICRO-CREDIT AND MICRO-SAVINGS

(31) There were no robust studies of the impact of combined micro-credit and micro-savings on the outcomes of economic opportunities in this review making it impossible to determine whether they have either positive or negative effects. Three studies with less robust designs and of medium quality measured the relative impacts over time among those within a combined micro-credit and savings programme relative to those who were not clients.

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(32) Three studies considered the impact of combined micro-credit and micro-savings on income. These were conducted in Kenya (Erulkar and Chong 2005), Indonesia (Takahashi et al. 2010), and India (Chen and Snodgrass 2001).

(33) Two studies from Kenya and Indonesia considered the impact of combined micro-credit and micro-savings on individual income and neither found any impact (Erulkar and Chong 2005, Takahashi et al. 2010), although Chen and Snodgrass (2001) did find a positive impact of combined micro-credit and micro-savings on household income in India where SEWA Bank households had significantly higher incomes than non-members (both total and per capita); members who only saved did not.

(34) The Indonesian study (Takahashi et al. 2010) also found no significant impact (at the 5 percent level) of combined micro-credit and micro-savings on business income, whether in terms of business profits generally, or profits from employment, non-farm income or farming and aquaculture. In India, however, Chen and Snodgrass (2001) found the opposite was true. On closer examination their results reveal that borrowing money had a significant impact on the level of informal sector earnings, but saving money did not. These mixed results may be due to the complexities of and interrelationships between saving and spending when building up a business.

3.5.3 Does microfinance and engagement in these economic activities impact on clients' savings?

Summary

- In theory microfinance is likely to have varied effects on clients' savings. While the availability of savings accounts, and particularly commitment accounts, may encourage and facilitate saving any available profits, the requirement within micro-credit and micro-leasing to make debt repayments might be expected to decrease levels of savings, at least until those debts have been paid off. Many micro-credit schemes require borrowers to accumulate savings before credit is made available, and sometimes throughout the loan period.
- We found a lack of evidence about micro-leasing impacting, either positively or negatively, on the levels of savings among clients.
- The evidence shows that micro-savings does significantly increase people's savings in Malawi and Kenya, although in Kenya this is only true for women.
- The best available evidence on micro-credit (from Bosnia and Herzegovina) suggests that micro-credit has reduced people's level of savings, while slightly less reliable evidence from Uganda and Zimbabwe shows that borrowers' savings increase. In Peru credit is found to have no impact on savings.
- Data from Kenya and Indonesia find no significant effects of combined micro-credit and micro-savings on levels of savings, although these data are not 100 percent reliable.

Each of the key points from our reviewed evidence is listed below. The detail of the findings within each study cited is presented in Appendix 3.4.

MICRO-LEASING

(35) We found no comparative studies which consider the impact of micro-leasing on poor people's savings.

MICRO-SAVINGS

(36) There were two studies with robust study designs and no studies with less robust designs that considered the impact of micro-savings on the accumulation of financial assets by clients.

Evidence from the most robust study designs (strong evidence of impact)

(37) There were two studies with robust study designs which considered the impact of micro-savings on the accumulation of financial assets by clients, one was considered at low risk of bias (Brune et al. 2011) and the other had some small risk of bias (Dupas and Robinson Oct 2011).

(38) These two studies of micro-savings in Malawi (Brune et al. 2011) and Kenya (Dupas and Robinson Oct 2011) both found that providing clients with micro-savings accounts significantly increased their levels of savings.

(39) Farmers in Malawi had significantly higher deposits than controls. Those with commitment accounts also withdrew more money in the planning

season suggesting that this type of account was successful in encouraging farmers to save funds for the 'hungry' season (Brune et al. 2011).

(40) In Kenya those with active savings accounts also had significantly higher levels of savings, although when disaggregated by gender and business type, it is clear that it was the female market vendors and not the men who were saving more cash while also not depleting their savings in animals or ROSCAs (rotating credit and savings associations) (Dupas and Robinson Oct 2011).

MICRO-CREDIT

(41) There was one study with a robust study design (an RCT) and three studies with slightly less robust designs and of medium quality that considered the impact of micro-credit on the accumulation of financial assets by clients.

Evidence from the most robust study designs (strong evidence of impact)

(42) The one RCT of the use of micro-credit on savings found a significant negative result with an overall reduction in the level of savings among borrowers. This was particularly the case for business owners and those with higher levels of education.

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(43) Of the three studies in this category, one found no significant effect of credit on levels of personal savings in Peru (Dunn and Arbuckle 2001).

(44) The other two studies found positive significant impacts. In Uganda clients were significantly more likely than non-clients to have increased their levels of savings in the last two years, although clients preferred to keep their non-mandatory savings elsewhere than in the bank account (Barnes et al. 2001a). A similar study in Zimbabwe found that micro-credit had a positive impact on the number of clients with active savings accounts and on the number of ways poor clients saved (Barnes et al. 2001b)

COMBINED MICRO-CREDIT AND MICRO-SAVINGS

(45) There were two studies that compared the impacts in intervention and control groups over time that considered the impact of combined micro-credit and micro-savings on the accumulation of financial assets by clients. There were no more robust studies, nor any which just explored associations rather than causality.

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(46) Of the two studies which considered the impact of combined micro-credit and micro-savings on levels of savings, one in Indonesia found no significant

differences (Takahashi et al. 2010), while the other in Kenya reported a positive impact (Erulkar and Chong 2005).

(47) The Kenyan study found that participation in the microfinance programme meant young women enrolled in the programme had more than doubled their savings and accrued significantly higher amounts than the control group. The treatment group was also significantly more likely to save in a bank. It is, however, difficult to attribute these results to the programme alone. The significant difference between the treatment and control groups at baseline make it difficult to attribute differences in savings behaviour to the intervention, as the groups were clearly different in this regard even before the intervention.

3.5.4 Does microfinance and engagement in these economic activities impact on clients' accumulation of non-financial assets?

Summary

- In theory micro-credit and micro-leasing are expected to increase clients' accumulation of non-financial assets for use in their businesses. However, the requirement to repay debts may lead borrowers to sell non-productive non-financial assets to raise funds quickly. Micro-savings ought to enable clients to accumulate funds gradually and therefore enable them to invest in non-financial assets in the longer term.
- We found a lack of evidence about micro-leasing and so are unable to draw conclusions on whether it increases or decreases the accumulation of non-financial assets among poor people.
- Reliable evidence from Malawi shows that micro-savings using a commitment account increases savers accumulation of non-financial assets; however, ordinary accounts have no significant impact.
- Three slightly less reliable studies of micro-credit find no significant impact of micro-credit on the accumulation of non-financial assets at the household level, although two did find a significant impact at the business level. One further study from Bangladesh found a significant association between women taking out loans and their accumulation of non-land assets; however, this evidence is not sufficient to establish a causal relationship.
- Evidence on the impact of combined micro-credit and micro-savings is not 100 percent reliable but suggests mixed effects with regard to the accumulation of non-financial assets: in Indonesia there was no effect found while in Kenya researchers found a positive significant impact of combined credit and savings on the accumulation of non-financial assets. There is a negative association in Ethiopia between combined credit and savings and clients' holding of assets and also their need to sell goods to pay for basic needs, while there is no association between engagement in the programme and the ownership of livestock.

Each of the key points from our reviewed evidence is listed below. The detail of the findings within each study cited is presented in Appendix 3.4.

MICRO-LEASING

(48) We found no evidence from comparative studies which consider the impact of micro-leasing on poor people's accumulation of non-financial assets.

MICRO-SAVINGS

(49) There was one study with a robust study design and no studies with less robust designs that considered the impact of micro-savings on the accumulation of non-financial assets by clients.

Evidence from the most robust study designs (strong evidence of impact)

(50) Brune and colleagues (2011) considered the effect of savings on business investment and the accumulation of non-financial assets. They found that having a commitment account had a large and significant effect on the amount of land under cultivation and the total value of investment in that land such as the purchase of seed, fertiliser, pesticides and firewood.

(51) This study found no significant effect of an ordinary savings account on the accumulation of these kinds of business assets.

MICRO-CREDIT

(52) There were no studies with robust study designs but there were three medium-quality studies with slightly less robust designs that considered the impact of micro-savings on the accumulation of non-financial assets by clients and one study which explored associations between micro-credit and non-financial assets.

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(53) Three studies considered the impact of micro-credit on the accumulation of non-financial assets measuring intervention and control groups over time in Zimbabwe (Barnes et al. 2001b), Uganda (Barnes et al. 2001a) and Peru (Dunn and Arbuckle 2001).

(54) None of these three studies found a significant impact of micro-credit on the accumulation of non-financial assets at the household level, although two did find a significant impact at the business level (Barnes et al. 2001a; Dunn and Arbuckle 2001).

(55) In Uganda, Barnes and colleagues (2001a) found clients spent more on agricultural assets and other business assets, while in Peru Dunn and Arbuckle (2001) found that credit had a significant positive impact on the accumulation of fixed assets in the primary micro-enterprises of borrower households, but not new entrant households.

Evidence from comparative studies with data from one point in time (this evidence should be interpreted as an indication of associations between having micro-credit and the factors considered rather than the impact of micro-credit on the factors considered)

(56) One study from Bangladesh explored associations between micro-credit and the accumulation of household assets (Pitt and Khandker 1998).[36]

(57) This study found a significant association between women who had loans and their accumulation of what they report as 'non-land' assets.

COMBINED MICRO-CREDIT AND MICRO-SAVINGS

(58) There were no studies with robust study designs but two medium-quality studies with slightly less robust designs that considered the impact of combined micro-credit and micro-savings on the accumulation of non-financial assets by clients. One further study explored associations between combined micro-credit and micro-savings and the accumulation of non-financial assets.

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(59) Two studies in Indonesia (Takahashi et al. 2010) and Kenya (Erulkar and Chong 2005) explored the impacts of combined micro-credit and savings on the accumulation of non-financial assets.

(60) While Takahashi's study in Indonesia found no significant effects on either durable assets or livestock (Takahashi et al. 2010), Erulkar and Chong (2005) found positive significant impacts in Kenya. The TRY (Tap and Reposition Youth) programme was shown to increase the number of household assets owned by girls, particularly among the 20+ age group (Erulkar and Chong 2005).

Evidence from comparative studies with data from one point in time (this evidence should be interpreted as an indication of associations between having micro-credit and the factors considered rather than the impact of micro-credit on the factors considered)

(61) One study explored associations between combined micro-credit and savings and the accumulation of non-financial assets in Ethiopia (Bahng 2009).

(62) The study found no significant association between length of time in the programme and number of livestock owned by clients. There was also a negative association between length of time in the programme and holding household assets.

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[36] We acknowledge that the authors of this study set out to assess impacts of micro-credit and report their findings as such. However, as discussed earlier this is a highly contested study. In line with other studies of this nature, we have chosen to report the findings not as evidence of impact but as evidence of association.

3.5.5 Does engagement in these economic activities impact on their expenditure?

Summary

- The theoretical relationship between microfinance services and expenditure are complex. It is not always clear what changes in levels of expenditure mean, as they can relate to increased investment in productive goods (such as a bicycle or sewing machine), an increased quality of life (such as better nutrition) or merely an indication of more cash to spend.
- We found a lack of evidence about micro-leasing so are unable to conclude whether it affects expenditure either positively or negatively.
- Reliable evidence from Malawi shows micro-savings has no significant impact on expenditure. Evidence from Kenya similarly shows no impact on business expenditure or on gifts and remittances, although it does suggest micro-savings significantly increases spending on foodstuffs and personal items such as alcohol and clothing.
- High-quality evidence from Bosnia and Herzegovina showed no significant effect of micro-credit on business consumption but found a significant decrease in consumption of food at home among clients with businesses who have low levels of education. Slightly less reliable studies suggest that micro-credit increases expenditure in Thailand, Bangladesh and Vietnam although this is contradicted by other similar studies in Peru, Zimbabwe and Uganda. There is a positive association between expenditure and loans in data from Bangladesh although this is not evidence of a causal relationship.
- Combined micro-credit and micro-savings in India appears to have increased spending on housing improvements and consumer goods, but not on food; however, this evidence is not 100 percent reliable. Two other studies do show an association between household expenditure and participation in combined credit and savings programmes in Tanzania (Zanzibar) and Ghana although the evidence from Ghana applies to some regions and not others, and both these studies are not robust enough to establish a causal relationship.

Each of the key points from our reviewed evidence is listed below. The detail of the findings within each study cited is presented in Appendix 3.4.

MICRO-LEASING

(63) We found no comparative studies which consider the impact of micro-leasing on poor people's expenditure.

MICRO-SAVINGS

(64) There were two studies with robust study designs which consider the impacts of micro-savings on household and business expenditure.

Evidence from the most robust study designs (strong evidence of impact)

(65) Two studies in Malawi (Brune et al. 2011) and Kenya (Dupas and Robinson Oct 2011) assess the impact of micro-savings on the levels of expenditure by clients.

(66) Brune and colleagues in Malawi (Brune et al 2011) find that commitment savings accounts increase levels of household expenditure, although they find no significant impact of the ordinary account.

(67) The Kenyan study similarly finds savings accounts increase household expenditure, particularly on food and on private goods such as sodas and clothing (Dupas and Robinson Oct 2011). They find no such effect on business expenditure however.

(68) Both studies also consider whether savings accounts increase the amount of money given by borrowers to members of their social networks, the theory being that having money in a savings account may 'protect' borrowers from the pressure to give. Neither study found any significant impact of savings accounts on gifts or cash transfers to family or friends (Brune et al. 2011, Dupas and Robinson Oct 2011).

MICRO-CREDIT

(69) There was one high-quality robust study that assessed the impacts of micro-credit on expenditure, and six studies with slightly less robust study designs. One further study explored associations between micro-credit and expenditure.

Evidence from the most robust study designs (strong evidence of impact)

(70) One study in Bosnia and Herzegovina explored the impact of having a loan on expenditure in terms of business consumption and consumption of foodstuffs (Augsburg et al. 2011).

(71) The study found no significant effect of credit on business consumption – the authors suggest this is because the loans were too small. The study does find a significant decrease in consumption of food at home among clients with businesses who have low levels of education. As the authors find no significant reduction in consumption outside the home, they conclude that borrowers have to adjust in-home expenses in order to protect business expenses.

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(72) Six studies in this category explore the impacts of micro-credit on levels of expenditure in Uganda (Barnes et al. 2001a), Zimbabwe (Barnes et al. 2001b), Vietnam (Cuong 2008), Peru (Dunn and Arbuckle 2001), Thailand (Kaboski and Townsend 2009) and Bangladesh (Khandker 2005).

(73) Micro-credit is found to significantly increase expenditure in three of these six studies (Cuong 2008, Kaboski and Townsend 2009, Khandker 2005).

(74) In Vietnam, Cuong (2008) found that programme participation led to increased expenditure and that this expenditure increased with loan size.

(75) In Thaliand, Kaboski and Townsend (2009) found that household consumption was significantly higher among borrower households than non-borrower households, specifically increasing the purchase of fuel, meat, dairy goods and alcohol and spending on household and auto repair. (The

latter presumably refers to automobile repair, but this is not confirmed in the paper.) Expenditure on grain, tobacco, ceremonies and education remained stable. Specific focus on expenditure within female-headed households found that those who took out loans were significantly less likely to have above-average expenditure on education, and instead may have shifted expenditure to auto repair, clothing and meat. While female-headed household clients were less likely to spend money on alcohol consumed inside the home, there was some evidence that they increased their consumption of alcohol in the home.

(76) In Bangladesh borrowers were found to have significantly higher per capita annual consumption of both food and non-food items (Khandker 2005).

Evidence from comparative studies with data from one point in time (this evidence should be interpreted as an indication of associations between having micro-credit and the factors considered rather than the impact of micro-credit on the factors considered)

(77) Two further studies identified associations between micro-credit and expenditure (Nanor 2008, Pitt and Khandker 1998).

(78) In Bangladesh, Pitt and Khandker (1998) found a significant association between women taking out loans and household per capita expenditure.

(79) In Ghana Nanor (2008) found a significant association between average expenditure on non-food items (utilities, energy and miscellaneous expenses) and participation in the programme (participants spent more). This was true across three districts but not in Kwahu North District.

COMBINED MICRO-CREDIT AND MICRO-SAVINGS

(80) There were no robust studies of the impact of combined micro-credit and micro-savings on expenditure, however one medium-quality study did address this, and one further study explored associations between combined micro-credit and micro-savings and expenditure.

Evidence from studies which compare impacts in intervention and control groups over time (this evidence may contain bias and, while useful, should be interpreted with caution)

(81) Chen and Snodgrass's (2001) study in India found that members of SEWA Bank spent significantly more on housing improvements and expenditure on consumer durables. There was no significant association between bank membership and expenditure on food.

Evidence from comparative studies with data from one point in time (this evidence should be interpreted as an indication of associations between having micro-credit and the factors considered rather than the impact of micro-credit on the factors considered)

(82) One study from Zanzibar, Tanzania, (Brannen 2010) explored associations between combined micro-credit and savings and expenditure.

(83) Brannen (2010) found a significant positive association between membership of VSLA (Village Savings and Loan Association) and level of

spending on household assets. The size of loan does not appear to be important, rather the membership of VSLA.

3.5.6 Do these impacts occur at the individual, household or business levels?

Summary

- While impacts are measured at varying levels within studies, there is insufficient good quality evidence to enable us to identify patterns in how microfinance impacts on individual, household and business levels.
- We cannot tell from this review whether microfinance impacts more or less at the individual, household or business level. Indeed, it is not always completely clear theoretically, let alone from the evidence, whether there are clear divisions between these different levels in the lives of the poor.
- We are not able to conclude from this review whether group or individual models for micro-credit lead to better outcomes for borrowers.
- More research is needed which considers the impacts at all of these levels in order to shed further light on this issue.

As illustrated in Table 3.4 below, the studies included in this review measure the outcomes of microfinance and its impact on economic engagement at different levels: individual, household and business.

While we had anticipated having data to consider whether impacts were more or less positive at these different levels, any one study tends to consider one, but not all levels. For example, Augsburg and colleagues (2011) consider the impact of micro-credit on business expenditure, but not household or individual expenditure. While some studies do consider variables on more than one level (for example, Chen and Snodgrass's (2001) consideration of both household and business income) there is simply not enough data available to assess whether specific interventions (micro-credit, micro-savings or micro-leasing) influence outcomes to different extents at different levels.

It is not always completely clear theoretically, let alone from the evidence, whether there are clear divisions between these different levels in the lives of the poor. On the one hand, household and individual finances may be a greater indication of the poverty of poor people, as this reflects their quality of life; business finances can be more complex and may not translate into net profits, let alone actual increases in wealth for business owners and their families. On the other hand, as Ssendi and Anderson (2009) highlight the close links within poor households between household finances and the finances of the household's business(es) may make these distinctions redundant.

In the sections above we have answered for each study what level impacts have been measured at and the extent and nature of these impacts, but it is not possible to provide a synthesised answer which brings together the available data to address the question 'do these impacts occur at the individual, household or business levels'.

Table 3.4: The different levels at which impacts are measured within included studies

	Individual income	Individual expenditure	Individual accumulation of financial assets	Individual accumulation of non-financial assets	Household income	Household expenditure	Household accumulation of financial assets	Household accumulation of non-financial assets	Business income	Business expenditure	Business accumulation of financial assets (savings)	Business accumulation of non-financial assets
Augsburg et al. (2011)							x			x		
Bahng (2009)				x				x				
Barnes et al .(2001a)		x	x					x	x			x
Barnes et al. (2001b)	x	x	x					x	x			x
Brannen (2010)						x						
Brune et al. (2011)			x			x			x			x
Chen and Snodgrass (2001)					x	x			x			
Cuong (2008)	x	x										
Dunn and Arbuckle (2001)			x		x	x		x	x			x
Dupas and Robinson (2011)	x								x		x	
Erulkar and Chong (2005)	x		x					x				
Gubert and Roubaud (2005)												
Kaboski and Townsend (2009)						x			x			
Khandker (2005)						x						
Nanor (2008)					x	x			x			
Pitt and Khandker (1998)				x		x						
Takahashi et al. (2010)	x		x	x					x			

3.5.7 Where these interventions are effective, how, for whom, and in what circumstances?

Summary

- These interventions are effective in enabling poor people to engage in economic opportunities:
    - enabling those with relatively higher levels of education or vocational training to start new businesses(evidence from Bosnia and Herzegovina)
    - leading young people with limited education to work longer hours in the family business (in Bosnia and Herzegovina)
    - leading to higher levels of employment of household and non-household members in small businesses (in Peru)
    - increasing the diversity of income sources, the diversity of crops grown and investment in land for cultivation (in Uganda and Zimbabwe).
- These interventions also lead to increased income, savings, expenditure and accumulation of assets in particular circumstances. The current evidence is patchy however, and it is not currently possible to draw lessons for worldwide policy regarding the circumstances in which microfinance has positive outcomes on clients' enterprises.

Where they are effective in enabling poor people to engage in economic opportunities

Focusing only on the data which show microfinance has had a positive impact enabling poor people to engage in economic opportunities enables us to highlight the circumstances in which we know microfinance has been effective, for whom and in what circumstances. The available evidence tells us that:

(84) Rigorous research on micro-credit in Bosnia and Herzegovina shows that micro-credit increases households' engagement in business because it leads those clients who have Grade 10 or above levels of education or vocational training to start new business (Augsburg et al. 2011).

(85) Loans in Bosnia and Herzegovina also increase the numbers of hours worked by 16-19 year olds, particularly those who have only a limited education (primary level only) and whose families had a business irrespective of the loan (Augsburg et al. 2011).

(86) Slightly lower-quality evidence shows that, in Peru, loans have led to higher levels of employment of household and non-household members in small businesses, although this evidence is not 100 percent reliable (Dunn and Arbuckle 2001).

(87) In Uganda and Zimbabwe, slightly less-than-rigorous evidence suggests an increase in the variety of income sources and investment in land for cultivation, and the diversity of crops (Barnes et al. 2001a, 2001b).

In what circumstances does engagement in these economic opportunities impact on poor people's income, savings, expenditure and accumulation of assets?

Focusing only on the data which show microfinance has had a positive impact on the outcomes of the economic opportunities poor people have engaged in enables us to highlight the circumstances in which we know microfinance has been effective, and for whom.

(88) Income levels have increased in the following circumstances:

- For poor famers in Malawi with commitment savings accounts through an increase in the value of their crops (Brune et al. 2011). These farmers averaged 45 years of age and 5.5 years of education. (This is based on high-quality rigorous evidence.)
- For borrowers in Peru (Dunn and Arbuckle 2001), Vietnam (Cuong 2008), Thailand (Kaboski and Townsend 2009) and Uganda (Barnes et al. 2001a) where micro-credit appears to have increased levels of income of borrowers, although this evidence is not 100 percent reliable. In Peru borrowers included men and women with an average age of 42 years (Dunn and Arbuckle 2001). There are not many details about the participants in the Vietnamese study (Cuong 2008); however, we know they were a rural population receiving loans of no more than VND7 million (equivalent to £215 [GBP] in December 2011). We similarly know little about the Thai borrowers, but they included men and women based in rural and semi-urban villages (Kaboski and Townsend 2009). In Uganda borrowers included men and women with an average of four loans (Barnes et al. 2001a). (All of this evidence is slightly less than rigorous and should be viewed with some caution.)
- For young women members of a combined credit and savings programme in Kenya who increased their salaried wages (Erulkar and Chong 2005). This group included girls aged 16-22 living in low-income and slum areas of Nairobi. (Again this is from slightly unreliable evidence and should be viewed with caution.)
- For women with combined savings and borrowing services in India who were all from low-income households, were over 18 years of age and were economically active (Chen and Snodgrass 2001). (This too is from less rigorous evidence.)

(89) Financial assets (i.e. savings) have increased in the following circumstances:

- For rural farmers in Malawi with commitment savings accounts who were able to save more and withdraw more money in the planting season when people often go hungry (Brune et al. 2011). These farmers averaged 45 years of age and 5.5 years of education. (This is from high-quality evidence.)
- For female market vendors with micro-savings accounts in Kenya who saved more cash without depleting their savings in animals or ROSCAs (Dupas and Robinson Oct 2011). It is worth noting that these accounts were interest-free but included substantial withdrawal fees equating to negative interest

rates. (This is from a rigorous study design although we have some concerns about the reliability of this study.)

- For male and female borrowers in Uganda and Zimbabwe (Barnes et al. 2001a, 2001b). In Uganda these clients had an average of four loans, and in both countries clients had received business training prior to receiving loans. (This is from slightly unreliable evidence and should be viewed with caution.)

(90) Microfinance clients have accumulated more non-financial assets in the following circumstances:

- Rural farmers in Malawi with commitment savings accounts, an average age of 45 years and 5.5 years of education, specifically through their accumulation of land for cultivation and farm inputs such as seed, fertiliser and pesticides (Brune et al. 2011). (This is from high-quality evidence.)
- Male and female clients in Uganda who had an average of four loans also accumulated more agricultural inputs and other business assets (Barnes et al. 2001a). (This is from slightly unreliable evidence and should be viewed with caution.)
- Clients in Peru who had been in the programme for at least two years (i.e. not new entrants) accumulated more fixed assets in their primary micro-enterprises (Dunn and Arbuckle 2001). They included men and women and had an average age of 42 years. (This is from slightly unreliable evidence and should be viewed with caution.)
- Young women of 20-22 years of age living in slum areas of Nairobi who took part in a combined savings and credit programme in Kenya who increased their number of household assets (Erulkar and Chong 2005). (This is from slightly unreliable evidence and should be viewed with caution.)

(91) Expenditure also increased for microfinance clients in the following circumstances:

- Farmers in Malawi with commitment savings accounts who increased their household expenditure (Brune et al. 2011). These farmers averaged 45 years of age and 5.5 years of education. (This is from high-quality evidence.)
- Female market vendors with negative-interest micro-savings accounts in Kenya increased their expenditure, mostly on personal items such as alcohol, clothing and hairstyling (Dupas and Robinson Oct 2011). (This is from a rigorous study design although we have some concerns about the reliability of this study.)
- Clients of micro-credit schemes in Vietnam (Cuong 2008). There are not many details about the participants in the Vietnamese study; however, we know they were a rural population receiving loans of no more than VND7 million (equivalent to £215 [GBP] in December 2011). (This is from slightly unreliable evidence and should be viewed with caution.)
- Households in rural and semi-urban villages in Thailand with micro-credit loans who increased their expenditure on items such as fuel, meat and alcohol (Kaboski and Townsend 2009). (This is from slightly unreliable evidence and should be viewed with caution.)
- Poor rural households in Bangladesh who had loans from one of three microfinance institutions (Bangaldesh Rural Advancement Committee

[BRAC], Grameen Bank and the Bangladesh Rural Development Board (BRDB)'s Rural Development 12 programme) spent more on both food and non-food items (Khandker 2005). (This is from slightly unreliable evidence and should be viewed with caution.)

- Women in India who were clients of a combined micro-savings and micro-credit bank who spent more on housing improvements and consumer durables (Chen and Snodgrass 2001). These women were all from low-income households, were over 18 years of age and were economically active. (This is from slightly unreliable evidence and should be viewed with caution.)

3.5.8 Where these interventions are delivered in combination with each other and/or with other complementary interventions, such as market development skills, are they more likely to be successful?

Summary

- We did not identify in this review any good quality relevant evidence to assess whether combining micro-credit, micro-leasing or micro-savings with other complementary interventions is more or less successful.

Examination of the elements of the microfinance assessed in the included studies reveals a wide variety of combined interventions (see Table 3.5). It is regrettable however that currently there is a lack of clear detail from many studies about the nature of the linked interventions. While some merely mention that business training occurred, others describe the number of hours of training provided and outline the content.

Furthermore, the nature of the study designs used to measure the specific impacts of the interventions of interest in this review means it is not possible to draw lessons about the importance of related interventions. Those studies which focus, for example, on the provision of savings accounts to poor farmers, in order to isolate the impacts of these accounts, ensure that all other variables are equal – thus both the intervention and control groups are given the same financial literacy training. The impact of this training is deliberately not considered within the study.

We therefore conclude that currently we do not have evidence to assess whether combining micro-credit, micro-leasing or micro-savings with other complementary interventions is more or less successful.

Table 3.5: An overview of the complementary interventions in the studies included in this review

Elements of intervention[37]	Number of Studies	
Micro-credit	17	All included studies had a micro-credit element.
Micro-leasing	0	
Micro-savings	15	All but 2 studies included had a micro-savings element (not Brune et al. [2011] or Cuong [2008]), although this was often a compulsory condition prior to receiving a loan.
With micro-insurance	3	Bahng (2009), Brannen (2010), Chen and Snodgrass (2001)
With financial literacy training	5	Barnes et al (2001b), Brannen (2010), Brune et al. (2011), Erulkar and Chong 2005, Khandker (2005).
With other linked intervention	5	Barnes et al. (2001a) – one of the 3 MFIs providing credit also provided non-formal education in health, nutrition, family planning, HIV/AIDS prevention and better business management. Brune et al. (2011) – savers also offered raffle tickets in proportion to the savings accrued. Dupas and Robinson (2011) – clients had the opportunities to purchase shares. Erulkar and Chong (2005) – girls received mentoring and had access to reproductive health education. Nanor (2008) – 1 of the 4 banks providing microfinance included an education element.

3.5.9 i)Which interventions work better for women, particularly female-headed micro-enterprises? and ii) When interventions specifically target women, particularly female-headed micro-enterprises, are they more successful than those that do not?

Summary

- There is a lack of available evidence relating micro-leasing so it is not possible draw conclusions about its impact on outcomes for women.
- Evidence from the two interventions that target women in India and girls in Kenya suggest largely positive outcomes for members, but we do not know if these results are due in any way to the fact that they focus on women.
- Evidence from Kenya does suggest that savings accounts have more positive results for female clients than for male clients, although the authors comment that there are limitations to the data available on male participants, so, while we can be fairly confident of the positive impacts for women, we do not have enough evidence to support specifically targeting women.
- Other evidence of outcomes for women is varied. It is not possible to ascertain whether microfinance is disproportionally effective for women or not.

[37] It is important that, while interventions often included more than one element, the researchers did not necessarily focus on the impact of all elements. Appendix 3.1 summarises those interventions evaluated in each study.

In order to conduct analyses to address this question, we would ideally have evidence for a range of interventions with similar settings and populations to allow us to compare which interventions work better than others for women. Of the 17 studies included in this review, only five report relevant findings specifically for female clients providing evidence of causal links between micro-credit and/or micro-savings and outcomes for women (Barnes et al 2001b, Chen and Snodgrass 2001, Dupas and Robinson Oct 2011, Erulkar and Chong 2005 Kaboski and Townsend 2009). Two of these specifically target women: SEWA Bank in India provides credit and savings services to women for their businesses (Chen and Snodgrass 2001), while the TRY programme in Kenya provides credit and savings as well as business training and mentoring to young women aged 16-22 living in the slums of Nairobi (Erulkar and Chong 2005).

While these studies which either target women and/or assess outcomes specifically for women include a range of interventions, they also provide evidence from very different settings and for varied populations of women making comparative analysis impossible. Unfortunately this means it is impossible to know which interventions work best, or whether targeting women is particularly important. We are only able to draw out what we can learn from the best evidence we do have. We have therefore presented in Table 3.6 what we have learnt from those studies which indicate causal relationships between microfinance and outcomes for women and summarised these below.

(92) There is no available evidence relating micro-leasing and outcomes for women.

(93) Evidence from the two interventions that target women in India and girls in Kenya suggest largely positive outcomes for members, but we do not know if these results are due in any way to the fact that they focus on women.

(94) Evidence from Kenya (Dupas and Robinson Oct 2011) does suggest that savings accounts have more positive results for female clients than for male clients, although the authors comment that there are limitations to the data available on male participants, so, while we can be fairly confident of the positive impacts for women, we do not have enough evidence to support specifically targeting women.

(95) Other evidence of outcomes for women is varied. It is not possible to ascertain whether microfinance is disproportionally effective for women or not.

Table 3.6: An overview of female-targeting interventions and/or female-specific outcomes

Intervention	Outcomes assessed for women	What we can learn specifically about female clients
Combined micro-credit and savings targeted at young women (16-22 years) in Kenya (Erulkar et al. 2005 – medium-quality study using a less rigorous study design)	Individual savings	There are some doubts about these findings due to differences in the levels of savings held by girls within the TRY programme at the start of the study compared to the control group. However, the programme does appear to have increased levels of savings, particularly in the older age group (20-22 years)
	Household assets	The combined micro-credit and micro-savings programme significantly increased the number of assets held by girls, particularly among the older age group (20-22 years).
	Salaried income	The combined micro-credit and micro-savings programme significantly increased the levels of wages of participating girls. Again, this was particularly significant for older girls (20-22 years).
Combined micro-credit and savings provided by SEWA Bank targeted at female-headed micro-enterprises in India (Chen and Snodgrass 2001 – medium-quality study using a less rigorous study design)	Income diversification	There was no evidence to show that women's bank membership, either credit or savings, was associated with income diversification.
	Household expenditure	Members of the bank were found to spend significantly more on housing improvements and expenditure on consumer durables. There was no significant association between bank membership and expenditure on food or an ability to deal with financial shocks.
	Household income	Women who borrowed from and saved with the bank had significantly higher incomes than non-members (both total and per capita), although members who only saved did not.
	Business income	Borrowing money had a significant impact on the level of women's informal sector earnings, but saving money did not. Borrowing money raised clients' business income, but saving money did not. Borrowers had significantly higher levels of employed hours than either savers or the control group.

Intervention	Outcomes assessed for women	What we can learn specifically about female clients
Micro-savings accounts for men and women in Kenya (Dupas and Robinson Oct 2011 – medium-quality study using a rigorous study design)	Levels of business savings	Female market vendors were able to significantly increase their cash savings without significantly depleting their savings in animals or in ROSCAs. This result was not true for men.
	Levels of business expenditure	Women did not significantly increase their levels of business expenditure (and neither did men)
	Overall expenditure	Women significantly increased their expenditure on private items such as cigarettes and hairstyling and to a lesser extent food items. Men did not.
Micro-credit for men and women in Zimbabwe (Barnes et al. 2001b – medium-quality study using a less rigorous study design)	Women's control over household earning	There was inconclusive evidence from Zimbabwe that micro-credit increased women's control over earnings from the businesses, although there does seem to have been greater consultation and joint decision-making.
Micro-credit for men and women in Thailand (Kaboski and Townsend 2009 – medium-quality study using a less rigorous study design)	Business income	Female-headed households were no more likely than male-headed households to have increased their levels of agricultural income. There was evidence that a greater proportion of female-headed households increased their overall business income than male-headed ones.

3.6 Summary of results of synthesis including only the high-quality evidence

This review included three studies with the most rigorous study designs (Augsburg et al 2011, Brune et al. 2011, Dupas and Robinson Oct 2011). We did have some concerns about the potential for bias in one of these three (Dupas and Robinson Oct 2011), and findings from this study should be viewed with more caution. Nonetheless, together they represent the best available evidence on microfinance and, as such, we have summarised their findings below. See Table 3.7 for more detail.

ENGAGING IN ECONOMIC OPPORTUNITIES – what the best evidence says

- We found a lack of high-quality rigorous evidence of micro-leasing or of combined micro-credit and micro-savings and their impact, either positive or negative, on poor people's engagement in economic opportunities.
- There is evidence from one study in Kenya, which has a rigorous study-design but has a small risk of bias, that micro-savings do not significantly increase poor people's engagement in economic opportunities.
- One reliable high-quality study from Bosnia and Herzegovina shows that micro-credit leads the better educated borrowers to start new businesses.

MEANINGFUL ECONOMIC OPPORTUNITIES: IMPACTING ON INCOME

- We found a lack of high-quality rigorous evidence about micro-leasing, micro-credit or combined micro-credit and micro-savings increasing or decreasing the income of poor people's economic activities.
- One rigorous high-quality study from Malawi shows that micro-savings using a commitment account increases the value of savers' businesses, but does not increase their business profits. Ordinary savings accounts have no effects.

MEANINGFUL ECONOMIC OPPORTUNITIES: IMPACTING ON ACCUMULATION OF FINANCIAL ASSETS (SAVINGS)

- We found a lack of high-quality rigorous evidence of micro-leasing or of combined micro-credit and micro-savings increasing or decreasing the levels of savings among poor people.
- The evidence shows that micro-savings does significantly increase people's savings in Malawi and Kenya, although in Kenya this is only true for women. Both studies use rigorous study designs although the Kenyan evidence is judged to be a little more prone to bias.
- High quality rigorous evidence on micro-credit (from Bosnia and Herzegovina) suggests that micro-credit has reduced people's level of savings.

MEANINGFUL ECONOMIC OPPORTUNITIES: IMPACTING ON ACCUMULATION OF NON-FINANCIAL ASSETS

- We found a lack of high-quality rigorous evidence about micro-leasing, micro-credit or combined micro-credit and micro-savings increasing or decreasing the accumulation of non-financial assets among poor people.
- High quality rigorous evidence from Malawi shows that micro-savings using a commitment account increases savers' accumulation of non-financial assets; however, ordinary accounts have no significant impact.

MEANINGFUL ECONOMIC OPPORTUNITIES: IMPACTING ON EXPENDITURE

- We found a lack of highquality rigorous evidence of micro-leasing or of combined micro-credit and micro-savings affecting expenditure.
- It is not always clear what changes in levels of expenditure mean, as they can relate to increased investment in productive goods (such as a bicycle or sewing machine), an increased quality of life (such as better nutrition) or merely an indication of more cash to spend.
- Reliable high-quality evidence from Malawi shows micro-savings has no significant impact on expenditure. Evidence from Kenya, which uses similarly rigorous study designs but has some risk of bias, similarly shows no impact on business expenditure or on gifts and remittances, although it does suggest micro-savings significantly increases spending on foodstuffs and personal items such as alcohol and clothing.
- Rigorous high-quality evidence from Bosnia and Herzegovina showed no significant effect of micro-credit on business consumption but found a significant decrease in consumption of food at home among clients with businesses who have low levels of education.

Table 3.7: A summary of the evidence from only the most rigorous study designs

Evidence from the most robust study designs of microfinances' impact on engagement in economic opportunities			
Intervention	Study[38]	Direction of effect	Narrative
Micro-leasing	*No studies*		
Micro-savings	Dupas and Robinson (2011)	*Hours worked per day: no significant effect*	*The authors find no effect of the account on the number of hours worked per day.*
Micro-credit	Augsburg et al. (2011)	*Business creation and development: + (significant at the 5% level)* *Hours worked: + (among 16-19 year olds)*	*At the time of follow-up, borrowers were almost 6% more likely to own a business compared to the control group that did not receive a loan. This result was due to new business ownership among the highly education borrowers.* *This study found that young people aged 16-19 worked significantly longer hours in households that had micro-credit than in those which did not. This was particularly the case in those households that already had a business at the start of the study and those where the borrower only had a primary education.*
Combined credit and savings	*No studies*		

[38] Studies are indicated by the first author and date of publication. There are two reports by Barnes and colleagues published in 2001. These are Barnes et al (2001a) in Uganda' and Barnes et al (2001b) in Zimbabwe.

Evidence from the most robust study designs of whether microfinance increases income			
Micro-leasing	*No studies*		
Micro-savings	Brune et al. (2011)	*Business income (value of crops): + for the commitment (no raffle) account (significant at the 1% level), no significant effect of the ordinary (no raffle) account* *Business income (farm profits): no significant effect*	*The value of the crop sold, as well as unsold output, was significantly higher for the commitment farmers than controls. There was no significant impact on the value of crops for famers in the ordinary account group.* *Neither the commitment nor the ordinary accounts have a significant impact on farm profits.*
Micro-credit	*No studies*		
Combined credit and savings	*No studies*		

Evidence from the most robust study designs of whether microfinance increases savings			
Micro-leasing	*No studies*		
Micro-savings	Brune et al. (2011)	*Individual savings: + (at the 1% level)*	*Farmers in each of the six savings treatment conditions had significantly higher deposits (at the 1% significance level) than farmers in the control group.* *The commitment treatment groups (combined) withdrew more net money in the planting season than the controls (significant at the 1% level), while the ordinary savings accounts had no significant impact on transactions in this time period. This suggests that the commitment account was successful in encouraging farmers to save funds for the 'hungry' season.* *The commitment savings, no raffle treatment led to a small increase in net deposits (not significant at the 5% level), and the effect of the ordinary account without raffle was not statistically different from zero.* *There was no significant difference between the impacts of ordinary and commitment savings accounts on savings. There was also no differential effect of either raffle.*
Micro-savings	Dupas and Robinson (2011)	*+ for female market vendors (significant at the 1% level), but not for men*	*Overall, those who accessed their accounts appear to have significantly higher levels of savings. However, on closer examination, this appears to actually only be the case for market women who increase their cash savings without significantly depleting their savings in animals or in ROSCAs. Male market vendors who accessed their accounts significantly save more cash, but deplete their animal savings and their ROSCA contributions. The authors warn that the small sample size of male market vendors mean this later result should be viewed with caution.*

Micro-credit	Augsburg et al. (2011)	*- (significant at the 5% level)*	*There is an overall reduction in the level of savings by clients. This is predominantly observed among business-owning borrowers, and among borrowers with higher levels of education. The authors also find that it is the same households who actually had a higher amount of savings at baseline that use these savings after receiving a loan.*
Combined credit and savings	*No studies*		
Evidence from the most robust study designs of whether microfinance increases accumulation of non-financial assets			
Micro-leasing	*No studies*		
Micro-savings	Brune et al. (2011)	*Business investment/accumulation of business (non-financial) assets:* *+ for the commitment (no raffle) account (significant at the 5% level),* *no significant effect for the ordinary account (not raffle)*	*'The commitment (no raffle) treatment had a large positive and statistically significant effect on both land under cultivation and the total value of inputs used (which include seed, fertilizer, pesticides, hired labour, transport and firewood for curing) in the late-2009 planting.'* *There is no significant effect of the ordinary (no raffle) account on the accumulation of non-financial business assets.*
Micro-credit	*No studies*		
Combined credit and savings	*No studies*		

Evidence from the most robust study designs of whether microfinance increases expenditure			
Micro-leasing	*No studies*		
Micro-savings	Brune et al. (2011)	*+ for the commitment (no raffle) account (at the 5% level), no significant effect for the ordinary account* *Household cash transfers/gifts: No significant effect of commitment account*	*The commitment account has a significant positive impact on the levels of household expenditures while the ordinary account has no significant impact.* *The authors found no evidence of a reduction in gifts (net transfers) to other members of social networks by those farmers with a commitment (no raffle) account.*
Micro-savings	Dupas and Robinson (2011)	*Actual account use: + for overall expenditure (at the 1% level);* *+ for food expenditure (at the 1% level);* *+ for private expenditure (at the 1% level) (which includes meals in restaurants, sodas, alcohol, cigarettes, own clothing, hairstyling and entertainment expenses)* *Business expenditure (cash investment in business): no significant effect for those female market vendors who actually have an active account (only at 10% level which is not considered high enough in this review), nor for male vendors or bicycle taxi drivers.* *Transfers of cash and gifts: no significant effect*	*Closer examination of these data showed that they were only significant for women, and mostly related to private expenditure.* *The authors discuss a significant effect of the account on the average daily amount of money invested in the business by female market vendors but not for male vendors or for bicycle-taxi drivers. However, this is only from the intention-to-treat analysis. When focusing on only those women who had an active account, this is no longer significant (at the 5% level).* *The authors found no significant effect of having a savings account on the transfer of cash or gifts within or out of the household even with disaggregating findings by business categories or gender.*

Micro-credit	Augsburg et al. (2011)	*No significant effect on consumption for existing business owners* *Increase in consumption of food stuffs for existing business owners with low levels of education: - (significant at the 1% level)*	*The study finds no significant effect of credit on business consumption – the authors suggest this is because the loans were too small.* *The authors find a significant decrease in consumption of food at home among clients with businesses who have low levels of education. As the authors find no significant reduction in consumption outside the home, they conclude that borrowers have to adjust in-home expenses in order to protect business expenses.*
Combined credit and savings	*No studies*		

3.7 Summary of results of synthesis of all good-enough evidence

The summary below draws on all 17 included studies, including those which use less-than-rigorous study designs and have been judged to have a risk of bias. These are nevertheless the best available 17 studies and as such worthy of consideration.

Do micro-credit, micro-savings and micro-leasing serve as effective financial inclusion interventions enabling poor people, and especially women, to engage in meaningful economic opportunities in LMICs?

ENGAGING IN ECONOMIC OPPORTUNITIES

- We found a lack of evidence of micro-leasing and whether or not it increases or decreases poor people's engagement in economic opportunities.
- The evidence shows that micro-savings do not significantly increase poor people's engagement in economic opportunities.
- There is some evidence that micro-credit influences poor people's engagement in economic opportunities. Only the research from Bosnia and Herzegovina is reliable however, and the studies from Uganda, Zimbabwe and Peru should be considered with caution. The evidence shows that micro-credit leads the better educated borrowers in Bosnia and Herzegovina to start new businesses, and appears to lead to income diversification in Uganda and Zimbabwe, including crop diversification and the starting of second businesses, although it leads to less diversification among the higher-income borrowers in Peru.
- The evidence on combined micro-credit and micro-savings suggests that these do not impact on income diversification, although borrower/savers are more likely to have more than one business.

MEANINGFUL ECONOMIC OPPORTUNITIES: IMPACTING ON INCOME

- We found no evidence about micro-leasing increasing the income of poor people's economic activities.
- The available evidence shows that micro-savings using a commitment account increases the value of savers' businesses, but does not increase their business profits (in Malawi). Ordinary savings accounts have no effects.
- Micro-credit appears to have a largely positive impact on borrowers' income, although these data are not completely reliable and may be prone to bias. Data from Ghana show a positive association between credit and income in some areas but a negative one in others, and in some areas those who have been borrowers for longer have lower incomes.
- Combined micro-credit and micro-savings appear to increase income in India and Kenya, but not in Indonesia. These studies are however prone to bias.

MEANINGFUL ECONOMIC OPPORTUNITIES: IMPACTING ON ACCUMULATION OF FINANCIAL ASSETS (SAVINGS)

- We found a lack of evidence about micro-leasing and whether or not it increases or decreases the levels of savings among poor people.
- The evidence shows that micro-savings does significantly increase people's savings in Malawi and Kenya, although in Kenya this is only true for women.
- The best available evidence on micro-credit (from Bosnia and Herzegovina) suggests that micro-credit has reduced people's level of savings, while slightly less reliable evidence from Uganda and Zimbabwe finds that borrowers' savings increase. In Peru credit is found to have no impact on savings.
- Data from Kenya and Indonesia find no significant effects of combined micro-credit and micro-savings on levels of savings, although these data are not 100 percent reliable.

MEANINGFUL ECONOMIC OPPORTUNITIES: IMPACTING ON ACCUMULATION OF NON-FINANCIAL ASSETS

- We found no studies about micro-leasing and whether it increases or decreases the accumulation of non-financial assets among poor people.
- Reliable evidence from Malawi shows that micro-savings using a commitment account increases savers' accumulation of non-financial assets; however, ordinary accounts have no significant impact.
- Three slightly less reliable studies of micro-credit find no significant impact of micro-credit on the accumulation of non-financial assets at the household level, although two did find a significant impact at the business level. One further study from Bangladesh found a significant association between women taking out loans and their accumulation of non-land assets; however this evidence is not sufficient to establish a causal relationship.
- Evidence on the impact of combined micro-credit and micro-savings is not 100 percent reliable but suggests mixed effects with regard to the accumulation of non-financial assets: in Indonesia there was no effect found while in Kenya researchers found a positive significant impact of combined micro-credit and micro-savings on the accumulation of non-financial assets. There is a negative association in Ethiopia between combined micro-credit and micro-savings and clients' holding of assets and also their need to sell goods to pay for basic needs, while there is no association between engagement in the programme and the ownership of livestock.

MEANINGFUL ECONOMIC OPPORTUNITIES: IMPACTING ON EXPENDITURE

- We found no studies about micro-leasing affecting expenditure.
- It is not always clear what changes in levels of expenditure mean, as they can relate to increased investment in productive goods (such as a bicycle or sewing machine), an increased quality of life (such as better nutrition) or merely an indication of more cash to spend.

- Reliable evidence from Malawi shows micro-savings has no significant impact on expenditure. Evidence from Kenya similarly shows no impact on business expenditure or on gifts and remittances, although it does suggest micro-savings significantly increases spending on foodstuffs and personal items such as alcohol and clothing.
- High quality evidence from Bosnia and Herzegovina showed no significant effect of micro-credit on business consumption but found a significant decrease in consumption of food at home among clients with businesses who have low levels of education. Slightly less reliable studies suggest that micro-credit increases expenditure in Thailand, Bangladesh and Vietnam although this is contradicted by other similar studies in Peru, Zimbabwe and Uganda. There is a positive association between expenditure and loans in data from Bangladesh although this is not evidence of a causal relationship.
- Combined micro-credit and micro-savings in India appears to have increased spending on housing improvements and consumer goods, but not on food; however, this evidence is not 100 percent reliable. Two other studies do show an association between household expenditure and participation in combined credit and savings programmes in Zanzibar (Tanzania) and Ghana although the evidence from Ghana applies to some regions and not others, and both these studies are not robust enough to establish a causal relationship.

Do these impacts occur at the individual, household or business levels?

- While impacts are measured at varying levels within studies, there is insufficient evidence to enable us to identify patterns in how microfinance impacts on individual, household and business levels.
- We do not know whether microfinance impacts more or less at the individual, household or business level. Indeed, it is not always completely clear theoretically, let alone from the evidence, whether there are clear divisions between these different levels in the lives of the poor.
- More research is needed which considers the impacts at all of these levels in order to shed further light on this issue.

Where these interventions are effective, how, for whom, and in what circumstances?

- These interventions are effective in enabling poor people to engage in economic opportunities:
  - enabling those with relatively higher levels of education or vocational training to start new businesses (evidence from Bosnia and Herzegovina)
  - leading young people with limited education to work longer hours in the family business (in Bosnia and Herzegovina)
  - leading to higher levels of employment of household and non-household members in small businesses (in Peru)
  - increasing the diversity of income sources, the diversity of crops grown and investment in land for cultivation (in Uganda and Zimbabwe).

- These interventions also lead to increased income, savings, expenditure and accumulation of assets in particular circumstances. The current evidence is patchy however, and it is not currently possible to draw lessons for worldwide policy regarding the circumstances in which microfinance has positive outcomes on clients' enterprises.

Where these interventions are delivered in combination with each other and/or with other complementary interventions, such as market development skills, are they more likely to be successful?

- We do not have evidence to assess whether combining micro-credit, micro-leasing or micro-savings with other complementary interventions is more or less successful.

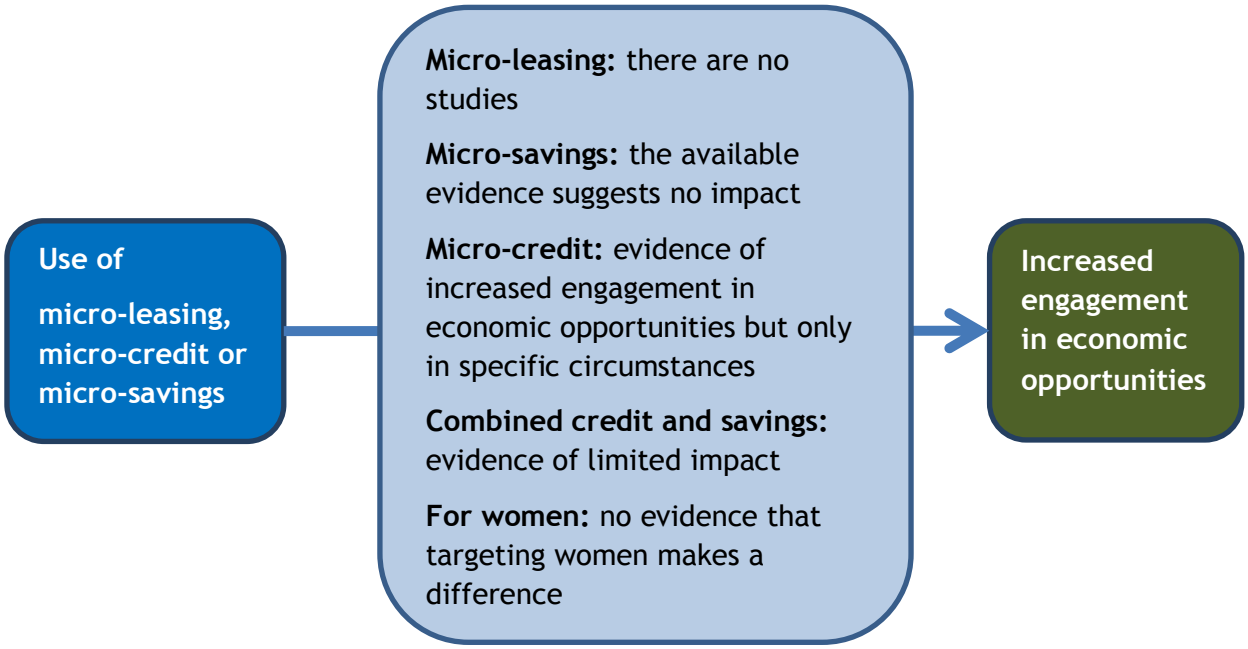
Which interventions work better for women, particularly female-headed micro enterprises? When interventions specifically target women, particularly female-headed micro-enterprises, are they more successful than those that do not?

- There is no available evidence relating micro-leasing and outcomes for women.
- Evidence from the two interventions that target women in India and girls in Kenya suggest largely positive outcomes for members, but we do not know if these results are due in any way to the fact that they focus on women.
- Evidence from Kenya does suggest that savings accounts have more positive results for female clients than for male clients, although the authors comment that there are limitations to the data available on male participants so, while we can be fairly confident of the positive impacts for women, we do not have enough evidence to support specifically targeting women.
- Other evidence of outcomes for women is varied. It is not possible to ascertain whether microfinance is disproportionally effective for women or not.

3.8 Understanding how microfinance works: a causal pathway to unpack the implications of our synthesised results

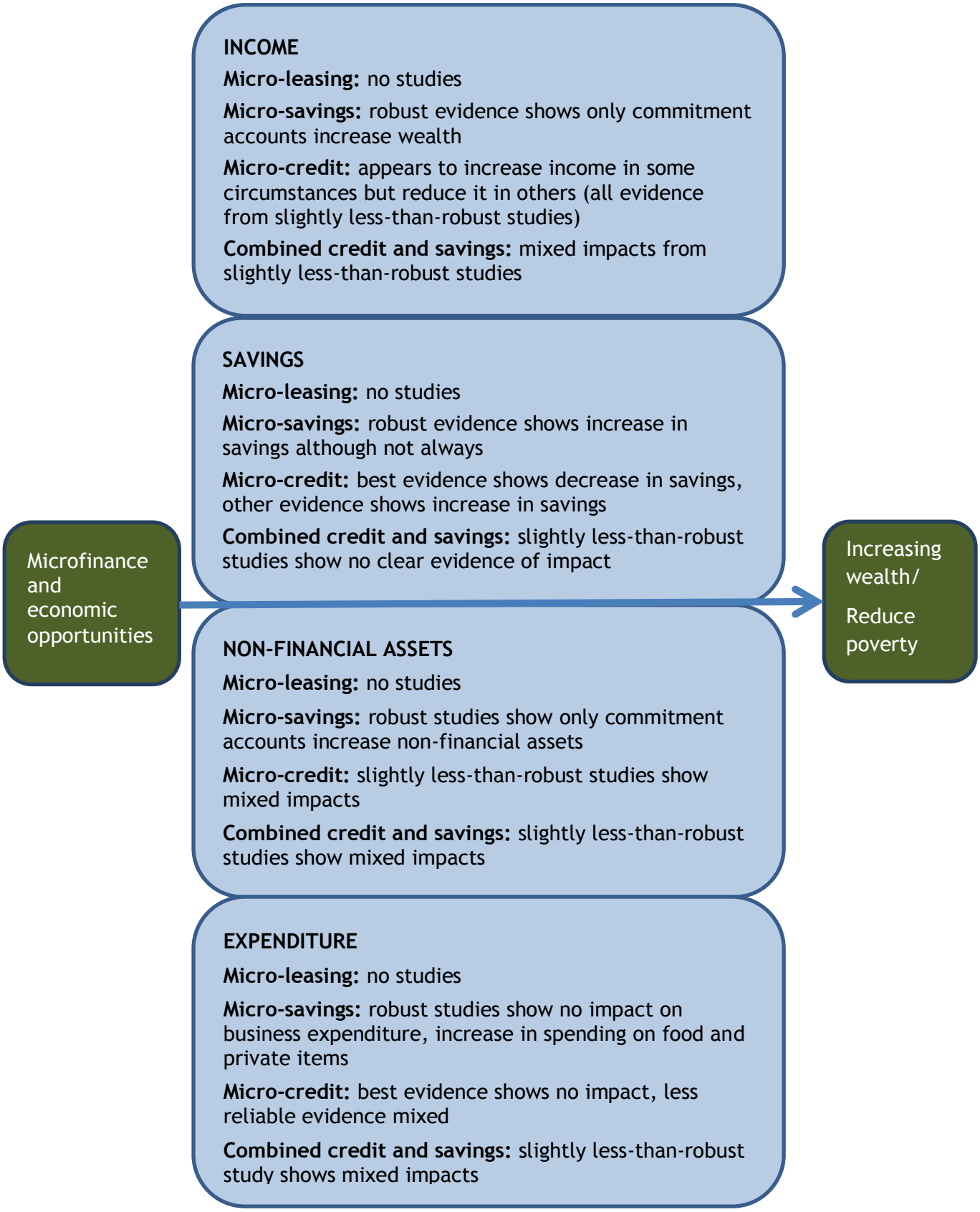
This review explores two key stages in the causal pathway of micro-leasing, micro-credit and micro-savings as laid out in Figure 1.2 at the beginning of this review. The first is addressing the question of whether microfinance increases engagement in economic opportunities. Our findings from this review are summarised in Figure 3.2 below.

Figure 3.2: A summary of the evidence on whether microfinance increases engagement in economic opportunities



Understanding the second stage, as to whether or not microfinance-supported economic opportunities are more or less successful at reducing poverty is even more complex. We have summarised our findings in Figure 3.3 below.

Figure 3.3: A summary of the evidence on whether microfinance and economic opportunities increase wealth and reduce poverty



The next stage is to explore the processes which appear to be in place in these two stages.

Engagement in economic opportunities

In terms of engagement in economic opportunities, it appears logical that those who do not take out loans (i.e. those using only micro-savings) will not have an immediate change in their purchasing power so are not likely to increase their engagement in economic opportunities although they may be able to develop their business or start a new business.

As for those clients who take out loans, either with or without micro-savings accounts, we would expect to see a change in their spending behaviour. In our earlier review of the impact of microfinance in sub-Saharan Africa we reflected on the ways in which clients of microfinance change their spending behaviour (Stewart et al. 2010b). In that review we highlighted four areas in which clients of micro-credit and micro-savings spend their money differently:

> 1. Investing in the immediate future through businesses, other productive assets (such as land), adult education[39] and training, and workers' health and nutrition. We know from the evidence of effectiveness, and therefore theorise, that these investments have the potential to increase income.
>
> 2. Consumptive spending with scope for productivity through adding to their housing, and gaining assets which retain value, such as refrigerators, sewing machines or houses themselves. Again, we know from the evidence that clients do invest in these types of assets.
>
> 3. Investing in the long-term future, such as children's education or their health and nutrition. The evidence suggests that clients make decisions which improve children's health and nutrition, but not their education. Whilst in theory these investments have long-term benefits, the logic modelled in Figure 3.4[40] shows how this does not increase clients' ability to repay their loans.
>
> 4. Consumptive spending which is non-productive (sometimes referred to as consumptive smoothing), such as wedding or funeral expenses, or the accumulation of household items such as soap. The evidence suggests that clients do increase their expenditure on these types of items and as the logic shows, such expenditures leave clients in debt.' (Stewart et al. 2010b:41)

Given the range of ways in which micro-credit clients could invest their finances, it is therefore not surprising that not all clients engage in economic opportunities.

Increasing wealth and reducing poverty

In Figure 1.3, we presented a causal pathway for how micro-savings, micro-credit and micro-leasing might, in theory, impact on the wealth and poverty of clients. Based on our findings from our synthesis of the available evidence of effectiveness, we are able to comment further on the extent to which this theoretical pathway is reflected in the evidence (represented in Figure 3.4 below). Where there is no positive or negative impact indicated we simply have no evidence. Where both are marked, the evidence is mixed.

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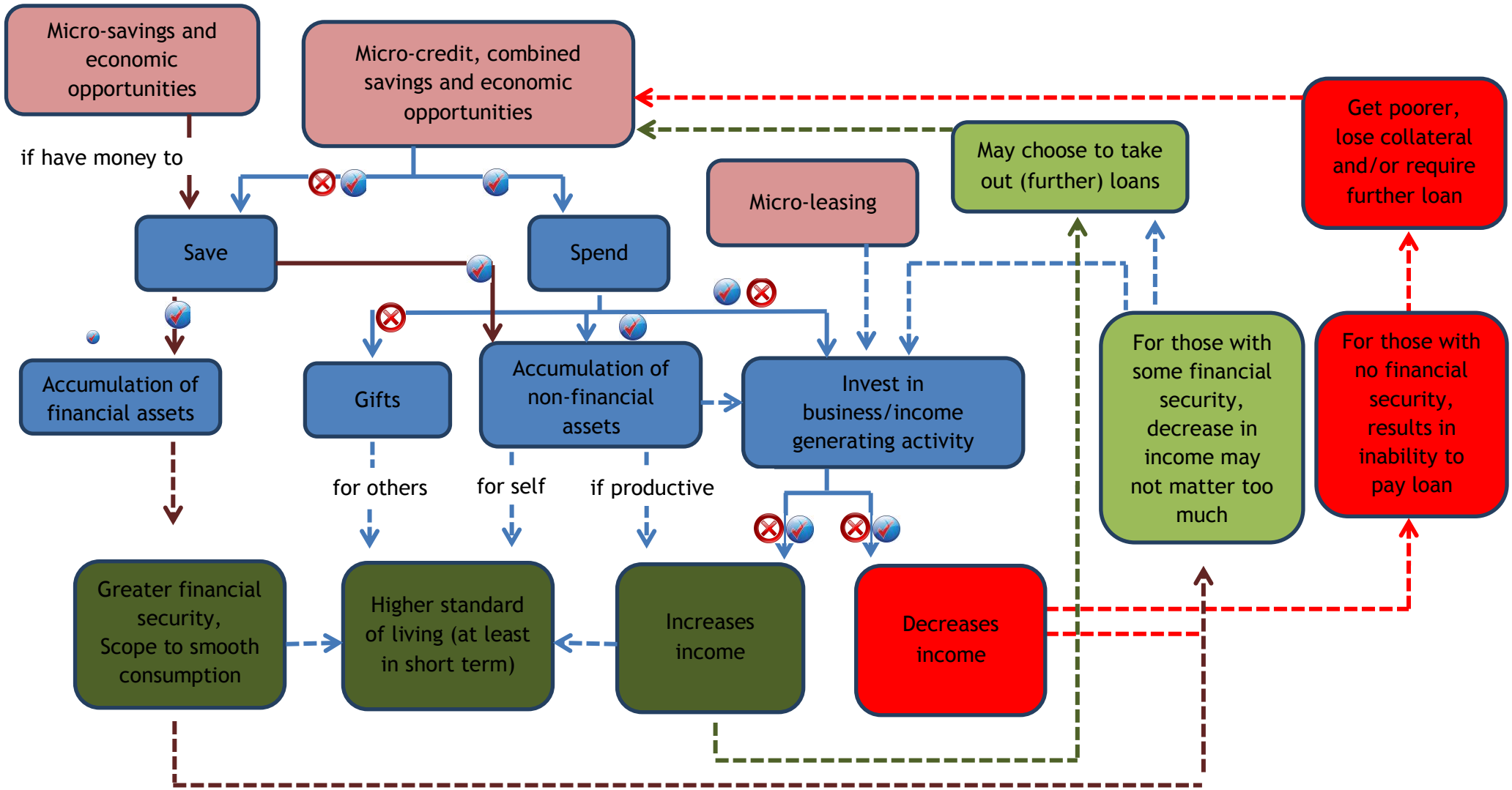
[39] While adult education has the potential to increase wealth, for example by enhancing business skills, we acknowledge that this does sometimes equate to a long-term investment rather than a short-term one.
[40] See Stewart et al. (2010b).

The implications of these findings are discussed further in section 4; however, it is worth noting here that there are many stages of this pathway for which we have either no clear evidence and are relying on theory, or for which we have contradictory evidence and need to focus future research more closely to identify who benefits (or not) from these interventions and in which circumstances.

The varied nature of the evidence makes it difficult to draw conclusions; however, it is clear that both micro-credit and micro-savings can reduce poverty but do not in all circumstances or for all clients. Given these varied results, it is important to consider whether there is potential for harm in offering either of these services, or indeed in not doing so. While the absence of financial services may limit the ability of the poor to withstand shocks or to increase their wealth, micro-credit also brings the risk of increased debt and loss of collateral. It is harder to envisage a potential for harm in having a savings account. This logic, combined with the mixed evidence for positive impacts suggests that micro-savings is the 'safer' intervention and that arguably the poorest of the poor should not be offered micro-credit without careful consideration of the implications for their lives of increased debt.

Figure 3.4: Where the evidence supports ✓ or refutes ✗ the theoretical pathway, and where the evidence is lacking (- - --)



4. Discussion and implications

This chapter presents a summary of our findings. After discussing the strengths and weaknesses of the review, we draw out the implications of these findings for policy, practice and research.

4.1 Summary of findings

We identified over 14,000 citations that were assessed against our inclusion criteria and reduced to 84 relevant studies. From these 17 were judged to be of good enough quality for inclusion in this review. The varied nature of the evidence makes it difficult to draw conclusions; however, it is clear that both micro-credit and micro-savings can reduce poverty but do not in all circumstances, nor for all clients. More specifically we found the following in this review.

There is a lack of studies about the impact of micro-leasing, either on engagement in economic opportunities or on the financial outcomes of such engagement.[41] Furthermore, the evidence suggests micro-savings does not enable engagement in economic opportunities, although in some cases, but not all, it increases income, savings, expenditure and the accumulation of non-financial assets. Micro-credit sometimes increases engagement in economic opportunities, but not always. It can also increase income in some circumstances, but reduces it in others. It has similarly mixed impacts on levels of savings and accumulation of assets, and in most cases reduces expenditure, although the advantages or disadvantages of the latter are not entirely clear. Even when combined, the provision of micro-savings and micro-credit has little impact on clients' engagement in economic opportunities. Combined services have mixed impacts on income, the accumulation of non-financial assets and expenditure. There is little evidence about the impact of combined services on levels of savings.

There is not enough evidence to ascertain whether or not these financial interventions have different impacts at the individual, household or business levels, nor can we identify patterns in the exact circumstances in which microfinance has positive impacts for clients. We cannot tell whether combining micro-credit, micro-leasing or micro-savings with other complementary interventions such as business training makes a difference. While some reviewed studies targeted women specifically and others disaggregated outcomes by gender, there is not enough evidence to allow us to conclude whether financial interventions targeted at women are more or less effective for them.

4.2 Quality assurance: the strengths and limitations of this systematic review

Microfinance is a particularly challenging area to evaluate using rigorous research designs, which in turn makes it difficult to systematically review. Challenges include the complexity of microfinance itself, as well as the difficulties of

[41] We are referring here to the lack of research on this topic, which should not be confused with finding evidence that micro-leasing has no impact.

evaluating a social intervention across varied development contexts. We discuss below the lessons we learnt from our previous review and how we have addressed these, as well as a number of methodological issues that have arisen as we have conducted this review. We outline the strengths of our multi-disciplinary team, the challenges of a limited budget and our extensive searching for this review. We discuss our inclusion of a variety of study designs and our critical appraisal of these studies. We also expand on some of the specific decisions with regards to including studies in this review, specifically relating to: the definition of a 'study' and our decision regarding analyses which have sought to replicate previous studies; the lack of detail within some of the papers and our decision to exclude some of these; and our decision to exclude those studies which some experts regard as the best evidence with regards to the impact of microfinance.

4.2.1 Multi-disciplinary team

In conducting this review we have drawn on the subject knowledge and methodological expertise of a range of people. We benefitted from input from those outside of the team as well as team members with backgrounds in economics, development and anthropology as well as those skilled in conducting primary studies and systematic reviews.

As with our previous review, this work benefitted considerably from effective team work. We spent time working together screening, coding and quality assessing the identified reports. While the administration of this process was greatly aided by the use of specialist software (EPPI-Reviewer), it was strengthened by the team's willingness to dedicate time to sitting together working through papers and discussing any anomalies as they arose. We found working together, literally in one room for a period of several days, we were able to discuss, query and confirm any uncertainties, an approach which not only made the review possible, and gave us confidence in our findings, but also allowed the team to learn about systematic review methodology and the topic area.

4.2.2 Limited budget

In contrast to our sub-Saharan African review (Stewart et al. 2010b), we have had 11 months in which to complete the review, as opposed to five, although our budget was comparable. While the extra months did bring some advantages, for example enabling us to source certain publications, it also led the team to give up considerable amounts of their free time to complete the review: we estimate that the review required 100 percent more effort than was initially planned. Through this additional effort, we have been able to complete this review as required. It has also enabled us to include additional colleagues (MK and AC) and, in doing so, extend skills in systematic reviewing and microfinance to a wider team of researchers.

4.2.3 Exhaustive searching for our 17 included studies

The review included exhaustive searching, giving us confidence that we have considered all the relevant evidence. In searching we not only benefitted from the search results of other related systematic reviews, but also conducted new, up-to-

date and comprehensive searches of a wide range of sources. Several of our included studies were published in 2010 or 2011, illustrating how up-to-date the evidence in this review is. As shown in Table 3.3a, the included studies came from a wide range of sources highlighting the importance of searching in places other than bibliographic databases.

While some may consider the evidence base identified surprisingly small, our number of included studies is consistent with other reviews in this area. For our sub-Saharan African review we identified 15 relevant studies but these included those with no consideration of economic engagement and outcomes such as health and education, which are not covered in this review. Duvendack and colleagues' (2011) report that they identified 58 studies, compared to which our 17 appear pitifully small. While this may be due to our more focused interest in microfinance *and* engagement in economic opportunities, we were initially concerned that we had missed important evidence. However, closer examination of Duvendack and colleagues' review reveals that they identified 58 *papers* rather than 58 studies: the actual number of included studies in their review is far fewer. To make a direct comparison to our review, we note that in all we included 32 papers which described 17 studies (see section 5.1 in the references for the full 32 citations) which is more consistent with the 58 papers included by Duvendack and colleagues.

It is important to acknowledge here that we did not find any research about the impacts of micro-leasing which employed comparative study designs despite our exhaustive searching. Given the extent of our searches, we are confident that this was due to the absence of relevant research rather than a limitation in our search strategy (see below for more on this).

The scale of this review and the limited budget available unfortunately made it impossible to contact authors for information that was not available within reported studies. This did force us to exclude 58 studies with missing information, although nine of these were also excluded because they had a high risk of bias. While disappointing, this is not unusual for systematic reviews with such limited budgets. If small-budget reviews such as this one are to be feasible in the future, it will be important to dramatically improve reporting standards for primary studies.

We were pleased to be able to consider papers for this review in more than one language. We do note, however, that the majority of papers were in English. This may be because we only searched for papers using English search terms. However, several of the databases and journals which we searched catalogue non-English papers using English titles and keywords and we did identify a number of papers in French which were excluded because they did not meet our inclusion criteria. Searching only in English may nonetheless have limited the pool of identified papers which we screened for inclusion.

4.2.4 The lack of evidence on micro-leasing

Despite our extensive searching for evidence, we found no studies of the impact of micro-leasing. While we knew little about the literature in this area, we had anticipated identifying some relevant research. It is possible that we were not searching in the right places; however our success in identifying literature about

micro-credit and micro-savings suggests this was not the case. We also used a number of different search terms and so were surprised that we did not identify any relevant studies, let alone good quality ones – none of the 84 studies identified from screening and subjected to critical appraisal were about micro-leasing.

We suspect that leasing is an old practice which has relatively recently been included as a microfinance product and requires the services providers to have specific skills in asset management. It has not had the same prominence that micro-credit and micro-savings have seen over the last 20 years and so has not been subject to the same evaluative scrutiny. Despite the lack of evidence, the theory suggests that this may be a more effective intervention than micro-credit because lending someone a productive asset such as a bicycle or a market stall brings the borrower one step closer to engaging in economic opportunities than lending someone money. There is therefore an imperative for rigorous research in this area.

4.2.5 Varied study designs and their critical appraisal

Including studies which are not RCTs, as we have done, is still unusual in systematic reviews, and being clear about the potential bias in these studies is therefore key. Feedback on our previous review included requests for greater clarity over the specific potential biases considered in our appraisal of studies. We have taken steps to remedy this with a more detailed quality appraisal tool (see Appendix 2.5). We acknowledge that this is not as detailed as the scoring system employed by Duvendack et al. (2011), but judge such a finely grained system not to be warranted. Rather we maintain our pragmatic decision regarding identifying studies which we believe are 'good enough' and from which we can draw lessons for the future of microfinance.

Having said this, we have taken steps to ensure we exclude from this review those studies most subject to bias and to be clear about the potential for bias in those studies which we have included. In doing so, we have reported the findings from those studies with less rigorous study designs separately and been explicit about those studies that we judge to indicate associations between variables and not causal relationships. Our recommendations are consistent with the highest quality evidence included in this review.

4.2.6 Replication of studies

This review presents a particular challenge surrounding the question of what constitutes a study. Economic and econometric studies often consist of analysis of secondary data – the study taking a dataset and conducting particular analyses upon it. The same researchers and/or others will sometimes re-analyse the same dataset. For the purpose of this review, if different analyses were conducted on the same data, they have been grouped together as one 'study'. This in itself presents the challenge of which analyses we critique and quality-assess. In this review we found ourselves in the unusual circumstances (for systematic reviewers) of not only finding multiple papers from the same study (which is relatively common), but also finding studies which have re-analysed the same dataset using slightly different models or statistical tests and, as a result, found different, and

even contradictory, results. This is most apparent in the re-analysis of Pitt and Khandker's 1998 paper, by Roodman and Morduch (2009, 2011) among others. The disparity in the different analyses of the same data leads us to be suspicious of the original findings and the methodology as a whole, as Roodman and Morduch (2009) themselves conclude. While it is not within our scope to discuss the pros and cons of the replication of economic studies[42], we did have to decide how to deal with them within our review. We have chosen to include the original studies but 'downgrade' our confidence in their findings in line with other judgements made during our quality appraisal of all studies considered for inclusion in this review. In this case the Khandker (2005) study which includes data from 1991/92 and 1998/99 (i.e. across time as well as between groups) is therefore included as a comparative study which is important but prone to bias, and the Pitt and Khandker (1998) study, which only considered data from 1991/92, is reported only as one indicating associations between variables and not causal relationships.

We acknowledge that others may have made a different decision regarding these papers, giving them greater weight by including the many additional papers which use similar approaches to analyse the same data (Chemin 2006, Khandker 2000, Menon 2006, Morduch 1998, Nanda 1999, Roodman and Morduch 2009, 2011), or by excluding them altogether. We believe, however, that our approach enables us, as relatively novice econometricians, to apply consistent, pragmatic and rigorous systematic decisions to all those studies considered for inclusion in this review without being distracted by the detailed debates about one specific study. Having said that, we acknowledge that the debate surrounding the Pitt and Khandker (1998) study has informed subsequent research, and has helped us and others to determine quality standards for evidence on microfinance. The purpose of our review is to draw together from across the literature what we know about microfinance, not to act as judge and jury in one of the most hotly debated studies of the development field.

4.2.7 Levels of reporting within studies of microfinance

Systematic reviews are limited to information provided in reports, papers and other literature. As noted above, unfortunately a not-insignificant number of the papers assessed for this review were lacking important details. However, what was particularly surprising in this review was the lack of reporting about the actual intervention being evaluated with a disproportionate focus in reports on studies on models, statistics and datasets, even though the lack of information about the intervention itself renders the findings of these studies relatively meaningless. We also found undue levels of attention paid to the analysis and re-analysis of panel data in order to reduce the risk of bias in the methods, without discussion of the limitations of the data themselves. This is perhaps most apparent in Duvendack and colleagues systematic review (2011) who, for example, recognise that the datasets and variables collected within the three USAID studies (Barnes et al. 2001b, Chen and Snodgrass 2001, Dunn and Arbuckle 2001) are similar and so only discuss the

[42] We refer readers who want to know more to Roodman's (2010) discussion of the importance of replication studies, and Duvendack and colleagues' detailed review of the Pitt & Khandker and Roodman and Morduch debate (Duvendack et al. 2011).

Indian study (Chen and Snodgrass 2001) as though this is sufficient to understand all three.

Despite the detailed discussion of the variables and analysis of the Indian study, Duvendack and colleagues (2011) do not provide any information about the interventions, settings or participants in the other two studies which took place in Peru (Dunn and Arbuckle 2001) and Zimbabwe (Barnes et al. 2001b) and, as far as we can tell, evaluated quite different types of microfinance. While the Indian study explored combined micro-credit and micro-savings provided to women only, the other two studies focused on micro-credit provided to men and women. In lumping these studies together and focusing on the methodology and not the interventions or context, Duvendack and colleagues fail to draw out any lessons for practice or policy, merely for research.

In other examples Tedeschi and Karlan (2010) report detailed statistical modelling but tell us almost nothing about the microfinance being evaluated, while Buckley (1996) describes the intervention in detail but reports only descriptive statistics. The need for clearer reporting standards for primary studies which require, not only detailed descriptions of the data and analysis conducted, but also a description of the intervention which recognises the variety within the interventions and contexts being assessed, are key if we are to benefit from the not-inconsiderable effort invested in research methodology in this area.

4.2.8 The time period within which the impacts of microfinance are being assessed

As noted in our results section, the data on the timing of interventions and assessments are not always reported clearly, but in general outcomes are assessed between 12 and 24 months after an intervention is introduced. While we recognise the challenges of long-term follow-up in impact research, it is also important to acknowledge that this follow-up is relatively short when you consider what microfinance seeks to achieve. Building up a business can take much longer than two years, and indeed short-term, interim indicators such as changes in income or expenditure may be poor measures of long-term success or failure. This also applies to the more long-term secondary benefits of those businesses, such as improvement in client spending on health and education outcomes. We acknowledge this is a shortcoming in the included research and limits our ability to draw confident conclusions in this review about the ability of microfinance to enable the poor to engage in meaningful economic opportunities.

4.2.9 Exclusion of access to credit studies

In the last two years a number of RCTs have been conducted in the area of microfinance, and in many ways this is the best-evidenced area of development. However, close examination of these trials for inclusion for this review has revealed that many are not directly applicable to the question of whether or not poor people taking a loan actually alleviates poverty. Instead these studies explore the impact of *access to* credit irrespective of whether or not loans are actually taken out. Having a loan is not a neutral activity but rather a dynamic one: the offer of a loan may change people's financial planning as some studies have suggested, but this cannot be equated to the implications of actually having a loan,

with the associated increase in spending power, contractual commitment of collateral, and obligations for repayment, usually within very tight timeframes. These studies, no matter how rigorous, did not therefore meet our inclusion criteria.[43]

4.2.10 Gender-equity and microfinance

This review has been unable to answer the questions about which interventions work better for women, particularly female-headed micro-enterprises, or to establish whether interventions which specifically target women are more successful than those that do not. It is not unusual for systematic reviews to conclude that there is an absence of evidence on a particular issue and this should not be equated with an absence of evidence – it is possible that targeting women is the right course of action, we simply don't know. What is important to take into account, however, is that we also found no evidence that there are interventions which work better for women. One study did suggest this was the case (Dupas and Robinson Oct 2011), but the evidence of male entrepreneurs was limited making a direct comparison of impacts on women vs impacts on men unfeasible.

Despite the rhetoric surrounding microfinance as a tool for empowering women, we know that the evidence is limited. Both our own review in sub-Saharan Africa (Stewart et al. 2010b), and colleagues' worldwide review (Duvendack et al. 2011) found limited evidence for women's empowerment and we still await the results of Vaessen's review of women's control of household finances (protocol - 2010). To the best of our knowledge, this 3ie-funded review does not consider engagement in economic opportunities at all and therefore may still leave this question unanswered. Further primary research is needed.

4.2.11 Systematic reviews and their role in development

We are very aware that this review is broad in some aspects (for example, incorporating a wide variety of interventions which tackle the complex problem of poverty) and narrow in others (focusing on evidence of effectiveness of receiving the intervention). On reflection, we believe that there are inherent weaknesses in how systematic review methodology is currently being implemented in development which need to be addressed. We acknowledge that development is different from health, where this methodology originates, and that there need to be shifts in the methodology to meet the differing needs and contexts of development. It is striking, however, how some aspects of the approach have been adopted wholeheartedly and there is now a need to critique this.

Had we been conducting a systematic review in health care, it is likely that we would have been advised to narrow our review in terms of the interventions considered. The variation within micro-credit alone is extensive. As Goldberg points out 'there is no one 'microfinance' to test' (2005:46 in Tedeschi 2008). Had we been conducting a Cochrane Review we may well have been advised that there are as many as 10 different reviews incorporated into this one 'umbrella' review.

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[43] For readers who want to know more about the impacts of extending access to credit, we refer you to the recent CGAP report (Bauchet et al. 2011).

For example, we might include one on the effectiveness of small loans of interest rates below 20 percent to micro-entrepreneurs, another on short-term loans vs long-term loans, another on group-credit vs individual credit, etc. In this review we have included a wide range of interventions and, while we hope our findings are still useful, we understand that lumping so many types of microfinance together risks producing findings with limited value.

On the other hand, this review has focused only on studies of the effectiveness of microfinance on outcomes for the poor. While we have included more varied study designs than only RCTs (see section 4.2.5 above), our emphasis on studies which compare groups with and without microfinance has led us to exclude interesting evidence which could help to shed light on microfinance and how it works; for example, the studies by de Mel and colleagues (2009, 2010) which show what happens if you give micro-entrepreneurs grants to explore whether additional investment can help small businesses to grow, and Pronyk and colleagues' trial (2006) which explores largely health outcomes. Similarly, recent trials of the impact of extending access to credit have been excluded and yet are important in understanding the full picture of how microfinance works (see section 5.2 in the references for more details).

It is frustrating to have conducted a review which is large in many senses, but is at other times so narrow as to exclude interesting evidence. We strongly recommend that a different approach is adopted to the commissioning of systematic reviews in development, one which steps back from the urgency of assessing whether or not a broad programme has an impact, and first produces detailed and comprehensive maps of the evidence in any given area. We would anticipate these maps would be large pieces of work (larger than this review, for example) which will enable informed decisions about which aspects of a causal pathway lend themselves to synthesis of evidence of effectiveness, where questions are already answerable and/or answered, and where the gaps exist.

4.3 Conclusions and implications of our findings

We anticipate that users of this research will include donor agencies, microfinance institutions, academics and others and acknowledge that they will want to undertake a process of interpretation and application of the results of this review. However, on the basis of our findings we draw out the following implications for policy and research:

Implications for policy

- As with all credit products, there is a need for caution given the potential for both good and harm to clients. In particular, because micro-credit makes some people poorer and not richer, there is an imperative to be particularly cautious when serving the poorest of the poor. There is less risk if services are targeted at those who already have some financial security, such as savings (often integrated into micro-credit programmes) or another source of income, which will allow them to make loan repayments even if their businesses do not generate a profit immediately.

- Micro-savings appears to be a more promising intervention for clients, and can potentially be extended to the poorest of the poor as it has limited scope for harm. Savings services, without linked credit, should therefore be made more widely available for the poor.
- Rigorous evaluation of pilot programmes is required prior to roll-out in order to minimise the risks of doing harm.
- There is, as yet, no evidence that interventions which target women benefit them more than those which do not specifically target women. While care should therefore be taken to avoid excluding women from financial interventions, extra effort to focus micro-credit and micro-savings exclusively on women as opposed to including them in mainstream interventions are not warranted by the evidence base.

Implications for practice

- Practitioners, as well as policy-makers, need to be cautious when deciding whom to target with micro-credit services. Micro-credit ought to be targeted at the poorest of the poor only with considerable care because some clients will be made poorer as a result of taking out a loan, the consequences of which could be devastating. Services should be targeted at those who already have some financial security, such as savings or another source of income, which will allow them to make loan repayments even if their businesses do not generate a profit immediately.
- Those implementing microfinance services should note that micro-savings using commitment accounts is a promising intervention for clients.

Research

- Rather than establishing conclusively whether or not microfinance reduces poverty, we anticipate the value of future research will be in identifying how and in what circumstances these financial inclusion interventions can work for the poor.
- There is a need to conduct more primary research to unpack the different stages of the causal pathway as the evidence base in this complex area remains small. This needs to include well-designed RCTs which explore focused questions using validated outcome measures.
- There is a need for greater standardisation of outcomes considered within impact studies, as well as greater standardisation of outcome measures. Research needs to consider longer-term outcomes.
- There is a need for the development and implementation of standardised minimum reporting requirements to ensure lessons can be learnt from the research which has been done.
- New studies are needed which contrast interventions targeted at women with those which are not. Analyses disaggregated by gender should be routine in all impact evaluations.

- More research is also required which explores different models of microfinance in order to provide more valuable informative evidence to guide decisions around which models are funded and implemented in which circumstances.
- There is a need for studies which assess whether combining micro-credit, micro-leasing or micro-savings with other complementary interventions is more or less successful.
- Micro-leasing is an under-researched area with potential for reducing poverty but also for increasing over-indebtedness. Efforts should be made to evaluate any existing and planned programmes to inform future decisions about this intervention. Reporting of all research needs to be improved, and greater clarity encouraged if publishing reports online without peer review.

While there is much to be learnt from systematic reviews, having conducted two systematic reviews on the impacts of microfinance we suggest that:

- No new systematic reviews of the effectiveness of micro-credit or micro-savings are conducted until there is a significant increase in the volume of primary research.
- Systematic maps be drawn up of the literature related to broad policy areas such as microfinance and/or financial inclusion interventions before any further focused reviews are undertaken that address specific questions. Such maps can be used to identify more focused questions to be addressed in future primary research and in systematic reviews.
- Systematic reviews are still new in international development and there is a need to gather learning from teams undertaking reviews so that lessons can be learnt for the extended use of this methodology in other areas of development.
- When searching for relevant literature for development reviews it is important not to limit oneself to electronic databases as a considerable part the literature included in this review was not published in mainstream journals or indexed in online electronic databases of research.

5. References

5.1 The 17 studies included in the review

The following studies were included in this review. Secondary papers are also listed.

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5.2 Key excluded studies and reasons for exclusion

Ashraf N, Giné X, Karlan D (2008) *Finding missing markets (and a disturbing epilogue): evidence from an export crop adoption and marketing intervention in Kenya*. World Bank.

- Excluded because study of access to micro-credit, not actual micro-credit

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- Excluded because only reports baseline data - follow up data not available at time of writing

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Appendices

Appendix 1.1: Authorship of this report

The authors of this report are:

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Review Group

This group is made up of staff from the EPPI-Centre's Perspectives, Participation and Research team, and members of the University of Johannesburg's Department of Anthropology and Development Studies and its Centre for Anthropological Research, namely Ruth Stewart from the University of London, and Thea de Wet, Carina van Rooyen, Marcel Korth, Admire Chereni and Natalie Rebelo Da Silva from the University of Johannesburg.

Advisory Group

As we have conducted a multi-centre rapid systematic review, we have used a virtual network to advise on this project including:

- The open-access social media Twitter. (Use of hashtags on Twitter to share information with those who routinely share and discuss issues around microfinance and the evidence for its impact under hashtags including #microfinance, #microsavings and #microcredit)
- Our own methodological networks via the EPPI-Centre.
- Academic peer reviewers identified for their expertise in systematic reviewing and in researching microfinance.

This report should be cited as:

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Conflicts of interest

None of the authors has any financial interests in this review topic, nor involved in the development of relevant interventions or primary research.

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Appendix 1.2: Inclusion and exclusion criteria

Studies were included and excluded from our review according to the following criteria:

Intervention: We included only micro-credit, micro-savings or micro-leasing interventions. While insurance and money transfers are also considered part of microfinance, they are recent activities and are not considered 'core' activities of microfinance for the purposes of this review. We included services owned or managed by service-users or by others.

Study design: We included only impact evaluations, defined as comparative studies that set out to measure impact (i.e. outcomes, results or effects). These include: RCTs (sometimes referred to as field experiments); quasi-experimental studies, including those with an ex ante control group selected in advance of the intervention, and those with a retrospectively constructed comparison group. These include studies described in the different literatures as: panel data, longitudinal studies, pipeline studies, interrupted time series, natural experiments, and with-and-without studies. We distinguished further between the study designs employed to measure impact and their quality when we quality-appraised relevant studies and synthesised their findings, see section 2.3). Both quantitative and qualitative data were included and synthesised accordingly. Studies that do not measure impact of micro-credit, micro-savings or micro-leasing were excluded from the review.

Low- and middle-income countries: This review included LMICs as defined by the World Bank (http://data.worldbank.org/about/country-classifications). The main criteria for classifying countries are based on GNI per capita. A full list of countries that meet the World Bank criteria, according to 2009 GNI per capita, was compiled and used to screen studies for inclusion.

Population: We focused on impacts on poor people, namely those who are recipients of the services of microfinance institutions. In addition, we focused on women (of any age), including any female recipients of micro-savings, micro-credit and micro-leasing interventions, and specifically those who head micro-enterprises.

Outcomes: We considered whether or not recipients of these microfinance interventions engage in economic opportunities. In addition, we identified the financial impacts of these interventions, specifically income, savings, expenditure, and accumulation of both productive and non-productive assets. These impacts were considered at the individual, household and business levels.

Language: We searched for literature in English and therefore expected to identify literature in English. However, we had scope to access papers in English, Dutch, German, Portuguese, French, Spanish, Afrikaans, Zulu and Sotho languages and did not exclude any relevant papers in these languages. Potentially relevant literature in other languages is listed in appendices.

Appendix 2.1: Country classifications used in this review

Country	World Bank economic classification[44] (low-income countries = LIC; lower-middle-income countries= LMC; upper-middle-income countries = UMC)	DFID priority country[45]	Fragile state
Afghanistan	LIC	Yes	Yes
Albania	UMC		
Algeria	UMC		
American Samoa	UMC		
Angola	LMC		Yes
Antigua and Barbuda	UMC		
Argentina	UMC		
Armenia	LMC		
Azerbaijan	UMC		Yes
Bangladesh	LIC	Yes	
Belarus	UMC		
Belize	LMC		
Benin	LIC		
Bhutan	LMC		
Bolivia	LMC		
Bosnia and Herzegovina	UMC		
Botswana	UMC		
Brazil	UMC		
Bulgaria	UMC		

[44] Income groups correspond to 2010 gross national income (GNI) per capita (World Bank Atlas method). Source: http://data.worldbank.org/about/country-classifications/country-and-lending-groups

[45] These are the 27 countries prioritised by DFID which account for three quarters of global maternal mortality and nearly three quarters of global malaria deaths (DFID 2011).

Burkina Faso	LIC		
Burundi	LIC		Yes
Cambodia	LIC		Yes
Cameroon	LMC		Yes
Cape Verde	LMC		
Central African Republic	LIC		
Chad	LIC		Yes
Chile	UMC		
China	UMC		
Colombia	UMC		
Comoros	LIC		Yes
Congo, Dem. Rep.	LIC	Yes	Yes
Congo, Rep.	LMC		Yes
Costa Rica	UMC		
Côte d'Ivoire	LMC		Yes
Cuba	UMC		
Djibouti	LMC		Yes
Dominica	UMC		Yes
Dominican Republic	UMC		
Ecuador	UMC		
Egypt, Arab Rep.	LMC		
El Salvador	LMC		
Eritrea	LIC		Yes
Ethiopia	LIC	Yes	Yes
Fiji	LMC		
Gambia, The	LIC		Yes
Gabon	UMC		
Georgia	LMC		Yes
Ghana	LMC	Yes	

Grenada	UMC		
Guatemala	LMC		
Guinea	LIC		Yes
Guinea-Bissau	LIC		Yes
Guyana	LMC		Yes
Haiti	LIC		Yes
Honduras	LMC		
India	LMC	Yes	
Indonesia	LMC		Yes
Iran, Islamic Rep.	UMC		
Iraq	LMC		
Jamaica	UMC		
Jordan	UMC		
Kazakhstan	UMC		
Kenya	LIC	Yes	Yes
Kiribati	LMC		Yes
Korea, Dem. Rep.	LIC		
Kosovo	LMC		
Kyrgyz Republic	LIC	Yes	
Lao People's Dem. Rep.	LMC		Yes
Latvia	UMC		
Lebanon	UMC		
Lesotho	LMC		
Liberia	LIC	Yes	Yes
Libya	UMC		
Lithuania	UMC		
Macedonia, FYR	UMC		
Madagascar	LIC		
Malawi	LIC	Yes	

Malaysia	UMC		
Maldives	UMC		
Mali	LIC		Yes
Marshall Islands	LMC		
Mauritania	LMC		
Mauritius	UMC		
Mayotte	UMC		
Mexico	UMC		
Micronesia, Fed. States.	LMC		
Moldova	LMC		
Mongolia	LMC		
Montenegro	UMC		
Morocco	LMC		
Mozambique	LIC	Yes	
Myanmar	LIC	Yes	Yes
Namibia	UMC		
Nepal	LIC	Yes	Yes
Nicaragua	LMC		
Niger	LIC		Yes
Nigeria	LMC	Yes	Yes
Pakistan	LMC	Yes	
Palau	UMC		
Panama	UMC		
Papua New Guinea	LMC		Yes
Paraguay	LMC		
Peru	UMC		
Philippines	LMC		
Romania	UMC		
Russian Federation	UMC		

Rwanda	LIC	Yes	
Samoa	LMC		
São Tomé and Principe	LMC		Yes
Senegal	LMC		
Serbia	UMC		
Seychelles	UMC		
Sierra Leone	LIC	Yes	Yes
Solomon Islands	LMC		Yes
Somalia	LIC	Yes	Yes
South Africa	UMC	Yes	
Sri Lanka	LMC		
St. Kitts and Nevis	UMC		
St. Lucia	UMC		
St Vincent and Grenadines	UMC		
Sudan	LMC	Yes	Yes
Suriname	UMC		
Swaziland	LMC		
Syrian Arab Rep.	LMC		
Tajikistan	LIC	Yes	Yes
Tanzania	LIC	Yes	
Thailand	UMC		
Timor-Leste	LMC		Yes
Togo	LIC		Yes
Tonga	LMC		Yes
Tunisia	UMC		
Turkey	UMC		
Turkmenistan	LMC		
Tuvalu	LMC		
Uganda	LIC	Yes	

Ukraine	LMC		
Uruguay	UMC		
Uzbekistan	LMC		Yes
Vanuatu	LMC		Yes
Venezuela, Bolivarian Rep.	UMC		
Vietnam	LMC		
West Bank and Gaza	LMC	Yes	
Yemen, Rep.	LMC	Yes	Yes
Zambia	LMC	Yes	
Zimbabwe	LIC	Yes	Yes

Appendix 2.2: Search strategy for electronic databases

We combined search terms for:

- Microfinance – specifically micro-savings and micro-leasing (we drew on already identified micro-credit literature)[46]
- Countries – specifically LMICs
- Study design – specifically outcome evaluations

To illustrate our approach to searching, we have presented our initial search strings for each key concept below. These were tested and refined, and adapted as necessary for different electronic databases. We have included the full strategies for two sources, the Social Science Citation Index and CAB abstracts, below. Detailed strategies for other databases are available on request.

Microfinance terms (searching on title, abstract and keywords)[47]

1. (savings OR lease OR finance OR bank*) OR econom* AND ('the poor' OR development OR poverty)

2. micro-enterprise OR micro-lease OR micro-finance OR micro-insurance OR micro-savings OR microenterprise OR microlease OR microfinance OR microinsurance OR microsavings OR microfranchise OR microfranchis* OR micro-franchise OR micro-franchis*

3. controlled terms for "Financial Services" AND "Poverty"

4. (microb* OR microlith* OR lemur)

5. combined in the following way (1. AND 2. AND 3. NOT 4.)

Study design filter (searching title and abstract and keywords)

6. controlled terms for "Intervention" OR "Family Intervention" OR "Evaluation" OR "Program Evaluation" OR treatment effectiveness evaluation" OR "impact evaluation

7. applying the following impact evaluation filter developed by the EPPI-Centre, to which we added 'experiment' and 'field-experiment': (impact OR outcome OR evaluation OR trial OR comparison study OR trial OR comparison study OR non-comparison study OR social performance assessment OR Imp-Act OR results OR effects OR randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials OR randomly OR program evaluation OR controlled OR control group OR comparison group OR control groups OR comparison groups OR controls OR Control OR Intervention OR Evaluate OR Evaluation OR Evaluations OR treatment effectiveness evaluation OR RCT)

8. combined in the following way (6. OR 7.)

---

[46] We did not search specifically for interventions which target women or which report outcomes relating to women as this was unlikely to be apparent within titles and abstracts. Instead all identified studies were be coding according to these characteristics to enable our sub-group analysis.
[47] Where terms relating to 'poverty' were included within the country filter, these were be excluded from the intervention filter, as to duplicate these terms may narrow our search results unduly.

Country terms (searching title and abstract, keywords and population location)

These terms will be drawn from the World Bank definitions of low- and middle-income countries and DFID's lists of priority countries and fragile states. We adapted a recently applied EPPI-Centre filter for searching low- and lower-middle-income countries using PubMed applied in January 2011 in order to include countries categorised as upper-middle income. These filters were be checked to ensure they include all 27 countries identified by DFID as high priority (DFID 2011).

Examples of detailed search strategies used in this review

SSCI searches

Science Citation Index Expanded (SCI-EXPANDED) --1970-present

Social Sciences Citation Index (SSCI) --1898-present

Arts and Humanities Citation Index (A&HCI) --1975-present

Conference Proceedings Citation Index- Science (CPCI-S) --1990-present

Conference Proceedings Citation Index- Social Science and Humanities (CPCI-SSH) --1990-present

Searched on 27.6.2011

i. Micro credit search:

Topic=(micro-credit OR microcredit OR microloan OR micro-loan OR microloans OR micro-loans)

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=2010-2011

ii. Micro-leasing, micro-banking, etc.:

9 1,969 #8 AND #2

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

8 5,157 #7 OR #1

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

7 2,371 #6 OR #5 OR #4

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

6 752 TS=(micro-lease OR micro-finance OR micro-insurance OR micro-savings OR microlease OR microfinance OR microinsurance OR microsavings OR microfranchise OR microfranchis* OR micro-franchise OR micro-franchis* OR micro-enterprise OR microenterprise OR microleasing OR micro-leasing OR micro-banking OR micro-banks OR micro-business* OR microinsurance or micro-insurance)

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

5 1,095 TS=(savings OR lease OR finance OR bank*) AND TS=(poverty OR "international development")

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

4 733 TS= ((poor SAME savings) OR (poor SAME lease) OR (poor SAME finance) OR (poor SAME bank*))

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

3 1,079 #2 AND #1

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

2 >100,000 TS=(impact OR outcome OR evaluation OR trial OR comparison study OR comparison study OR non-comparison study OR social performance assessment OR Imp-Act OR effects OR randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials OR randomly OR program evaluation OR controlled OR control group OR comparison group OR control groups OR comparison groups OR controls OR Control OR Intervention OR Evaluate OR Evaluations OR RCT OR experiment*)

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

1 2,923 TS= ((development SAME savings) OR (development SAME lease) OR (development SAME finance) OR (development SAME banks) OR (development SAME banking))

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH Timespan=1990-2011

Notes: (i)development SAME bank removed as more records and included items regarding blood banks. Similarly, "results" was removed from the impact part as this term is present in most abstracts.

(ii) SAME = items searched within the SAME sentence

CAB Abstracts

Search Strategy: <1990 to 2011 Week 24>

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1 development aid/ (2886)

2 (microfinance or micro-finance or micro-lease or micro-finance or micro-insurance or micro-savings or microlease or microfinance or microinsurance or microsavings or microfranchise or microfranchis* or micro-franchise or micro-franchis* or micro-enterprise or microenterprise or microleasing or micro-leasing or micro-banking or micro-banks or micro-business* or microinsurance or micro-insurance).ab,ot,ti. (645)

3 ("the poor" or poverty).ab,ot,ti. (85198)

4 development.ab,ot,ti. (445474)

5 (impact or outcome or evaluation or trial or comparison study or comparison study or non-comparison study or social performance assessment or Imp-Act or effects or randomized controlled trial or controlled clinical trial or randomized or placebo or clinical trials or randomly or program evaluation or controlled or control

group or comparison group or control groups or comparison groups or controls or Control or Intervention or Evaluate or Evaluations or RCT or experiment*).ab,ot,ti. (1758374)

6 2 and 5 (226)

7 ((banks adj10 development) or (bank adj10 development) or (savings adj10 development) or (lease adj10 development)).mp. or (finance adj10 development).ab,ot,ti. [mp=abstract, title, original title, broad terms, heading words] (3251)

8 5 and 7 (1143)

9 (banking or banks or bank or savings or lease or finance).ab,ot,ti. (34137)

10 ((banking adj10 development) or (banks adj10 development) or (bank adj10 development) or (savings adj10 development) or (lease adj10 development)).ab,ot,ti. (1972)

11 (finance adj10 development).ab,ot,ti. (479)

12 10 or 11 (2380)

13 3 and 9 (2536)

14 12 or 13 (4455)

15 1 or 14 (7085)

16 finance/ or insurance/ or savings/ (5433)

17 15 or 16 (11851)

18 evaluation/ or program evaluation/ or economic evaluation/ (38819)

19 clinical trials/ or trials/ or randomized controlled trials/ (12255)

20 experiments/ or "controls (experimental)"/ or trials/ (1726)

21 18 or 19 or 20 (51956)

22 5 or 21 (1767934)

23 17 and 22 (4142)

24 man.od. (489057)

25 23 and 24 (499)

26 ("developing country" or "developing countries" or "developing nation" or "developing nations" or "developing population" or "developing populations" or "developing world" or "less developed country" or "less developed countries" or "less developed nation" or "less developed nations" or "less developed population" or "less developed populations" or "less developed world" or "lesser developed country" or "lesser developed countries" or "lesser developed nation" or "lesser developed nations" or "lesser developed population" or "lesser developed populations" or "lesser developed world" or "under developed country" or "under developed countries" or "under developed nation" or "under developed nations" or "under developed population" or "under developed populations" or "under developed world" or "underdeveloped country" or "underdeveloped countries" or "underdeveloped

nation" or "underdeveloped nations" or "underdeveloped population" or "underdeveloped populations" or "underdeveloped world" or "middle income country" or "middle income countries" or "middle income nation" or "middle income nations" or "middle income population" or "middle income populations" or "low income country" or "low income countries" or "low income nation" or "low income nations" or "low income population" or "low income populations" or "lower income country" or "lower income countries" or "lower income nation" or "lower income nations" or "lower income population" or "lower income populations" or "underserved country" or "underserved countries" or "underserved nation" or "underserved nations" or "underserved population" or "underserved populations" or "underserved world" or "under served country" or "under served countries" or "under served nation" or "under served nations" or "under served population" or "under served populations" or "under served world" or "deprived country" or "deprived countries" or "deprived nation" or "deprived nations" or "deprived population" or "deprived populations" or "deprived world" or "poor country" or "poor countries" or "poor nation" or "poor nations" or "poor population" or "poor populations" or "poor world" or "poorer country" or "poorer countries" or "poorer nation" or "poorer nations" or "poorer population" or "poorer populations" or "poorer world" or "developing economy" or "developing economies" or "less developed economy" or "less developed economies" or "lesser developed economy" or "lesser developed economies" or "under developed economy" or "under developed economies" or "underdeveloped economy" or "underdeveloped economies" or "middle income economy" or "middle income economies" or "low income economy" or "low income economies" or "lower income economy" or "lower income economies" or "low gdp" or "low gnp" or "low gross domestic" or "low gross national" or "lower gdp" or "lower gnp" or "lower gross domestic" or "lower gross national" or lmic or lmics or "third world" or "lami country" or "lami countries" or "transitional country" or "transitional countries" or Africa or Asia or Caribbean or "West Indies" or "South America" or "Latin America" or "Central America").ab,ot,ti. (124596)

27 (Afghanistan or Albania or Algeria or Angola or Antigua or Barbuda or Argentina or Armenia or Armenian or Aruba or Azerbaijan or Bahrain or Bangladesh or Barbados or Benin or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Bulgaria or Botswana or Brazil or Brasil or "Burkina Faso" or "Burkina Fasso" or "Upper Volta" or Burundi or Urundi or Cambodia or "Khmer Republic" or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or "Cape Verde" or "Central African Republic" or Chad or Chile or China or Colombia or Comoros or "Comoro Islands" or Comores or Mayotte or Congo or Zaire or "Costa Rica" or "Cote d'Ivoire" or "Ivory Coast" or Cuba or "Djibouti" or "French Somaliland" or Dominica or "Dominican Republic" or "East Timor" or "East Timur" or "Timor Leste" or Ecuador or Egypt or "United Arab Republic" or "El Salvador" or Eritrea or Ethiopia or Fiji or Gabon or "Gabonese Republic" or Gambia or Gaza or "Georgia Republic" or "Georgian Republic" or Ghana or "Gold Coast" or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or India or Maldives or Indonesia or Iran or Iraq or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or "Kyrgyz Republic" or Kirghiz or Kirgizstan or "Lao PDR" or Laos or Lebanon or Lesotho or Basutoland or Liberia or Libya or Lithuania or Macedonia or Baltic States or Madagascar or "Malagasy

Republic" or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or "Marshall Islands" or Mauritania or Mauritius or "Agalega Islands" or Mexico or Micronesia or "Middle East" or Moldova or Moldovia or Moldovian or Mongolia or Montenegro or Yugoslavia or Mayotte or Romania or Morocco or Ifni or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or Antilles or "New Caledonia" or Nicaragua or Niger or Nigeria or "Mariana Islands" or Oman or Muscat or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillipines or Phillippines or "Puerto Rico" or Rwanda or Ruanda or Russian Federation or USSR or "Soviet Saint Kitts" or "St Kitts" or Nevis or "Saint Lucia" or "St Lucia" or "Saint Vincent" or "St Vincent" or "Grenadines" or "Samoa" or "Samoan Islands" or "Navigator Island" or "Navigator Islands" or "Sao Tome" or "Saudi Arabia" or Senegal or Seychelles or "Sierra Leone" or "Sri Lanka" or "Solomon Islands" or Somalia or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadzhikistan or Tadjikistan or Tadzhik or Tanzania or Thailand or Togo or "Togolese Republic" or Tonga or Trinidad or Tobago or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uruguay or Uzbekistan or Uzbek or Vanuatu or "New Hebrides" or Venezuela or Vietnam or "Viet Nam" or "West Bank" or Yemen or Zambia or Zimbabwe or Jamahiriya or Jamahiryria or Libia or Mocambique or Principe or Syrian or "Indian Ocean" or Melanesia or "Western Sahara" or Kampuchea or "cabo verde" or "East Bengal" or Tanganika or Togoland or Zanzibar or Sahara or "western Africa" or "northern Africa" or Palestinian).ab,ot,ti. (760710)

28 26 or 27 (828247)

29 23 and 28 (2405)

30 (banks adj2 river).ab,ot,ti. (453)

31 (((development aid or ((banking adj10 development) or (banks adj10 development) or (bank adj10 development) or (savings adj10 development) or (lease adj10 development) or (finance adj10 development) or (("the poor" or poverty) and (banking or banks or bank or savings or lease or finance))) or (finance or insurance or savings)) and (impact or outcome or evaluation or trial or comparison study or comparison study or non-comparison study or social performance assessment or Imp-Act or effects or randomized controlled trial or controlled clinical trial or randomized or placebo or clinical trials or randomly or program evaluation or controlled or control group or comparison group or control groups or comparison groups or controls or Control or Intervention or Evaluate or Evaluations or RCT or experiment* or (evaluation or program evaluation or economic evaluation or (clinical trials or trials or randomized controlled trials) or (experiments or "controls (experimental)" or trials))) and ("developing country" or "developing countries" or "developing nation" or "developing nations" or "developing population" or "developing populations" or "developing world" or "less developed country" or "less developed countries" or "less developed nation" or "less developed nations" or "less developed population" or "less developed populations" or "less developed world" or "lesser developed country" or "lesser developed countries" or "lesser developed nation" or "lesser developed nations" or "lesser developed population" or "lesser developed populations" or "lesser developed world" or "under developed country" or "under developed countries" or "under developed nation" or

"under developed nations" or "under developed population" or "under developed populations" or "under developed world" or "underdeveloped country" or "underdeveloped countries" or "underdeveloped nation" or "underdeveloped nations" or "underdeveloped population" or "underdeveloped populations" or "underdeveloped world" or "middle income country" or "middle income countries" or "middle income nation" or "middle income nations" or "middle income population" or "middle income populations" or "low income country" or "low income countries" or "low income nation" or "low income nations" or "low income population" or "low income populations" or "lower income country" or "lower income countries" or "lower income nation" or "lower income nations" or "lower income population" or "lower income populations" or "underserved country" or "underserved countries" or "underserved nation" or "underserved nations" or "underserved population" or "underserved populations" or "underserved world" or "under served country" or "under served countries" or "under served nation" or "under served nations" or "under served population" or "under served populations" or "under served world" or "deprived country" or "deprived countries" or "deprived nation" or "deprived nations" or "deprived population" or "deprived populations" or "deprived world" or "poor country" or "poor countries" or "poor nation" or "poor nations" or "poor population" or "poor populations" or "poor world" or "poorer country" or "poorer countries" or "poorer nation" or "poorer nations" or "poorer population" or "poorer populations" or "poorer world" or "developing economy" or "developing economies" or "less developed economy" or "less developed economies" or "lesser developed economy" or "lesser developed economies" or "under developed economy" or "under developed economies" or "underdeveloped economy" or "underdeveloped economies" or "middle income economy" or "middle income economies" or "low income economy" or "low income economies" or "lower income economy" or "lower income economies" or "low gdp" or "low gnp" or "low gross domestic" or "low gross national" or "lower gdp" or "lower gnp" or "lower gross domestic" or "lower gross national" or lmic or lmics or "third world" or "lami country" or "lami countries" or "transitional country" or "transitional countries" or Africa or Asia or Caribbean or "West Indies" or "South America" or "Latin America" or "Central America" or (Afghanistan or Albania or Algeria or Angola or Antigua or Barbuda or Argentina or Armenia or Armenian or Aruba or Azerbaijan or Bahrain or Bangladesh or Barbados or Benin or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Bulgaria or Botswana or Brazil or Brasil or "Burkina Faso" or "Burkina Fasso" or "Upper Volta" or Burundi or Urundi or Cambodia or "Khmer Republic" or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or "Cape Verde" or "Central African Republic" or Chad or Chile or China or Colombia or Comoros or "Comoro Islands" or Comores or Mayotte or Congo or Zaire or "Costa Rica" or "Cote d'Ivoire" or "Ivory Coast" or Cuba or "Djibouti" or "French Somaliland" or Dominica or "Dominican Republic" or "East Timor" or "East Timur" or "Timor Leste" or Ecuador or Egypt or "United Arab Republic" or "El Salvador" or Eritrea or Ethiopia or Fiji or Gabon or "Gabonese Republic" or Gambia or Gaza or "Georgia Republic" or "Georgian Republic" or Ghana or "Gold Coast" or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or India or Maldives or Indonesia or Iran or Iraq or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or "Kyrgyz Republic" or Kirghiz or Kirgizstan or "Lao PDR" or

Laos or Lebanon or Lesotho or Basutoland or Liberia or Libya or Lithuania or Macedonia or Baltic States or Madagascar or "Malagasy Republic" or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or "Marshall Islands" or Mauritania or Mauritius or "Agalega Islands" or Mexico or Micronesia or "Middle East" or Moldova or Moldovia or Moldovian or Mongolia or Montenegro or Yugoslavia or Mayotte or Romania or Morocco or Ifni or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or Antilles or "New Caledonia" or Nicaragua or Niger or Nigeria or "Mariana Islands" or Oman or Muscat or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillipines or Phillippines or "Puerto Rico" or Rwanda or Ruanda or Russian Federation or USSR or "Soviet Saint Kitts" or "St Kitts" or Nevis or "Saint Lucia" or "St Lucia" or "Saint Vincent" or "St Vincent" or "Grenadines" or "Samoa" or "Samoan Islands" or "Navigator Island" or "Navigator Islands" or "Sao Tome" or "Saudi Arabia" or Senegal or Seychelles or "Sierra Leone" or "Sri Lanka" or "Solomon Islands" or Somalia or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadzhikistan or Tadjikistan or Tadzhik or Tanzania or Thailand or Togo or "Togolese Republic" or Tonga or Trinidad or Tobago or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uruguay or Uzbekistan or Uzbek or Vanuatu or "New Hebrides" or Venezuela or Vietnam or "Viet Nam" or "West Bank" or Yemen or Zambia or Zimbabwe or Jamahiriya or Jamahiryria or Libia or Mocambique or Principe or Syrian or "Indian Ocean" or Melanesia or "Western Sahara" or Kampuchea or "cabo verde" or "East Bengal" or Tanganika or Togoland or Zanzibar or Sahara or "western Africa" or "northern Africa" or Palestinian))) not (banks adj2 river)).ab,ot,ti. (2886)

32 ((banking adj10 poverty) or (banks adj10 poverty) or (bank adj10 poverty) or (savings adj10 poverty) or (lease adj10 poverty)).ab,ot,ti. (206)

33 ((banking adj10 "the poor") or (banks adj10 "the poor") or (bank adj10 "the poor") or (savings adj10 "the poor") or (lease adj10 "the poor")).ab,ot,ti. (368)

34 poverty/ (9804)

35 2 or 10 or 11 or 32 or 33 (3327)

36 (finance adj10 "the poor").mp. [mp=abstract, title, original title, broad terms, heading words] (90)

37 (finance adj10 poverty).mp. [mp=abstract, title, original title, broad terms, heading words] (86)

38 35 or 36 or 37 (3429)

39 16 and 34 (216)

40 38 or 39 (3530)

41 22 and 40 (1327)

42 (seed bank* or colostrum bank* or river bank* or blood bank*).mp. [mp=abstract, title, original title, broad terms, heading words] (6627)

43 41 not 42 (1228)

44 "fishes".od. (42872)

45 43 not 44 (1220)

46 "genetic*".hw,sh. (338529)

47 (((impact or outcome or evaluation or trial or comparison study or comparison study or non-comparison study or social performance assessment or Imp-Act or effects or randomized controlled trial or controlled clinical trial or randomized or placebo or clinical trials or randomly or program evaluation or controlled or control group or comparison group or control groups or comparison groups or controls or Control or Intervention or Evaluate or Evaluations or RCT or experiment* or (evaluation or program evaluation or economic evaluation or (clinical trials or trials or randomized controlled trials) or (experiments or "controls (experimental)" or trials))) and (microfinance or micro-finance or micro-lease or micro-finance or micro-insurance or micro-savings or microlease or microfinance or microinsurance or microsavings or microfranchise or microfranchis* or micro-franchise or micro-franchis* or micro-enterprise or microenterprise or microleasing or micro-leasing or micro-banking or micro-banks or micro-business* or microinsurance or micro-insurance or ((banking adj10 development) or (banks adj10 development) or (bank adj10 development) or (savings adj10 development) or (lease adj10 development)) or (finance adj10 development) or ((banking adj10 poverty) or (banks adj10 poverty) or (bank adj10 poverty) or (savings adj10 poverty) or (lease adj10 poverty)) or ((banking adj10 "the poor") or (banks adj10 "the poor") or (bank adj10 "the poor") or (savings adj10 "the poor") or (lease adj10 "the poor")) or (finance adj10 "the poor") or (finance adj10 poverty) or ((finance or insurance or savings) and poverty))) not (seed bank* or colostrum bank* or river bank* or blood bank*) not "fishes" not "genetic*").hw,sh. (390)

48 45 not 46 (1192)

****

Appendix 2.3: Databases searched

1. Africa Bib (Africa Periodicals Database and Africa Women's bibliography)
2. African Journals Online
3. Arts and Humanities Citation Index (via EBSCO) and included within the Science Citation Index
4. ASSIA (Applied Social Science Index and Abstracts)
5. British Library for Development Studies
6. Business and Dissertation Abstracts (via ProQuest)
7. CAB abstracts (database of applied life sciences)
8. CINAHL (Cumulative Index to Nursing and Allied Health Literature)
9. Conference Proceedings Citation Index – Science (via EBSCO) and included within the Science Citation Index
10. DEReC (Development Assistance Committee Evaluation Resource Centre)
11. EconLit (database of economic literature)
12. ELDIS (an online library of development literature provided by the Institute of Development Studies, Sussex, UK)
13. FRANCIS (a multilingual, multidisciplinary database covering the humanities and social sciences)
14. GDNet knowledge base (http://cloud2.gdnet.org/cms.php?id=research_papers_landing_page)
15. IDEAS Economics and Finance Research
16. IBSS (International Bibliography of the Social Sciences)
17. JOLIS (the database of fourteen World Bank and International Monetary Fund libraries)
18. Psycinfo (database of psychology literature)
19. PRISMA (instead of Latindex)
20. Search4Development Netherlands
21. Social Science Citation Index (via EBSCO) and included within the Science Citation Index
22. Sociological abstracts
23. TROPHI (Trials Register of Promoting Health Interventions)
24. UNESDOC (United Nations Educational, Scientific and Cultural Organisation Documents)
25. WWPS (Worldwide Political Sciences Abstracts)

We chose not to search two sources as they did not prove as relevant as we had hoped when we planned our review:

- The WHO library database (WHOLIS) - initial searches revealed no relevant hits so decided not to search this database (not focusing on health outcomes in this review)

- Social Assistance in Developing Countries Database (version 5) - this database collates evidence on cash transfers and not other forms of microfinance, therefore isn't relevant for this review

Appendix 2.4: Websites we searched

1. www.afminetwork.org
2. http://aecfafrica.org
3. www.afdb.org
4. www.cgdev.org
5. www.cgap.org
6. www.afid.gov.uk
7. www.enterprise-development.org
8. www.finca.org
9. www.finscope.co.za
10. www.giz.de
11. www.gsdrc.org
12. www.gramee-info.org
13. www.poverty-action.org
14. www.ifc.org
15. www.ifpri.org
16. www.ifad.org
17. www.theigc.org
18. www.ilo.org/socialfinance
19. www.ilo.org/wed
20. www.microfinancegateway.org
21. www.themix.org
22. www.mfnetwork.org
23. www.microsave.org
24. www.odi.org.uk
25. www.policypointers.org
26. www.rockefellerfoundation.org
27. www.dfid.gov.uk/r4d/index.asp (duplicate with specialist sites)
28. www.seepnetwork.org
29. www.uncdf.org
30. www.usaid.gov/index.html
31. www.worldbank.org
32. www.enterprisesurveys.org

Appendix 2.5: Review-specific keywords and our critical appraisal tool

We adapted the coding tool used in the related EPPI-Centre review of microfinance in sub-Saharan Africa (Stewart et al. 2010b). The final coding tool is included below. It was be tested on relevant papers and refined before being applied to all included studies for this review.

This paper is being coded by:
FIRST AUTHOR (DATE)

This paper is being coded on:

- English full text
- Translated full text

SECTION 1: Describing the microfinance programme

- The microfinance programme name isn't given in the paper
- Name of microfinance programme is specified in the paper

Specify name (this is to enable us to identify linked papers and also report on specific programmes)

1.1 COUNTRIES

Impossible to distinguish which countries or regions are being talked about in the paper. N.B. If this makes it impossible to identify impacts of microfinance within LMICs, then this paper should be EXCLUDED as 'not LMIC'

- LMIC named in the paper

Specify countries (this is to enable us to identify linked papers and also report findings from specific countries) (Secondary coding - specify if any are DFID priority countries or fragile states)

- Additional non-LMIC also named in the paper

Specify countries

1.2 IF NON-LMIC ARE ALSO INCLUDED IS IT:

- Possible to separate impacts in LMIC?
- Impossible to identify impacts of microfinance within LMICs? N.B. If this is the case this paper should be EXCLUDED as 'not LMIC'

1.3 SETTING

- Unclear/unspecified
- Rural (described as rural or semi-rural or agricultural)

If named, specify areas/describe

- Urban (described as urban or peri-urban or a named town or city)

If named, specify towns/cities/urban areas/describe

1.4 FINANCIAL BACKING FOR THE PROGRAMME COMES FROM (tick all that apply)

This can include set up costs or running costs

- Unclear/unspecified
- Formal bank
- The country's government (e.g. Uganda state govt)
- Another government (e.g. DFID, USAID)
- National or international NGO
- Local NGO
- Community organisation/self-help group (e.g. community church. Also includes group based savings and credit organisations where the original fund is formed of savings from members of the group)
- Other

Specify

1.5 PROGRAMME MODEL

- Group clients (externally funded)
- Group clients (self-funded, i.e. self-help group)
- Individual clients
- Individual micro-enterprises
    - Female headed micro-enterprises
- Other model

If other, specify

1.6 KEY ELEMENTS OF THE MICROFINANCE INTERVENTION (tick all that apply)

- Micro-credit
- Micro-savings
- Micro-leasing

If neither credit nor savings nor leasing then EXCLUDE as 'not microfinance'

If not possible to isolate the impacts of the micro-credit, micro-savings or micro-leasing element from a programme of combined interventions, EXCLUDE as 'not microfinance'

- With micro-insurance
- With money transfers
- With financial literacy training
- With unspecified microfinance services
- With other (specify)_____

Specify which part of the microfinance intervention is being evaluated in this paper_____

Specify the 'dose' of the microfinance intervention being evaluated in this paper (how big a loan, first loan, second loan, etc.) _____

Specify the 'exposure' of the microfinance intervention being evaluated in this paper (how much time passes before outcomes are evaluated)

_____

Specify the sequence of interventions delivered (where possible), and the time line of each

_____

1.7 CLIENTS OF MICROFINANCE (in general)

- Gender unclear/unspecified
- Men only
- Women only
- Men and women
- Micro-enterprises (in general)
- Female-headed micro-enterprises specifically
- Male-headed micro-enterprises specifically
- Specified 'poverty level' if available

Specify

- Specified age group if available

Specify

- Other details provided re clients

Specify

SECTION 2: Describing the research participants

N.B. for all the questions below, 'participants' refers to research participants – i.e. people who provide their data for the research (not necessarily the same as the clients of the microfinance intervention)

- The research involves providing the intervention as an experiment to a selected group of participants
- The research involves exploring impacts among those who are already receiving the intervention irrespective of the research

For each box below, indicate: clear, partial, unclear and specify available details

	INTERVENTION GROUP	COMPARISON GROUPS
2.1 How many		
Specify unit (household, indiv, micro-enterprises generally, female-headed enterprises specifically, male-headed enterprises specifically)	**household, indiv, micro-enterprises generally, female-headed enterprises specifically, male-headed enterprises specifically**	**household, indiv, micro-enterprises generally, female-headed enterprises specifically, male-headed enterprises specifically**
Specify how many before intervention		
Specify how many after intervention		
Attrition (leaving during course of study) ***Specify (and indicate if they report graduation as well as drop-out)***		
Do authors 'correct' for attrition:		
2.2 Who were the participants?		
Gender (men only, women only, both)		
Age		
Poverty level (some wealth or socio-economic status)		
Other descriptions?		

SECTION 3: Describing the study

3.1 DATA COLLECTION METHOD

- It is not clear how the data are collected
- The data are collected from secondary sources (e.g., financial records, health records, etc.)
- Primary data are collected by observation by researchers
- Primary data are self-reported (i.e. data given by intervention participants and/or comparison participants = perceptions = potential for bias)
- The data are self-reported in a written survey
- The data are self-reported in interviews or focus groups
- Data are collected some other way

Specify

Are there any potential biases within the way the data were collected?

Do the authors account for these biases with sensitivity analyses?

3.2 DATA POINTS

- It is not clear when the data were collected
- It is clear when the data were collected. SPECIFY_____
- Data points

	When were data that were included in the analyses collected at each time point, relative to the intervention, in months. The time of intervention = 0 months, so indicate 0, '- x months', '+ x months', 'Unclear'. 'N/A'	Participants are asked to provide data about that point in time (indicate Yes, No, Unclear, N/A)	Participants are asked to recall data from an earlier point in time (indicate Yes, No, Unclear, N/A)
Time 1:			
Time 2:			
Time 3:			
Time 4:			
Time 5:			

Risk of recall bias in this study? High, Medium, Low
(High if all recall data, medium if some recall, low if no recall).

3.3 STUDY DESIGN

- ☐ Randomised controlled trial (each participant has the same chance of receiving the intervention or being in the comparison group)
- ☐ Cluster randomised controlled trial (each 'cluster' has the same chance of receiving the intervention or being in the control group)
- ☐ Non-randomised controlled trial/controlled before-and-after study (study includes intervention and comparison groups, with before-and-after data for both groups)
- ☐ Retrospective controlled before-and-after study (data from large repeated surveys are used to retrospectively construct intervention and comparison groups, with before-and-after data for both groups)
- ☐ Simple comparison study (intervention and comparison groups, only one data point – also referred to as with-and-without study)
- ☐ Uncontrolled before-and-after study (no comparison group, before-and-after data) EXCLUDE
- ☐ Simple non-comparison evaluation (no comparison group, only one data point)
- ☐ Modelling study (based on theoretical/modelled events not real ones) EXCLUDE
- ☐ Cannot determine study design = EXCLUDE AS 'POOR DUE TO LACK OF INFORMATION'

3.4 Analysis method

- ☐ **PSM**
- ☐ **IVs**
- ☐ **Difference-in-differences**
- ☐ **Other (specify) _____**

3.5 Reporting findings – risk of selective reporting bias

Do authors report on all outcomes they intended to measure as laid out in the aims and methods of the study? Yes, Partial, No

3.6 ADDRESSING BIAS/CONFOUNDING FACTORS

I. Consideration of differences between intervention and control groups (selection bias)

   What analyses did they do? (*If PSM design, this is less important)*

   Our judgement of whether or not it was sufficient Yes, Partial, No

II. Consideration of differences between intervention and control locations (placement bias)
   What analyses did they do? (*Especially important with Pipeline and PSM*

studies)
Our judgement of whether or not it was sufficient Yes, Partial, No

III. Consideration of intervention integrity

Do they make any mention of the intervention integrity among participants or over time?

Do they take these into account through appropriate sub-group analyses?

Our judgement of whether or not it was sufficient Yes, Partial, No

IV. Consideration of differences within groups
What subgroup analyses did they do?
Our judgement of whether or not it was sufficient Yes, Partial, No

V. Consideration of bias/confounding factors in explaining variation in outcomes.
Do they report a measure of the model's goodness of fit or proportion of total variance that is explained by the model?

What is the goodness of fit or extent of total variance that is explained by the model? (specify)

Do they consider reasonable alternative models or explanatory variables if there is bad model fit or if the variance explained is low?

Our judgement of whether the authors have made a sufficient attempt to test for confounding factors and explain variation in outcomes: Yes, Partial, No

SECTION 4: Study quality

4.1 Reporting (tick IF the following are NOT REPORTED)

☐ Microfinance intervention (EXCLUDE IF TICKED)
☐ Describe participants
☐ Describe selection of participants
☐ Drop-out
☐ Data collection
☐ Data analysis
☐ Potential biases

IF two or more of the above are ticked, the study is judged to be HIGH RISK OF BIAS due to the lack of information provided re methodology DO NOT EXTRACT FINDINGS

4.2 Quality of methods (TICK BASED ON ANSWERS ABOVE)

☐ Inappropriate assumptions (Assumptions within causal model assessed in this study are inappropriate meaning, leaving you unconvinced that what is being measured is actually the impact of microfinance) If ticked = HIGH RISK OF BIAS

☐ Findings are not apparent in the data or analysis (if ticked = HIGH RISK OF BIAS)

I. Risk of selective reporting of outcomes: High, Medium, Low (see 3.5)
II. Risk of attrition bias: High, Medium, Low (see 2.1)
III. Risk of selection bias: High, Medium, Low (see 3.6) *(N.B. cannot rate as lower risk of bias overall than judgement on selection bias)*
IV. Risk of placement bias: High, Medium, Low (see 3.6)
V. Risk of bias due to intervention integrity: High, Medium, Low (see 3.6)
VI. Risk of bias due to lack of consideration of subgroups: High, Medium, Low (see 3.6)
VII. Risk of bias due to lack of consideration of goodness of fit/variance explained in model: High, Medium, Low (see 3.6)

☐ HIGH RISK OF BIAS due to the methods used DO NOT EXTRACT FINDINGS

☐ MEDIUM RISK OF BIAS within methods used EXTRACT FINDINGS

☐ LOW RISK OF BIAS due to the methods used EXTRACT FINDINGS

SECTION 5: OUTCOMES ASSESSED

For each outcome assessed, record the findings on EPPI-Reviewer.

5.1 WEALTH OUTCOMES RELATING TO THE MICROFINANCE CLIENTS (reported results for different subgroups will be noted to enable subgroup analyses)

☐ Engagement in economic opportunities (give details of when and what)
- new business
- diversification of income
- employment/hours worked

☐ Individual income

☐ Individual expenditure

☐ Individual accumulation of non-financial assets

☐ Individual level of financial assets (including savings)

☐ Business income

☐ Business expenditure

☐ Business accumulation of non-financial assets

☐ Business level of financial assets (including savings)

- ☐ Household income
- ☐ Household expenditure
- ☐ Household accumulation of non-financial assets
- ☐ Household level of financial assets (including savings)

- ☐ Consideration of impacts relating to women specifically

- Other outcomes relating to financial wealth of microfinance clients

Specify outcomes

SECTION 6: SUMMARY Allocate the study to the corresponding cell below

STUDY QUALITY	Assessing impact on the poor's engagement in economic opportunities	Assessing impact on financial outcomes for the poor	Assessing impacts on women specifically	Assessing impacts of interventions which target women specifically
LOW RISK OF BIAS	1a	2a	3a	4a
MEDIUM RISK OF BIAS	1b	2b	3b	4b
HIGH RISK OF BIAS	1c	2c	3c	4c

Appendix 3.1: An overview of included studies

	Study	Country	Intervention[48]	Study design	Our quality judgment	Outcomes assessed	Interventions that target women	Outcomes specifically relevant to women
	Studies which have before-and-after data (either prospectively or retrospectively collected) and therefore potential to show causality							
1.	Brune et al. (2011)	Malawi	Savings (treatment groups were offered 2 savings accounts and given support in opening them)	RCT	Low risk of bias	Individual savings, accumulation of business (non-financial assets), business income (value of crops, sold and unsold), business income (farm profits), household expenditures, household cash transfers/gifts	No	
2.	Augsburg et al. (2011)	Bosnia and Herzegovina	Credit	RCT	Low risk of bias	Income diversification (business creation and development), employment (hours worked), business expenditure, household savings, business overview	No	
3.	Dupas and Robinson (Oct 2011)	Kenya	Savings (randomised access to savings, also reported on impacts of actually using an account)	RCT	Medium risk of bias	Business savings, hours worked, business expenditure, individual expenditure, expenditure (cash transfers)	No	Business savings, business expenditure, individual expenditure

[48] Some of the credit programmes include an initial compulsory savings component, but this isn't indicated here unless optional savings are also available.

	Study	Country	Intervention[48]	Study design	Our quality judgment	Outcomes assessed	Interventions that target women	Outcomes specifically relevant to women
4.	Erulkar and Chong (2005)	Kenya	Credit and savings	Type of controlled before-and-after study (collected data before joining and 1-2 years later)	Medium risk of bias	Individual savings, household non-financial assets, individual (salaried) income	Yes	Individual savings, household non-financial assets, Individual (salaried) income
5.	Takahashi et al. (2010)	Indonesia	Credit and savings	Type of controlled before-and-after study (collected data before joining and 1 year later)	Medium risk of bias	Individual income, business income (profits, sales from self-employment business, sales from nonfarm enterprises, sales of farming/aquaculture), financial assets (savings), non-financial assets (durable assets, livestock)	No	
6.	Kaboski and Townsend (2009)	Thailand	Credit	Type of controlled before-and-after study (collected data before roll out in 1997-2001, and then in 2002-2003 'after' roll out)	Medium risk of bias	Household expenditure, business income, business investment, impacts specifically on women's businesses	No	Impacts specifically on women's businesses

	Study	Country	Intervention[48]	Study design	Our quality judgment	Outcomes assessed	Interventions that target women	Outcomes specifically relevant to women
7.	Chen and Snodgrass (2001)	India	Credit and savings	2 surveys 2 years apart to see change over time (not strictly 'before' and 'after' data)	Medium risk of bias	Household income, household expenditure, income diversification, business income	Yes	
8.	Dunn and Arbuckle (2001)	Peru	Credit	2 surveys 2 years apart to see change over time (only includes very small subset of 'new entrants' for whom we actually have 'before' and 'after' data)	Medium risk of bias	Business income, business assets, employment, household income, income diversification, household non-financial assets, household expenditure	No	
9.	Barnes et al. (2001a)	Uganda	Credit	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Medium risk of bias	Individual expenditure, individual accumulation of financial assets (savings), household accumulation of non-financial assets, income diversification, business income, business expenditure	No	

	Study	Country	Intervention[48]	Study design	Our quality judgment	Outcomes assessed	Interventions that target women	Outcomes specifically relevant to women
10.	Barnes et al. (2001b)	Zimbabwe	Credit	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Medium risk of bias	Individual expenditure, individual savings (financial assets), household income, household non-financial assets, other business outcomes	No	Control over business income
11.	Gubert and Roubaud (2005)	Madagascar	Credit and savings	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Medium risk of bias	General business outcomes and employment	No	
12.	Cuong (2008)	Vietnam	Credit	Retrospective analysis of 2 surveys in 2002 and 2004	Medium risk of bias	Individual income, individual expenditure, general poverty status	No	
13.	Khandker 2005 (N.B. uses Pitt and Khandker 1998 single panel as baseline)	Bangladesh	Credit	Retrospective analysis of two surveys in 1991/92 and 1998/99	Medium risk of bias	Household expenditure, general poverty status	No	

	Study	Country	Intervention[48]	Study design	Our quality judgment	Outcomes assessed	Interventions that target women	Outcomes specifically relevant to women
14.	Nanor (2008)	Ghana	Credit	Prospective data collection (no before data)	Medium risk of bias	Household income, household expenditure, poverty status (household), business income	No	
15.	Brannen (2010)	Tanzania	Credit and savings	Prospective data collection through a survey, interviews and focus groups	Medium risk of bias	Income generating activities, household expenditure	No	Income generating activities
16.	Pitt and Khandker (1998)	Bangladesh	Credit	Retrospective analysis of a single panel (no before data)	Medium risk of bias	Employment, household expenditure, individual accumulation of assets	No	Employment, household expenditure, accumulation of assets
17.	Bahng (2009)	Ethiopia	Credit and savings	Retrospective analysis of a single panel (2007)	Medium risk of bias	Individual accumulation of non-financial assets (livestock), household non-financial assets	No	

Appendix 3.2: Outcomes assessed in the 17 studies included in the review

	Engagement in economic opportunities	Outcomes of economic opportunities														
		Individual Income	Household income	Business income	Individual expenditure	Household expenditure	Business expenditure	Other expenditure: cash or gift transfers	Individual accumulation of financial assets (savings)	Household accumulation of financial assets (savings)	Business accumulation of financial assets (savings)	Individual accumulation of non-financial assets	Household accumulation of non-financial assets	Business accumulation of non-financial assets	Other outcomes: general poverty ratings	Other outcomes: general business outcomes
Augsburg et al. (2011)	x						x			x						
Bahng (2010)												x	x			
Barnes et al. (2001a)	x			x	x				x				x	x		
Barnes et al. (2001b)	x	x		x	x				x				x	x	x	
Brannen (2010)	x					x										
Brune et al. (2011)				x		x		x	x					x		
Chen and Snodgrass (2001)	x		x	x		x										
Cuong (2008)		x			x										x	
Dunn and Arbuckle (2001)	x		x	x		x			x				x	x		

	Engagement in economic opportunities	Outcomes of economic opportunities														
		Individual Income	Household income	Business income	Individual expenditure	Household expenditure	Business expenditure	Other expenditure: cash or gift transfers	Individual accumulation of financial assets (savings)	Household accumulation of financial assets (savings)	Business accumulation of financial assets (savings)	Individual accumulation of non-financial assets	Household accumulation of non-financial assets	Business accumulation of non-financial assets	Other outcomes: general poverty ratings	Other outcomes: general business outcomes
Dupas and Robinson (Oct 2011)	x	x		x				x			x					
Erulkar and Chong (2005)		x							x				x			
Gubert and Roubaud (2005)	x															x
Kaboski and Townsend (2009)				x		x										
Khandker (2005)						x									x	
Nanor (2008)			x	x		x									x	
Pitt and Khandker (1998)						x						x				
Takahashi et al. (2010)	x	x		x					x			x				

Appendix 3.3: Structured summaries of included studies

Study: Augsburg B, De Haas R, Hamgart H, Meghir C (2011) *Microfinance at the margin: experimental evidence from Bosnia and Herzegovina*. November 2011. (*pre-publication copy provided by authors*)

Identified for this review via: Contact

Country/setting: Bosnia and Herzegovina (upper-middle-income Country), setting unspecified

Intervention: This study explored the impact of micro-credit loans provided at 22 percent interest per annum with an 11-month repayment for marginal clients. Those participating had had their loan for at least 13.5 months by the time of follow-up data collection.

Study design: RCT

Dates of data collection: November and December 2008 and February-July 2010

Sample: An initial baseline survey of 1,198 marginal loan clients (both men and women) were surveyed and randomised to receive or not receive a loan. 995 of these were interviewed at follow-up (an attrition rate of 17 percent). 62 percent were married, at baseline, just over half were employed and 26 percent were unemployed. A third of the marginal clients only finished primary school. They ranged from 20-64 years old (average 38).

Methods of analyses: Multiple regression, ordinary least squares (OLS)

Summary of quality judgement: Low risk of bias

This study included random allocation to the control and intervention groups reducing the risk of selection bias. The authors tested for differences between the groups at baseline and endline, as well as considering differences within and between key subgroups, and assessing the impact of attrition on the sample. We therefore judge this study to be at low risk of selection bias.

The authors also consider differences between subgroups conducting analysis comparing those clients with and without businesses at baseline and those with various levels of education. Although it is not clear whether they consider the integrity of the intervention (i.e. variation in loan size or the treatment of clients across time) this is study is considered to be of relatively low risk of bias.

Outcomes: Income diversification (business creation and development), employment (hours worked), business expenditure, household savings, business overview

> **Income diversification (business creation and development)**
> **Direction of effect:** + (significant at the 5 percent level)
> **Narrative:** At the time of follow-up, borrowers were almost 6 percent more likely to own a business compared to the control group that did not receive a loan. This result was due to new business ownership among the highly education borrowers.

Hours worked
Direction of effect: + (among 16-19 year olds)
Narrative: 'While we do not find an overall change in the number of hours worked by the household, we do find strong impacts for children and young adults aged 16 to 19. These young household members work significantly more, compared to the control group, if their household already had a business at baseline or if the borrower only had primary education.' p22
'Children of marginal clients with a business at baseline work on average 20 hours per week more than children of the same age in the control group. And children of marginal clients with not more than primary education work on average 29 hours more than the control group.' (p22)
Although not a focus of this review the theory that young people who do not legally have to attend school are diverting their time away from education and to work are supported by the authors' findings that 'School attendance decreases significantly for children aged 16-19. Results suggest that they are 9 percent less likely to attend school due to the intervention. This overall effect is driven by households of low-educated marginal clients - those for which we also observed an increase in working hours for the children. Children aged 16-19 of this type of households in fact 19 percent less likely to attend school than the control group.' (p24-25)

Business expenditure
Increase in consumption for existing business owners direction of effect: No significant effect
Narrative: The study finds no significant effect of credit on business consumption – the authors suggest this is because the loans were too small.

Increase in consumption of food stuffs for existing business owners with low levels of education direction of effect: - (significant at the 1 percent level)
Narrative: The authors find a significant decrease in consumption of food at home among clients with businesses who have low levels of education. As the authors find no significant reduction in consumption outside the home, they conclude that borrowers are having to adjust in-home expenses in order to protect business expenses.

Household savings
Level of savings direction of effect: - at the 5 percent level
Narrative: There is an overall reduction in the level of savings by clients. This is predominantly observed among business owning borrowers, and among borrowers with higher levels of education. Authors also find that it is the same households who actually had a higher amount of savings at baseline that use these savings after receiving a loan.

Study: Bahng GB (2009) *Collaborating to provide microfinance to caregivers of orphans and vulnerable children in Ethiopia*. Unpublished PhD thesis, University of Southern California.

Identified for this review via: Stewart et al. (2010b)

Country/setting: Ethiopia (low-income country, DFID priority country, fragile state), rural setting (Guraghe and Wonchi regions)

Intervention: This study assesses the impact of an NGO (World Vision)-backed microfinance organisation (WISDOM) which provides group-based credit, savings and insurance to male and female carers of orphans and vulnerable children. Groups consist of 20-30 with joint liability. Loans are dependent on compulsory savings and require monthly interest payments.

Study design: Retrospective analysis of one panel of survey data collected in August 2007

Dates of data collection: August 2007, with some 2008 data from enumerators but no large scale follow-up reported

Sample: 119 households participating in WISDOM were selected from lists of clients and of carers of orphans and vulnerable children, and 197 non-clients were randomly selected from a list of carers who were not clients.

Methods of analyses: OLS and multiple regression, as well as qualitative analyses of interviews

Quality judgement: Medium risk of bias

The design of this study means it is only possible to assess associations between variables and not establish causality. It also leaves it open to selection bias; however, the authors report some steps to assess the extent of differences between the intervention and control groups and take them into account in their analyses. On this basis we judge this study to be at medium risk of selection bias – the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors also consider differences within groups using subgroup analyses, including using two comparison groups (those in WISDOM areas who don't take loans, and those from non-WISDOM areas). They do not fully account for differences between these locations however. They do account for intervention integrity and consider various explanations for the variation they find in outcomes.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Individual accumulation of non-financial assets (livestock), household non-financial assets

> **Individual accumulation of non-financial assets (livestock)**
> **Direction of effect:** No significant association

Narrative: The study found no significant association between length of time in the programme and number of livestock. The longer caregivers participated in WISDOM, the less likely they were to have livestock but this was not significant (at the 5 percent level).

Household non-financial assets
General holding assets direction of effect: - (significant at the 5 percent level)
Sale of goods to pay basic needs direction of effect: - (significant at the 1 percent level)
Narrative: There was a negative association between length of time in the programme and holding household assets. It appears that the longer caregivers participated in WISDOM, the less likely they were to have household assets. The longer standing WISDOM clients were less likely than new clients to have sold their assets in the past year to pay for food and shelter in the last year.

Study: Barnes C, Gaile G, Kibombo R (2001a) *The impact of three microfinance programs in Uganda*. Development Experience Clearinghouse, USAID.

Identified for this review via: Stewart et al. (2010b)

Country: Uganda (low-income country, DFID priority country), rural and urban setting

Intervention: This study explored the impact of a number of microfinance interventions in Uganda (Foundation for International Community Assistance [FINCA], Foundation for Credit and Community Assistance [FOCCAS] and Promotion of Rural Initiatives and development enterprises [PRIDE]). On average clients had taken four loans that totalled approximately £350 (GBP). One of the assessed programmes (FOCCAS) included an additional linked intervention, specifically the inclusion of non-formal education in health, nutrition, family planning, HIV/AIDS prevention and better business management.

Study design: Two surveys two years apart to see change over time (not 'before' and 'after')

Dates of data collection: 1997 and 1999

Sample: The study sample was chosen using stratified random sampling. The intervention group consisted of 576 clients, 93 percent of whom were women with an average age at the start of the study of 36 years and an average education level of one year of secondary schooling. 67 percent were married. These were compared to 393 non-clients 93 percent of whom were women with an average age of 33 years.

Methods of analyses:DID, ANOVA (analysis of variance) and chi-squared

Quality judgement: Medium risk of bias

This study was subject to selection bias, largely due to the study design. Despite attempts to measure and account for selection bias, the risk of bias remained. Given that the study has a medium risk of selection bias, the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors took into account intervention integrity and conducted sub-group analyses to take account of within-group differences. However, they do not account for variation within outcomes.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Individual expenditure, individual accumulation of financial assets (savings), household accumulation of non-financial assets, income diversification, business income, business expenditure

Individual Expenditure
Direction of effect on remittances and gifts: No significant difference
Narrative: Client households are slightly more likely to provide assistance (and with higher amounts) to non-household members in the three months before interviews in 1997 and 1999 than non-client households, but these differences are not statistically significant.

Individual accumulation of financial assets (savings)
Direction of effect: + (at the 1 percent level)
Narrative: Found that clients were significantly more likely than non-clients to have increased their level of savings in the last two years (55 percent of clients, compared to 25 percent of non-clients had an individual bank savings account), but clients preferred to keep their non-mandatory savings elsewhere than in the bank account.

Household accumulation of non-financial assets
Direction of effect: No significant difference
Narrative: The average value of durable assets – mattress, radio, tv, stove, refrigerator, and beds – purchased by client households was more than twice that spent by non-client households. But while more client households acquired specific durable items compared to non-client households, the results are not statistically significant. A small number of clients had to sell assets to make loan repayments.
Barnes and colleagues (2001a) also found that a greater proportion of client households, compared to non-client households, became owners of the place in which they lived.

Business income (profits)
Business profits: direction of effect: + (significant at the 1 percent level)
Businness profits narrative:

More clients (43 percent) had increased their profits from business in the month before the 1999 survey, compared to non-clients (31 percent) (Morris and Barnes *undated*).
'Client households were significantly more likely to have increased their income from agricultural crops, and to have diversified their income sources than non-client households.
Client households were also significantly more likely than non-clients to have had income from a source other than micro-enterprises [most common crops and livestock] in the 12 months prior to the 1999 interview (71 percent and 59 percent respectively).' (Morris and Barnes *undated:*12).
There was a strong association between receiving micro-credit and increased income from crop production.

Income diversification/development
Diversity of income sources: Varied (mostly + and significant at the 1 percent level)
Diversity of crops grown: + (significant at the 1 percent level)
Starting a new substitute business: + (significant at the 5 percent level)
Investing in land for cultivation: + (significant at the 1 percent level)

Income sources narrative:
Micro-credit clients were more likely have more diverse sources of income than non-clients, although this was not true for the poorest households.
Client households were more likely to increase the number of crops they grow in response to market opportunities and/or reducing risk, compared to non-client households. Farmers receiving micro-credit diversified the crops they grow AND there is evidence that this translates into greater business income.
Increased amount of cultivated agricultural land for client households: regarding access to land, in 1997 client households had significantly higher access (5.91 acres) compared to non-client households (3.43 acres). By 1999 client households were more likely to have increased the amount of land they cultivate, compared to non-client households (see Table 5, in Morris and Barnes *undated*). This can be directly related to the increase in amount of income from crop production by client households.
Credit clients were more likely to have added new products or services to their current business and started a new business (a substitute enterprise, not a second enterprise) (Barnes et al. 2001a)
Client households were more likely than non-client households to have increased the number of housing rental units owned.
Clients were significantly more likely than non-clients to have (i) added new products/services; (ii) begun new enterprises; (iii) improved or expanded enterprise sites and markets; (iv) reduced costs through buying in bulk; and (v) increased the size of their stock over the previous two years (see Table 2, in Morris and Barnes *undated*).

Business expenditure
Direction of effect: + (significant at the 1 percent level)

Spending on agriculture narrative: Investment in agricultural inputs: in the three months prior to the 1999 interview, as well as compared to 1997, client households had, on average, spent slightly more on agricultural inputs than non-client households (Table 6 in Barnes et al 2001a). For Morris and Barnes (*undated*:17) the '[i]ncreased expenditure on agricultural inputs, expanded land cultivation, and crop diversification by clients are all positively related to MFI program participation.'

Spending of business revenue narrative: While both client and non-client households reported that most business revenue is spent on business (in 1997 92 percent, and 67 percent in 1999), by 1999 21 percent of households reported expenditures on household basic needs (food, education, medical expenses) as the primary use of business revenue. In 1997 food for household members was the second most frequent form of expenditure for clients (48 percent) and non-clients (56 percent), while debt payment was the third expenditure category for clients (45 percent). Client households are also more likely to report savings among their top two expenditure categories. (Morris and Barnes *undated*)

Expenditure on business assets narrative: Clients, on average, spent more money on business assets between 1997 and 1999 compared to non-clients (Barnes et al. 2001a).

Study: Barnes C, Keogh E, Nemarundwe N (2001b) *Microfinance program clients and impact: an assessment of Zambuko Trust Zimbabwe*. Development Experience Clearinghouse, USAID.

Identified for this review via: Duvendack et al. 2011, Stewart et al. (2010b)

Country: Zimbabwe (low-income country, DFID priority country, fragile state), urban and semi-urban setting

Intervention: This study evaluated the impact of a micro-credit programme which included eight hours of business training and a compulsory savings element, as well as loans.

Study design: Two surveys two years apart to see change over time (not 'before' and 'after')

Dates of data collection: 1997 and 1999

Sample: Intervention and comparison households were selected using some elements of randomisation. There were 344 clients who received the intervention including both men and women with an average age of 41 years. The comparison group consisted of 255 non-clients; micro-entrepreneurs who were matched to the clients on the basis of gender and micro-enterprise sector.

Methods of analyses: Regression, ANOVA and ANCOVA (analysis of covariance)

Quality judgement: Medium risk of bias

This study was subject to selection bias, largely due to the study design. Despite attempts to measure and account for selection bias, the risk of bias remained. Given that the study has a medium risk of selection bias, the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors took into account intervention integrity and conducted subgroup analyses to take account of within-group differences. However, they do not account for variation within outcomes. The different locations in the study are reported as 'comparable', however it is not clear that this is the case.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Individual expenditure, individual savings (financial assets), household income, household non-financial assets, other business outcomes

Individual expenditure
Remittances and gifts direction: No significant effect
Narrative: After controlling for a number of initial differences, there was no significant difference between gifts given by clients and non-clients.

Individual financial assets (savings)
Savings direction of effect: + (at the 5 percent level)
Savings narrative: Zambuko had a positive impact on clients having an individual savings account in 1999, and on the number of ways extremely poor continuing clients saved (Barnes et al 2001b:xiv, 105-106).

Household income
Direction of effect: Varied
Sources of income narrative: Farmers receiving micro-credit diversified the crops they grow AND over the two years following departure from a micro-credit programme, clients had diversified their income sources, potentially providing the households with greater income security. The greater diversification of income sources was not observed for the poorest households.
Level of household income narrative: In 1997 the households of continuing clients had significantly higher income levels than departing clients and non-clients (the differences were statistically significant at the 1 percent level), while for 1999 the differences were not statistically significant (Barnes et al. 2001b). The real value of continuing clients' household income decreased from 1997 to 1999, while that of the other two groups rose, with the largest gain to non-clients who started with a lower level of income (Barnes et al. 2001b:75). Departing clients and non-clients had lower levels of income in both 1997 and 1999 than continuing clients, but 'when controlling for initial differences, the 1999 level of income did not

appear to have been related to participation in Zambuko's program' (Barnes et al. 2001b:xiii).

Household non-financial assets
Direction of effect: No significant effect
Narrative: '... found no impact on expenditure on housing improvements, and acquisition of a television, electric fan or means of transport.' (Barnes et al 2001b: xiii).
Household durable assets (like appliance and furniture): continuing client households averaged higher expenditure on durable assets in both 1997 and 1999 than the comparison groups (Barnes et al 2001b). But ANCOVA analysis did not indicate any measurable impact of Zambuko on the sum invested in durable assets between 1997 and 1999 (Barnes et al 2001b: 88). 'Continued participation in Zambuko's program appears to have had a positive impact on the acquisition of stoves and refrigerators' (Barnes et al 2001b:91).
Sale of household assets: continuing clients were more likely to have sold a household durable asset between 1997 and 1999 than departing clients or non-clients (Barnes et al 2001b).

Other household outcomes
Household poverty in general direction of effect: - over time
Narrative: Continuing participation in micro-credit has a negative impact on household poverty. From 1997 to 1999, 49 percent of continuing clients, 64 percent of departing clients, and 51 percent of non-clients had improved their poverty status – movement out of poverty was related to decreasing household size, increasing number of income sources, decreasing economic dependency ratio and increasing number of economic active household members (Barnes et al 2001b). 'Significantly more continuing clients and departing clients than non-clients fell into poverty during the assessment period' (Barnes et al. 2001b:60).

Business income
Direction of effect: No significant effect
Narrative: Although we know that farmers receiving credit were more likely to diversify the crops they grew, there was no evidence that this led to greater business income.
Continuing participation in micro-credit had a negative impact on household poverty: 'Significantly more continuing clients and departing clients than non-clients fell into poverty during the assessment period' (Barnes et al. 2001b:60).
Departing clients and non-clients made positive gains in total net revenue (profit) from 1997 to 1999, although in both years the level of income was higher for continuing clients (Barnes et al. 2001b:xiv). 'The ANOVA results indicate that the extremely poor departing clients did marginally better than the non-clients in 1999, implying that participation in Zambuko's program had a positive impact on them.' (Barnes et al. 2001b:93).
'Participation in Zambuko's program does not appear to have had an impact

on the monthly net revenue in the households' enterprises' (Barnes et al. 2001b:95).

Business assets (non-financial)
Direction of effect: No significant difference
Narrative: The value of fixed assets in businesses (like tools, equipment and machines) tended to be higher in both years for continuing and departing clients than for non-clients, but the impact analysis did not suggest that the differences in 1999 between the groups were associated with the Zambuko program (Barnes et al. 2001b:xiv). Participation in Zambuko did not have an impact on the value of fixed assets in clients' businesses (Barnes et al. 2001b). Between 1997 and 1999 'non-clients had a higher level of gain than did the client groups, and the difference was significantly higher [p=0.06] for the non-clients than continuing clients.' (Barnes et al. 2001b:95).

Other business level outcomes
Gender direction of effect: No significant effect
Gender narrative: Findings from Zimbabwe were 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 et al. 2001b).

Study: Brannen C (2010) *An impact study of the Village Savings and Loan Association (VSLA) program in Zanzibar, Tanzania.* Unpublished BA thesis, Wesleyan University, Connecticut.

Identified for this review via: Stewart et al. (2010b)

Country/setting: Tanzania (low-income country, DFID priority country), rural villages in Zanzibar

Intervention: This study assesses the impact of the Village Savings and Loan Association (VSLA) which facilitates self-funded savings and loans to groups of between 15 and 30 people who save each week, and once the savings become large enough members can also borrow short-term loans (for about a month) at an interest rate of 5 percent a month. Members accrue 'shares' depending on how much they save, and once a year the accumulated amount is divided between the members according to shares accrued. Members can also pay into a 'social fund' which acts as an insurance service providing emergency funds in the forms of loans – repayment of which is not enforced. Financial literacy training is also provided prior to participation.

Study design: A single survey design complemented by interviews and focus groups

Dates of data collection: 2006

Sample: Stratified random sampling was used to select 120 clients (although this is not 100 percent clear) and 50 new 'pipeline' members who had not yet become involved in savings or loans.

Methods of analyses: OLS regression

Quality judgement:

The design of this study means it is only possible to assess associations between variables and not establish causality. Despite using pipeline clients as the comparison group and taking into account some differences between the intervention and comparison groups in the analyses, the risk of selection bias remains. Given that the study has a medium risk of selection bias, the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors fail to account for spill-over between intervention and control groups although they do conduct subgroup analyses to consider and account for differences within groups. They do consider the integrity of the intervention but do not discuss the variation in outcomes or alternative models to explain their results.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Income generating activities, household expenditure

> **Household Expenditure**
> **Direction of effect:** + association (significant at the 1 percent level)
> **Narrative:** There is a significant positive association between membership of VSLA and level of spending on household assets. The size of loan does not appear to be important, rather the membership of VSLA.
>
> **Income generating activities**
> **Direction of effect:** + (at the 1 percent level)
> **Narrative:** Membership of VSLA is associated with an increased number of income generating activities. For women, but not men, this impact increases for each year in the microfinance programme.

Study: Brune L, Giné X, Goldberg J, Yang D (2011) *Commitments to save: a field experiment in rural Malawi*. Innovations for Poverty Action (IPA). www.poverty-action.org/node/4044

Identified for this review via: J-PAL and citation searches

Country: Malawi (low-income country; DFID priority country), rural setting

Intervention: This study explored the impact of two types of savings accounts, an ordinary savings accounts with an annual interest rate of 2.5 percent and commitment savings accounts with the same interest rate but which allowed the farmers to specify an amount and a 'release date' when the bank would allow access to funds. Those with commitment accounts also had ordinary savings accounts where they could keep uncommitted funds. All participants also received

financial literacy training, and some groups were offered an additional opportunity to take part in a raffle linked to the amount they saved.

Study design: RCT

Dates of data collection: March-May 2009 and July-September 2010 (included two harvest periods)

Sample: In all 299 farmers clubs were included with a total of 3,150 farmers surveyed at baseline: 42 clubs had no savings intervention and no raffle, 170 clubs had ordinary accounts available, and
167 had commitment accounts (and ordinary ones). The sample had average age of 45 years and 5.5 years of education.

Methods of analyses: DID

Quality judgement: Low risk of bias

Outcomes: Individual savings, accumulation of business (non-financial assets), business income (value of crops, sold and unsold), business income (farm profits), household expenditures, household cash transfers/gifts

Individual savings
Direction of effect: + (at 1 percent level)
Narrative: Farmers in each of the six savings treatment conditions had significantly higher deposits (at the 1 percent significance level) than farmers in the control group.
The commitment treatment groups (combined) withdrew more net money in the planting season than the controls (significant at the 1 percent level), while the ordinary savings accounts had no significant impact on transactions in this time period. This suggests that the commitment account was successful in encouraging farmers to save funds for the 'hungry' season.
The commitment savings, no raffle treatment led to a small increase in net deposits (not significant at the 5 percent level), and the effect of the ordinary account without raffle was not statistically different from zero.
There was no significant difference between the impacts of ordinary and commitment savings accounts on savings. There was also no differential effect of either raffle.

Business investment/accumulation of business (non-financial) assets
Direction of effect: + for the commitment (no raffle) account (significant at the 5 percent level), no significant effect for the ordinary account (no raffle)
Narrative: 'The commitment (no raffle) treatment had a large positive and statistically significant effect on both land under cultivation and the total value of inputs used (which include seed, fertilizer, pesticides, hired labour, transport and firewood for curing) in the late-2009 planting.'
There is no significant effect of the ordinary (no raffle) account on the accumulation of non-financial business assets.

Business income (value of crops)
Direction of effect: + for the commitment (no raffle) account (significant at the 1 percent level), no significant effect of the ordinary (no raffle) account
Narrative: The value of the crop sold, as well as unsold output, was significantly higher for the commitment (no raffle) farmers than controls. There was no significant impact on the value of crops for famers in the ordinary (no raffle) account group.

Business income (farm profits)
Direction of effect: No significant effect
Narrative: Neither the commitment nor the ordinary accounts have a significant impact on farm profits.

Household expenditures
Direction of effect: + for the commitment (no raffle) account (at the 5 percent level), no significant effect for the ordinary account
Narrative: The commitment (no raffle) account has a significant positive impact on the levels of household expenditures while the ordinary (no raffle) account has no significant impact.

Household cash transfers/gifts
Direction of effect: No significant effect of commitment account
Narrative: The authors found no evidence of a reduction in gifts (net transfers) to other members of social networks by those farmers with a commitment (no raffle) account.

N.B. Closer examination of the impacts of the private or public raffle is inconclusive.

Study: Chen MA, Snodgrass D (2001) *Managing resources, activities, and risk in urban India: the impact of SEWA Bank.* Washington DC: USAID.

Identified for this review via: Duvendack et al. (2011), reference lists

Country: India (lower-middle-income country, DFID priority country), urban setting (Ahmedabad City)

Intervention: This study evaluates the impact of SEWA Bank's provision of micro-credit and micro-savings to women using a group model. Members save for six months before they have the option to borrow. Loans are then available of up to 538USD for three years at 17 percent interest rate, repayable in 20 monthly instalments. Members include labourers and subcontractors as well as micro-entrepreneurs.

Study design: Two surveys two years apart to see change over time (not strictly 'before' and 'after' data)

Dates of data collection: 1998 and 2000

Sample: There were 900 in the 1998 sample (300 saverborrowers, 300 with savings only, 300 non-members), and 786 in the 2000 sample (276 saver/borrowers, 260 with savings without loans, 262 non-members). Participants were randomly selected from within the 10 wards with the highest levels of borrowing (drawing on client lists and a neighbourhood survey to identify economically active non-member households).

Methods of analyses: ANOVA, ANCOVA, gain score analysis

Quality judgement: Medium risk of bias

This study was subject to selection bias, largely due to the study design. Despite attempts to measure and account for selection bias, the risk of bias remained. Given that the study has a medium risk of selection bias, the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors took into account intervention integrity and conducted subgroup analyses to take account of within-group differences. They also considered alternative explanations for their results.

Despite the consideration by the authors of some biases, the medium risk of selection bias means that we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Household income, household expenditure, income diversification, business income

Household income
Direction of effect: + (significant at the 1 percent level for borrowers and savers compared to non-members); no significant difference between the saver-only group and non-members
Narrative: SEWA Bank members who borrowed from and saved with the bank had significantly higher incomes than non-members (both total and per capita), although members who only saved did not.

Household expenditure
Direction of effect: + (significant at the 1 percent level)
Narrative: Members of the bank were found to spend significantly more on housing improvements and expenditure on consumer durables. There was no significant association between bank membership and expenditure on food or an ability to deal with financial shocks.

Income diversification
Direction of effect: No significant effect
Narrative: There was no evidence to show that that bank membership, either credit or savings, was associated with income diversification.

Business income
Direction of effect: + for various specific variables (at the 5 percent level)
Narrative: The study found that informal sector earnings of the individual respondents were higher among controls than borrowers or savers (at the 5

percent level). Similarly informal sector earnings at the household level were significantly higher for borrowers than either savers or controls (at the 1 percent level), but also higher for controls compared to borrowers and savers combined (at the 1 percent level). Borrowing money thus had a significant impact on the level of informal sector earnings, but saving money did not. Micro-enterprise income within the household was significantly higher for borrowers than savers or controls (at the 5 percent level), but also higher for controls compared to borrowers and savers combined (at the 5 percent level). Again, this suggests that borrowing money raised clients' business income, but saving money did not. Lastly borrowers had significantly higher levels of employed hours than either savers or the controls (at the 5 percent level).

Study: Cuong NV (2008) Is a governmental micro-credit program for the poor really pro-poor? Evidence from Vietnam. *Developing Economies* 46(2): 151-187.

Identified for this review via: Duvendack et al. (2011), CAB, SSCI

Country/setting: Vietnam (lower-middle-income country), rural and urban settings

Intervention: This study assesses the impact of a government backed, group-based credit programme provided by the Vietnam Bank for Social Policies (VBSP). We know that loans were provided to groups of between five and 50 households with loan size not exceeding seven million Vietnamese Dong (equivalent in 2011 to 215 British Pounds).

Study design: Retrospective analysis of two panels of household data, collected in surveys in 2002 and 2004 as part of the Vietnam Household Living Standard Survey

Dates of data collection from intervention recipients: 2002 and 2004

Sample: 2776 households were selected including those with and without loans using stratified random cluster sampling

Methods of analyses: Fixed effects with IV, two-stage least squares regressions (2SLS)

Summary of quality judgement: Medium risk of bias

The design of this study leaves it open to selection bias; however, the authors report some steps assess the extent of differences between the intervention and control groups and to take them into account in their analyses. On this basis we judge this study to be at medium risk of selection bias – the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors also account for differences in location and consider differences within groups using subgroup analyses. They do not account for intervention integrity or the goodness of fit of the model explored.

Given the consideration by the authors of some biases, but not others, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Individual income, individual expenditure, general poverty status

Individual income
Direction of effect: + significant at the 5 percent level
Narrative: Analyses suggest significant association between both programme participation and income and loan size and income.

Individual expenditure
Direction of effect: + significant at the 1 percent level
Narrative: Analyses suggest significant association between both programme participation and expenditure and loan size and expenditure.

General poverty status
Direction of effect: No significant reduction in 'poverty rate' at the 5 percent level
+ reduction in poverty gap index (significant at the 5 percent level)
+ reduction in poverty severity index (significant at the 5 percent level)

Narrative: The estimates for poverty reduction using different scales suggest significant reductions in the treatment group compared to the control group.

Study: Dunn E, Arbuckle JG (2001) *The impacts of microcredit: a case study from Peru*. Washington, DC: Assessing the Impact of Microenterprise Services (AIMS).

Identified for this review via: Duvendack et al. (2011)

Country: Peru (upper-middle-income country), urban setting in metropolitan Lima

Intervention: This study explored the impacts of loans offered by Mibanco to individuals and small groups of 2–5 people. Loan size started at around £65 (GBP) with the maximum loan determined by the capital of the micro-enterprise. Loans had to be paid off within 12 months, although contracts were more typically for 6-16 weeks. Interest rates started at around 50 percent per annum and fees were charged on late payments.

Study design: Two surveys two years apart to see change over time (not strictly 'before' and 'after' data)

Dates of data collection: 1997 and 1999

Sample: Participants were selected using stratified random sampling drawing on two lists, of micro-credit clients and non-borrower micro-enterprises. Data were collected in 1997 from 701 households; 400 in the intervention group and 301 in control group. Of these 529 provided data again in 1999; 316 in the intervention group and 213 in the control group. The average age of the sample was 42 and 60 percent were women.

Methods of analyses: ANOVA and ANCOVA

Quality judgement: Medium risk of bias

This study was subject to selection bias, largely due to the study design with clients already self-selected into the intervention. Despite attempts to measure and account for selection bias, the risk of bias remained. Given our judgement that the study has a medium risk of selection bias, the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors took into account intervention integrity and conducted subgroup analyses to take account of within-group differences. They also considered the variation in their outcomes and explored alternative explanations for their findings.

Despite the consideration by the authors of some biases, the medium risk of selection bias means that we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Business income, business assets, employment, household income, income diversification, household non-financial assets, household expenditure

Business income
Direction of effect + (for annual net revenue at the 1 percent level and gross monthly revenue from up to three enterprises at the 5 percent level. N.B. no significant difference observed when we looked at the primary enterprise)
Narrative: Credit was found to have a positive impact on micro-enterprise revenue, both for current members and new entrants. However, this was only true when we looked at those borrowers who had three or more micro-enterprises and not if we focused only on borrowers' primary enterprises.

Business assets
Direction of effect: + (for primary enterprise at the 5 percent level); no effect when the value of all enterprise fixed assets associated with the households are combined
Narrative: Credit was found to have a positive impact on the accumulation of fixed assets in the primary micro-enterprises of borrower households, but not new entrant households.

Employment
Direction of effect: + for some variables (at the 5 percent level), no significant effect for others
Narrative: Credit had a positive impact on the number of non-household members employed in the primary business, and the total number of people (both household members and non-household members) employed in up to three businesses (at the 5 percent) level. There were no significant impacts on the total number of people employed in the primary business or the total wages earned.

Household Income
Direction of effect: + (significant at the 1 percent level for household and per capita income)

Narrative: Credit was found to have a significant positive impact on both household and per capita income. The authors calculate this to be equivalent to a 20 percent increase in per capita income.

Income Diversification
Direction of effect: No significant effect for borrowers vs controls; - for higher-income new borrowers (at the 5 percent level)
Narrative: There was no significant change in the levels of income diversification, except that higher-income ('non-poor') new entrants to micro-credit reduced their income diversification.

Household Assets
Direction of effect: No significant effects
Narrative: There were no significant effects of micro-credit on a households' accumulation of assets.

Household Expenditure
Spending on Education
Direction of effect: - for new entrants (significant at the 1 percent level)
Narrative: Credit led to reduced expenditure on education among the new entrant group compared to controls.

Spending on Food
Direction of effect: No significant effects
Narrative: This study found no significant impact of credit on spending on food.

Personal Savings
Direction of effect: No significant effect
Narrative: There was no significant effect of credit on levels of personal savings.

Study: Dupas P, Robinson J (Oct 2011) *Savings constraints and microenterprise development: evidence from a field experiment in Kenya*. California: University of California. 27 October. www.escholarship.org/uc/ucla

Identified for this review via: Stewart et al. (2010b)

Country: Kenya (low-income country, DFID priority country, fragile state)

Intervention: This study evaluates the impact of a savings account available to micro-entrepreneurs in Kenya. Participants are given interest free savings accounts which include substantial withdrawal fees equivalent to a negative interest rate. Members have an opportunity to buy shares linked to their savings.

Study design: RCT

Dates of data collection: Background surveys in 2006 (February and March), 2007 (April and May), 2008 (July and August); and log books in 2006 (mid-September to

mid-December), 2007 (mid-September to mid-December), and 2009 (mid-September to mid-December)

Sample: Participants for the study were selected using stratified random sampling. The study reports on 104 men and women who receive the intervention. The average age of the 53 men was 29.42 years, and the 51 women 33.8 years. The men had an average of 2.74 children in their households and the women 3.39. The intervention group had just over seven years of education on average. There were 81 men and women in the control group. The average age of the 35 men in this group was 29.09 years, and 31.61 years for the 46 women. The men had an average of 2.57 children, and the women 3.17. The control group had just under seven years of education on average.

Methods of analyses: IV and DID (N.B. for the purpose of this review we have extracted findings of actual treatment effects rather than intention-to-treat analyses)

Quality judgement: Medium risk of bias

This study uses an RCT design which considerably reduces the risk of selection bias. They used fixed and random effects to assess differences between intervention and control groups leading us to judge the study to be at low risk of selection bias.

The authors also consider other potential risks and take some steps to consider the goodness of fit of the model tested and the integrity of the intervention. Despite these we have judged this RCT to be at an overall 'medium risk of bias' for two reasons.

Firstly there are many different copies of this report available with two new versions published online during the course of our review – the name of the report does not change. More recent versions do not signpost to the reader how they differ from previous versions and yet significant changes have occurred (for example the collection of an additional round of data and quite different results in terms of gender). This has led to confusion and loss of confidence in the paper. Secondly the October 2011 version of the report disaggregates data more carefully by gender and the positive results relating to women are communicated strongly while the less positive results relating to men are less clear.

Outcomes: Business savings, hours worked, business expenditure, individual expenditure, expenditure (cash transfers)

> **Business savings direction of effect:** + for female market vendors (significant at the 1 percent level), but not for men
> **Narrative:** Overall, those who accessed their accounts appear to have significantly higher levels of savings. However, on closer examination, this appears actually only to be the case for market women who increased their cash savings without significantly depleting their savings in animals or in ROSCAs. Male market vendors who accessed their accounts significantly saved more cash, but depleted their animal savings and their ROSCA contributions. The authors warn that the small sample size of male market vendors mean this later result should be viewed with caution.

Hours worked per day direction of effect: No significant effect
Narrative: The authors find no effect of the account on the number of hours worked per day.

Business expenditure (cash investment in business) direction of effect: + (significant at the 5 percent level) *but only for the intention-to-treat analyses*. There is no significant effect for those female market vendors who actually have an active account (only at the 10 percent level which is not considered high enough in this review), nor for male vendors or bicycle taxi drivers.
Narrative: The authors discuss a significant effect of the account on the average daily amount of money invested in the business by female market vendors but not for male vendors or for bicycle-taxi drivers. However, this is only from the intention-to-treat analysis. When focusing on only those women who had an active account, this is no longer significant (at the 5 percent level).

Individual expenditure
***Actual account use* direction of effect:** + for overall expenditure (at the 1 percent level); + for food expenditure (at the 1 percent level); + for private expenditure (at the 1 percent level) (which include meals in restaurants, sodas, alcohol, cigarettes, own clothing, hairstyling, and entertainment expenses)
Narrative: Closer examination of these data showed that it was only significant for women, and mostly related to private expenditure.

Transfers of cash and gifts
Direction of effect: No significant effect
Narrative: The authors found no significant effect of having a savings account on the transfer of cash or gifts within or out of the household even with disaggregating findings by business categories or gender.

Study: Erulkar A, Chong E (2005) *Evaluation of a savings and micro-credit program for vulnerable young women in Nairobi*. New York: Population Council.

Identified for this review via: Dickson et al. (2010)

Country: Kenya (low-income country, DFID priority country, fragile state), urban setting in the slums of Nairobi

Intervention: This study evaluates the TRY programme which incorporates several elements. Members receive six days of business training and receive mentoring. They have a period of eight weeks of compulsory savings and loans also become available. Small groups of five are formed and loans initially made available to two of the five. Once those two members make their loan repayments for a month, two more are able to take loans - all four then need to make their repayments before the last member is offered loan her loan. A 'savings only' component is also available to participants.

Study design: A type of controlled before-and-after study: the baseline survey took place from mid-2002 until 2003, and endline data was then collected in 2005

Dates of data collection: 2002/03 and 2005

Sample: As new members joined the TRY programmes, comparison girls were selected who matched specific criteria. At baseline 652 girls were surveyed (i.e. 326 received the intervention and 326 were controls). 444 were still available for interview at endline (222 in the intervention group and 222 in the control.) The drop-out was largely due to the unavailability of the control girls at endline. All girls were between the ages of 16 and 22 and lived in low-income/slum areas of Nairobi.

Methods of analyses: IV

Quality judgement: Medium risk of bias

The design of this study leaves it open to selection bias; however, the authors report some steps to assess the extent of differences between the intervention and control groups at both baseline and endline and to take them into account in their analyses. On this basis we judge this study to be at medium risk of selection bias – the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors also consider differences within groups using subgroup analyses. While girls can choose different elements of the programme, the standardised services available to them reduce concerns about intervention integrity. The authors do discuss the goodness of fit of the model assessed and alternative explanations for their findings.

Given the consideration by the authors of some biases this study was judged to have an overall rating of 'medium risk of bias.

Outcomes: Individual savings, household non-financial assets, individual (salaried) income

> **Individual Savings**
> **Savings (financial assets) direction of effect:** + (2005 figures and 2006 narrative data – no significance levels available)
> **Narrative (from 2006 and 2005 paper):** While more of the treatment group had savings at baseline, they had saved less than controls on average. However, by endline, the treatment group had more than doubled their savings and accrued significantly higher amounts than the control group. The treatment group was also significantly more likely to save in a bank. The significant difference between the treatment and control groups at baseline make it difficult to attribute differences in endline savings behaviour to the intervention, as the groups were clearly different in this regard even before the intervention.
> Subgroup analyses by age show that the older girls in the intervention (20+) were more likely than younger girls (under 20) to have greater savings (although this was only significant at the 1 percent level).

Household assets (2005 paper)
Direction of effect: + (significant at 0.1 percent level)
Narrative: At endline the treatment group were significantly more likely than the control group to have seven or more household assets.
Subgroup analyses by age show that the older girls in the intervention (20+) were significantly more likely than younger girls (under 20) to have greater numbers of household assets (significant at the 1 percent level)

Individual (salaried) income (2005 paper)
Direction of effect: + (significant at the 5 percent level)
Salaried income narrative: Those girls with salaried jobs in the control group and intervention groups were earning similar wages at baseline – however, by endline, the treatment group were earning about 20 percent more than control groups (a statistically significant increase).
Subgroup analyses by age show that the older girls in the intervention (20+) were significantly more likely than younger girls (under 20) to have larger incomes (at the 5 percent levels).

Study: Gubert F, Roubaud F (2005) *Analyser l'impact d'un projet de micro-finance: l'exemple d'ADéFI à Madagascar* (Analysing the impact of a microfiannce project: The example of *ADéFI* in Madagascar). DIAL Développement, Institutions et Analyses de Long terme.

Identified for this review via: Stewart et al. (2010b)

Country: Madagascar (low-income country), urban setting

Intervention: This study evaluates the impact of combined credit and savings offered by ADEFI (Action pour le Développement et le FInancement des micro-entreprises), a national microfinance institution in Madagascar offering loans and savings accounts mostly to micro-enterprises. Two types of loans are included in the evaluation, short-term (3-18 months) and medium-term (24-36 month) loans. The amount available increased with each loan cycle and with the quantity of savings accrued with repayments made monthly.

Study design: Two surveys two years apart to see change over time (not 'before' and 'after')

Dates of data collection: 2001, 2003 and 2004

Sample: The authors used random sampling to select participants; however, it is not clear how many intervention participants were included in this study. The group consisted of 42.2 percent men and 57.8 percent women. The majority fell in the age band 21-50. 37.8 percent had nine years or fewer of education. The comparison group is also not described in detail, but we know that 48.2 percent were men and 51.8 percent were women. 77.6 percent had nine years or fewer of education.

Methods of analyses: DID

Quality judgement: Medium risk of bias

This study was subject to selection bias, largely due to the study design. However, the authors do assess both observable and unobservable differences using sensitivity analyses. Despite attempts to measure and account for selection bias, the study design means that the risk of bias remained. Given that we judged the study to have a medium risk of selection bias, the best possible overall rating it can receive was therefore 'medium risk of bias'.

The authors took into account intervention integrity and conducted subgroup analyses to explore within-group differences. They also considered some alternative explanations for their results.

Despite the consideration by the authors of some biases, the medium risk of selection bias means that we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: General business outcomes and employment

> **Business outcomes general**
> **Direction of effect: +** (but not consistent across all analyses)
> **Buiness outcomes narrative:** In their initial analyses Gubert and Roubaud find positive significant associations (at the 1 percent level) in 2001 and 2004 on turnover, productivity, value added and gross operating surplus. However, when they retrospectively attempt to control for business outputs using an earlier (recalled) baseline of 1997, the size and significance of these effects are reduced. However the reconstruction of this baseline is open to bias.
> **Business failure narrative:** Further analyses show how client businesses are disproportionately affected by the financial crisis compared to non-client businesses. Client businesses suffer more than non-client businesses in the financial crisis, although those that survive this period show signs of recovery. More client business failed over the study period (28 percent vs 14 percent of controls) - the authors suggest this is due to client businesses growing more quickly and then being vulnerable to the recession.
>
> **Employment**
> **Direction of effect:** No significant effect
> **Narrative:** The authors find no significant effect of microfinance on employment.

Study: Kaboski JP, Townsend RM (2009) *The impacts of credit on village economies*. SSRN eLibrary.

Identified for this review via: Duvendack et al. (2011), reference lists and website searches

Country: Thailand (upper-middle-income country), two rural and two semi-urban provinces

Intervention: This study explores the impact of Thailand's Million Baht Village Fund Program, which injected the equivalent of USD24,000 to each village in 2001, making loans available to residents.

Study design: A type of controlled before-and-after study: surveys took place before the intervention is rolled out (five surveys from 1997 to 2001), and then further surveys after roll-out (two surveys from 2001 and 2002)

Dates of data collection: before intervention: 1997,1998, 1999, 2000, 2001, and after intervention: 2002, 2003

Sample: 15 households within each of 64 villages were selected using stratified, cluster randomisation. These covered four regions within Thailand. 800 of the 960 households provided data throughout the seven surveys and are included in the analysis. There are limited details provided about the households in the study.

Methods of analyses: Multiple regression, two-stage instrumental variables

Quality judgement: Medium risk of bias

This study was subject to selection bias because, although the study design included stratified random sampling exploiting the 'natural experiment' provided by the standardised roll-out of the Million Baht Village Fund Program, there was no random allocation to intervention or control groups and no clear attempts to measure the risk of selection bias. We therefore judge the study to be at medium risk of selection bias and given this, the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors took into account intervention integrity and conducted subgroup analyses to take account of within-group differences. However, they do not account sufficiently for spill-over bias, nor do they account for the goodness of fit of the model they are testing.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Household expenditure, business income, business investment, impacts specifically on women's businesses

> **Household expenditure**
> **Direction of effect:** + at the 5 percent level
> **Narrative:** Household consumption was significantly higher among borrower households than non-borrower households, specifically increasing the purchase of fuel, meat, dairy goods, alcohol and spending on household and auto repair. (The latter presumably refers to automobile repair, but this is not confirmed in the paper.) Expenditure on grain, tobacco, ceremonies and education remained stable.
> Specific focus on expenditure within female-headed households finds that those who took out loans were significantly less likely to have above-average expenditure on education, and instead may have shifted expenditure to auto repair, clothing and meat. While female-headed household clients were less likely to spend money on alcohol consumed

inside the home, there is some evidence that they increased their consumption of alcohol in the home.
Business income: + (significant at the 5 percent level)
Narrative: The authors find a significantly higher growth in business income among borrowers compared to non-borrowers.

New business/business investment: No significant difference
Narrative: The authors find no change in the creation of new businesses or business investment.
Subgroup analyses of impacts on women: + impacts on women
'We examined whether the impacts of credit were significantly different for female-headed households using all of the outcome measures. Overall, perhaps the most surprising result was that female-headed households behave similarly to households headed by males. We found no significant differential impacts of the village fund on female-headed household with respect to credit or agricultural income.' (p44)
'Looking at the sources of income, the significant difference between male- and female-headed households, is that credit causes a relatively larger positive impact on the fraction of female-headed households reporting positive and above average business income than on the fraction of male-headed households. Female-headed households are about ten percentage points more likely to have positive and above average business income.' (p45)

Study: Khandker SR (2005) Microfinance and poverty: evidence using panel data from Bangladesh. *The World Bank Economic Review* 19(2): 263-286.

Identified for this review via: Duvendack et al. (2011), reference lists, CAB, SSCI, website searches

Country: Bangladesh (low-income country, DFID priority country), rural setting

Intervention: This study explores the impact of three microfinance institutions in rural Bangladesh: Bangladesh Rural Advancement Committee (BRAC), Grameen Bank and the Bangladesh Rural Development Board's (BRDB) Rural Development 12 programme. It primarily explores the impact of credit, although there are compulsory savings elements as a condition of loan provision.

Study design: Retrospective analysis of two panels of survey data collected in 1991-92 and 1998/99

Dates of data collection: 1991/92 and 1998/99

Sample: The sample was restricted to the 1,638 households interviewed in both periods. From the 1991/92 data 26 percent were clients, 38 percent were eligible non-participants and 36 percent were non-target households. By 1998/99 53 percent were clients, 20 percent were eligible non-participants and 27 percent were non-target households. Districts, villages and households were selected using stratified random sampling.

Methods of analyses: Household level fixed effects model

Quality judgement: Medium risk of bias

This study was subject to selection bias because, although the analysis of the panel data attempted to account for differences between the intervention and control groups, the nature of the study design made it impossible to eliminate unforeseen differences between groups. We therefore judge the study to be at medium risk of selection bias and given this, the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors conducted subgroup analyses to take account of within-group differences. However, they do not account sufficiently for spill-over bias, nor do they account for the goodness of fit of the model they are testing.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.[49]

Outcomes: Household expenditure, general poverty status

> **Household expenditure (consumption)**
> **Direction of effect:** + (significant at the 5 percent level 'or better')
> **Narrative:** Borrowers are found to have significantly higher per capita annual consumption of both food and non-food items.
>
> **General (village) poverty status**
> **Direction of effect:** + (significant at the 5 percent level 'or better')
> **Narrative:** Villages in which micro-credit is available are found to be significantly richer than non-credit villages after the seven years between surveys.

Study: Nanor MA (2008) *Microfinance and its impact on selected districts in eastern region of Ghana*. Unpublished MPhil thesis, Kwame Nkuruma University of Science and Technology.

Identified for this review via: Stewart et al. (2010b)

Country: Ghana (lower-middle-income country, DFID priority country), rural setting

Intervention: This study explored the impact of micro-credit provided by four microfinance institutions. These included the Upper Manya Kro Rural Bank (UMKRB), which has a compulsory savings range from 11 percent to 16 percent and 90 percent of whose clients are women. Afram Rural Bank included compulsory

[49] We acknowledge that attempts to replicate the analyses within this study have cast doubt on the size and significance of effect sizes found by Khandker. Others are better qualified to comment on this debate (see Duvendack 2010; Duvendack & Palmer-Jones 2011a). We have included the findings with caution, considered only those effects which are significant at the 5% or 1% levels and have decided not to include the various linked studies which have further analysed these data applying similar models in order to avoid compounding the risk of bias present in this study. We have none-the-less included this 'main' paper in recognition that it is still some of the best available evidence on the impact of microfinance.

savings of 1 percent of their individual loan and incorporated an education programme. South Akim Rural Bank 'provides services to all sorts of artisan', and KROBODAN Ghana provides credit with a particular focus on micro-credit for single mothers.

Study design: A single survey design

Dates of data collection: Unclear

Sample: IV

Quality judgement: Medium risk of bias

The design of this study means it is only possible to assess associations between variables and not establish causality. It also leaves it open to selection bias; however, the authors report some steps assess the extent of differences between the intervention and control groups and take them into account in their analyses. On this basis we judge this study to be at medium risk of selection bias – the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors also consider differences within groups using subgroup analyses, however these are limited to region and not gender or loan size. There is no mention of spill-over bias and they do not report assessment of intervention integrity or the goodness of fit of the model tested.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Household income, household expenditure, poverty status (household), business income

Household Income
Direction of effect: + (significant at the 5 percent level)
Narrative: There is a positive association between participation in the programme and average household income. When disaggregated by region, this association was more varied: the West Akim District and the North and South Manya Krobo districts showed a significant positive association between treatment households and control households in terms of household income.

Household expenditure
Direction of effect: + (significant at the 1 percent level)
Narrative: There was a significant association between average expenditure on non-food items (utilities, energy and miscellaneous expenses) and participation in the programme (participants spent more). This was true across all the districts except for Kwahu North District.

Poverty status (household)
Direction of effect: No significant effect
Narrative: There was no statistically significant association between poverty status and participation in the programme.

Business income
Direction of effect: Varied
Narrative: There was a positive significant association between participation in micro-credit and small businesses profit level in two districts (those that had loans also had higher profit levels), but a significant negative association in a third district (those with loans had lower profit levels). There was a significant negative association between the number of months clients spent in the credit scheme and the profits of small businesses in three of the districts (those who had been clients for longer had smaller profits). Although the pooled results also showed a negative association, this was not found to be significant.

Study: Pitt MM, Khandker SR (1998) The impact of group-based credit programs on poor fouseholds in Bangladesh: does the gender of participants matter? *Journal of Political Economy* 106(5): 958-996.

Identified for this review via: Duvendack et al. 2011, 3ie database, reference lists

Country: Bangladesh (low-income country, DFID priority country)

Intervention: The provision of group-based credit by three microfinance organisations: Grameen Bank, the Bangladesh Rural Advancement Committee (BRAC) and the Bangladesh Rural Development Board's (BRDB) Rural Development RD-12 Program.

Study design: Retrospective analysis of one panel of survey data collected in 1991-92

Dates of data collection: The survey was conducted 1991-92 (although three rounds were conducted, because these all took place within a year, this has been judged to be essentially one survey)

Sample: The survey included 87 villages across 29 subdistricts: 24 of these subdistricts had one or more of the three credit programmes, five had none. Using a stratified random sampling technique 1,538 households were sampled from districts where credit was available and 290 from non-credit villages.

Methods of analyses: Multi-level IV

Quality judgement: Medium risk of bias

The design of this study means it is only possible to assess associations between variables and not establish causality. It also leaves it open to selection bias; however, the authors report some steps assess the extent of differences between the intervention and control groups and take them into account in their analyses. On this basis we judge this study to be at medium risk of selection bias – the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors also consider differences within groups using subgroup analyses. They do not fully account for differences between locations however. They do not account for intervention integrity or the goodness of fit of the model tested.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Employment, household expenditure, individual accumulation of assets – findings disaggregated by gender

Employment (women's labour supply)
Direction of effect: + association with credit given to women (significant at the 5 percent level)
Narrative: There is a significant association between women taking out loans and women's employment (in hours worked).

Employment (men's labour supply)
Direction of effect: + association with credit given to women (significant at the 5 percent level)
Narrative: There is a significant association between women taking out loans and men's employment (in hours worked).

Household expenditure
Direction of effect: + association with credit given to women (significant at the 5 percent level)
Narrative: There is a significant association between women taking out loans and household per capita expenditure.

Individual accumulation of non-financial assets (women's non-land assets)
Direction of effect: + association with credit given to women (significant at the 5 percent level)
Narrative: There is a significant association between women taking out loans and their accumulation of non-land assets.

Study: Takahashi K, Higashikata T, Tsukada K (2010) The short-term poverty impact of small-scale, collateral-free microcredit in Indonesia: a matching estimator approach. *The Developing Economies* 48(1): 128-155.

Identified for this review via: Duvendack et al. (2011), IBSS, CAB

Country: Indonesia (lower-middle-income country, fragile state), rural setting

Intervention: This study evaluates a combined credit and savings programme provided by Bank Perkreditan Rakyat (BPR), which links loans to savings with the aim of smoothing the running costs of micro-entrepreneurs, rather than helping with business start-up costs or smoothing household consumption. Clients must attend weekly group meetings four times and make mandatory savings deposits before becoming eligible for a loan. The first loan is repayable over a 50-week period which cannot be shortened, and this study is conducted one year after the first loans are given.

Study design: A type of controlled before-and-after study: participants are surveyed before the first loan is given (in 2007) and then 12 months later (in 2008).

Dates of data collection: 2007 and 2008

Sample: 100 households were selected by the microfinance providers and formed the intervention group for the study. A comparison group was then selected using stratified random sampling to include 231 households from within control villages and a further 87 non-clients in treated villages. Participants are over 18 with an average age of 40.

Methods of analyses: OLS and PSM-DID

Quality judgement: Medium risk of bias

This study was subject to selection bias because, although it included propensity score matching and took steps to assess the strength of that matching, and had a larger control group than intervention group to reduce risk of bias, the nature of the study design meant risk of bias could not be eliminated. We therefore judge the study to be at medium risk of selection bias and given this, the best possible overall rating it can receive is therefore 'medium risk of bias'.

The authors took into account intervention integrity, conducted subgroup analyses to take account of within-group differences and assessed the risk of placement bias. However, they do not take into account the goodness of fit of the model they are testing.

Given the consideration by the authors of some biases, but not others, and the medium risk of selection bias, we therefore give this study an overall rating of 'medium risk of bias'.

Outcomes: Individual income, business income (profits, sales from self-employment business, sales from nonfarm enterprises, sales from farming/aquaculture), financial assets (savings), non-financial assets (durable assets, livestock)

> **Individual income:** No significant association
> **Narrative:** Both analyses (OLS and PSM-DID) suggest intervention groups had higher income, but neither of these impacts were statistically significant (even at the 10 percent level).
>
> **Business income (profits):** No significant association
> **Narrative:** Both sets of analyses (OLS and PSM–DID) suggest intervention groups had higher profits but in neither case were these differences statistically significant (even at the 10 percent level)
>
> **Business income (sales from self-employment business):** No significant association (only at the 10 percent level with PSM-DID analyses but 5 percent is used as the 'significant' cut off in this review)
> **Narrative:** There was no significant difference between sales from businesses owned by clients compared to non-clients.

Business income (sales from non-farm enterprises): No significant association (only at the 10 percent level with PSM-DID analyses but 5 percent is used as the 'significant' cut off in this review)
Narrative: There was no significant difference between sales from non-farm enterprises owned by clients compared to non-clients.

Business income (sales from farming/aquaculture): No significant association (OLS or PSM-DID)
Narrative: There were no significant differences in sales from farming/aquaculture between treatment and control groups.

Financial assets: savings: No significant differences
Narrative: There were no significant differences in levels of savings between treatment and control groups.

Non-financial assets: durable: No significant differences
Narrative: There were no significant differences in accumulation of durable assets between treatment and control groups.

Non-financial assets: livestock: No significant differences
Narrative: There were no significant differences in accumulation of livestock between
treatment and control groups.

N.B.: Further subgroup analyses to consider whether impacts were greater for poorer or wealthier borrowers found: 'that participants in the micro-credit program were not different from the control group in terms of changes in income and assets over time, regardless of their initial levels of wealth' (p151).

Appendix 3.4: Synthesis tables

The following tables bring together from included studies the results that address each of our review questions in turn.

A. Do micro-credit, micro-savings and micro-leasing enable poor people to engage in economic opportunities, and if so, which type of economic opportunities?

Study[50]	Direction of effect	Narrative
Micro-savings: most robust evidence of impact on engagement in economic opportunities		
Dupas and Robinson (2011)	*Hours worked per day direction of effect: no significant effect*	*The authors find no effect of the account on the number of hours worked per day.*
Micro-credit: most robust evidence of impact on engagement in economic opportunities		
Augsburg et al. (2011)	*Business creation and development direction of effect: + (significant at 5% level)* *Hours worked direction of effect: + (among 16-19 year olds)*	*At the time of follow-up, borrowers were almost 6% more likely to own a business compared to the control group that did not receive a loan. This result was due to new business ownership among the highly education borrowers.* *This study found that young people aged 16-19 worked significantly longer hours in households that had micro-credit than in those which did not. This was particularly the case in those households that already had a business at the start of the study and those where the borrower only had a primary education.*

[50] There are two reports by Barnes and colleagues published in 2001. These are Barnes et al (2001a) in Uganda' and Barnes et al (2001b) in Zimbabwe.

Study[50]	Direction of effect	Narrative
Micro-credit: slightly less-than-robust evidence of impact on engagement in economic opportunities		
Kaboski and Townsend (2009)	*No significant effect*	*The authors find no change in the creation of new businesses or business investment.*
Dunn and Arbuckle (2001)	*No significant effect on income diversification for borrowers vs controls; - for higher-income new borrowers (at 5% level)* *Significant + effect on employment for some variables (at 5% level), no significant effect for others.*	*There were no significant changes in the levels of income diversification, except that higher-income ('non-poor') new entrants to micro-credit reduced their income diversification.* *Credit had a positive impact on the number of non-household members employed in the primary business, and the total number of people (both household members and non-household members) employed in up to 3 businesses (at the 5%) level. There were no significant impacts on the total number of people employed in the primary business or the total wages earned.*

Study[50]	Direction of effect	Narrative
Barnes et al. (2001a)	*Diversity of income sources: varied (mostly + and significant at 1% level)* *Diversity of crops grown: + (significant at 1% level)* *Starting a new substitute business: + (significant at 5% level)* *Investing in land for cultivation: + (significant at 1% level)*	*• Micro-credit clients were more likely have more diverse sources of income than non-clients, although this was not true for the poorest households.* *• Client households were more likely to increase the number of crops they grow in response to market opportunities and/or reducing risk, compared to non-client households. Farmers receiving micro-credit diversified the crops they grow AND there is evidence that this translated into greater business income.* *• Increased amount of cultivated agricultural land for client households: regarding access to land, in 1997 client households had significantly higher access (5.91 acres) compared to non-client households (3.43 acres). By 1999 client households were more likely to have increased the amount of land they cultivate, compared to non-client households (see Table 5, in Morris and Barnes undated). This can be directly related to the increase in amount of income from crop production by client households.* *• Credit clients were more likely to have added new products or services to their current business and started a new business (a substitute enterprise, not a second enterprise) (Barnes et al. 2001a)* *• Client households were more likely than non-client households to have increased the number of housing rental units owned.* *• Clients were significantly more likely than non-clients to have (i) added new products/services; (ii) begun new enterprises; (iii) improved or expanded enterprise sites and markets; (iv) reduced costs through buying in bulk; and (v) increased the size of their stock over the previous 2 years (see Table 2, in Morris and Barnes undated).*

Study[50]	Direction of effect	Narrative
Barnes et al. (2001b)	*Varied*	*Farmers receiving micro-credit diversified the crops they grow. Over the 2 years following departure from a micro-credit programme clients had diversified their income sources, potentially providing the households with greater income security. The greater diversification of income sources was not observed for the poorest households.*
Combined micro-credit and micro-savings: slightly less-than-robust evidence of impact on engagement in economic opportunities		
Chen and Snodgrass (2001)	*No significant effect*	*There was no evidence to show that that bank membership, either credit or savings, was associated with income diversification.*
Gubert and Roubaud (2005)	*No significant effect*	*The authors find no significant effect of microfinance on employment.*
Combined micro-credit and micro-savings: evidence of associations (not evidence of causal relationship)		
Brannen (2010)	*Direction of effect: + (at 1% level)*	*Membership of VSLA was associated with an increased number of income generating activities. For women, but not men, this impact increased for each year in the microfinance programme.*

B. Does engagement in these economic activities impact on their income?

Study[51]	Direction of effect	Narrative
Micro-savings: most robust evidence of evidence of impact on income		
Brune et al. (2011)	*Business income (value of crops) direction of effect: + for the commitment (no raffle) account (significant at 1% level), no significant effect of the ordinary (no raffle) account* *Business income (farm profits) direction of effect: no significant effect*	*The value of the crop sold, as well as unsold output, was significantly higher for the commitment farmers than controls. There was no significant impact on the value of crops for famers in the ordinary account group.* *Neither the commitment nor the ordinary accounts had a significant impact on farm profits.*
Micro-credit: slightly less-than-robust evidence of impact on income		
Cuong (2008)	*+ (significant at 5% level)*	*Analyses suggest significant association between both programme participation and income, and loan size and income.*
Barnes et al. (2001a)	*+ (significant at 1% level)*	*More clients (43%) increased their profits from business in the month before the 1999 survey, compared to non-clients (31%).* *Client households were significantly more likely to have increased their income from agricultural crops.* *There is a strong association between receiving micro-credit and increased income from crop production.*

[51] There are two reports by Barnes and colleagues published in 2001. These are Barnes et al (2001a) in Uganda' and Barnes et al (2001b) in Zimbabwe.

Study[51]	Direction of effect	Narrative
Dunn and Arbuckle (2001)	*+ (significant at 1% level for household and per capita income)* *+ (for annual net revenue at 1% level and gross monthly revenue from up to 3 enterprises at 5% level. N.B. no significant difference observed if one looks only at the primary enterprise)*	*Credit was found to have a significant positive impact on both household and per capita income. The authors calculate this to be equivalent to a 20% increase in per capita income.* *Credit was found to have a positive impact on micro-enterprise revenue, both for current members and new entrants. However, this was only true for borrowers who had 3 or more micro-enterprises and not for borrowers' primary enterprises.*
Kaboski and Townsend (2009)	*+ (significant at 5% level)*	*The authors find a significantly higher growth in business income among borrowers compared to non-borrowers.*

Study[51]	Direction of effect	Narrative
Barnes et al. (2001b)	*Varied impact on household income*	*In 1997 the households of continuing clients had significantly higher income levels than departing clients and non-clients (the differences were statistically significant at the 1% level), while for 1999 the differences were not statistically significant (Barnes et al. 2001b). The real value of continuing clients' household income decreased from 1997 to 1999, while that of the other two groups rose, with the largest gain to non-clients who started with a lower level of income (Barnes et al. 2001b). Departing clients and non-clients had lower levels of income in both 1997 and 1999 than continuing clients, but 'when controlling for initial differences, the 1999 level of income did not appear to have been related to participation in Zambuko's program' (Barnes et al. 2001b:xiii).* *Although we know that farmers receiving credit were more likely to diversify the crops they grew, there was no evidence that this led to greater business income.*
	No significant effect on business income	*Continuing participation in micro-credit was found to have a negative impact on household poverty: 'Significantly more continuing clients and departing clients than non-clients fell into poverty during the assessment period' (Barnes et al. 2001b:60). 'Participation in Zambuko's program does not appear to have had an impact on the monthly net revenue in the households' enterprises' (Barnes et al. 2001b:95).*
Micro-credit: evidence of associations (not evidence of causal relationship)		
Nanor (2008)	*Varied*	*There was a positive significant association between participation in micro-credit and small businesses profit level in 2 districts (those that had loans also had higher profit levels), but a significant negative association in a third district (those with loans had lower profit levels).* *There was a significant negative association between the number of months clients spend in the credit scheme and the profits of small businesses in 3 of the districts (those who had been clients for longer had smaller profits). Although the pooled results also showed a negative association, this was not found to be significant.*

Study[51]	Direction of effect	Narrative
Combined micro-credit and micro-savings: slightly less-than-robust evidence of impact on income		
Erulkar and Chong (2005)	*Individual (salaried) income direction of effect: + (significant at 5% level)*	*Those girls with salaried jobs in the control group and intervention groups were earning similar wages at baseline - however, by endline, the treatment group were earning about 20% more than control groups (a statistically significant increase). Subgroup analyses by age show that the older girls in the intervention (20+) were significantly more likely than younger girls (under 20) to have larger incomes (at the 5% level).*
Takahashi et al. (2010)	*No significant effect on individual income* *Direction of effect business income (profits): no significant association* *Business income (sales from self-employment business): no significant association* *Business income (sales from non-farm enterprises): no significant association* *Business income (sales from farming/aquaculture): no significant association*	*Both analyses (OLS and PSM-DID) suggest intervention groups had higher income, but neither of these impacts was statistically significant (even at the 10% level).* *Both sets of analyses (OLS and PSM-DID) suggest intervention groups had higher profits but in neither case were these differences statistically significant (even at the 10% level)* *There was no significant difference between sales from businesses owned by clients compared to non-clients.* *There was no significant difference between sales from non-farm enterprises owned by clients compared to non-clients.* *There were no significant differences in sales from farming/aquaculture between treatment and control groups.*

Study[51]	Direction of effect	Narrative
Chen and Snodgrass (2001)	*Direction of effect: + (significant at 1% level for borrowers and savers compared to non-members); no significant difference between the saver-only group and non-members.* *Direction of effect for business income: + for various specific variables (at 5% level)*	*SEWA Bank households who borrowed and saved from the bank had significantly higher incomes than non-members (both total and per capita), although members who only saved did not.* *The study found that informal sector earnings of the individual respondents were higher among controls than clients (at the 5% level). Similarly informal sector earnings at the household level were also higher for controls compared to clients combined (at the 1% level).* *However, separating clients into borrowers and savers showed that savers were not increasing their incomes at all and that when analysed separately, borrowers were significantly increasing their incomes more than either savers or controls.* *Borrowing money thus had a significant impact on the level of informal sector earnings, but saving money did not.*

C. Does engagement in these economic activities impact on their savings?

Study	Direction of effect	Narrative
Micro-savings: most robust evidence of impact on savings		
Brune et al. (2011)	*Individual savings direction of effect: + (at 1% level)*	*Farmers in each of the 6 savings treatment conditions had significantly higher deposits (at the 1% significance level) than farmers in the control group.* *The commitment treatment groups (combined) withdrew more net money in the planting season than the controls (significant at 1% level), while the ordinary savings accounts had no significant impact on transactions in this time period. This suggests that the commitment account was successful in encouraging farmers to save funds for the 'hungry' season.* *The commitment savings, no raffle treatment led to a small increase on net deposits (not significant at the 5% level), and the effect of the ordinary account without raffle was not statistically different from zero.* *There was no significant difference between the impacts of ordinary and commitment savings accounts on savings. There was also no differential effect of either raffle.*
Dupas and Robinson (2011)	*+ for female market vendors (significant at 1% level), but not for men*	*Overall, those who accessed their accounts appeared to have significantly higher levels of savings. However, on closer examination, this appears actually only to be the case for market women who increased their cash savings without significantly depleting their savings in animals or in ROSCAs. Male market vendors who accessed their accounts significantly saved more cash, but depleted their animal savings and their ROSCA contributions. The authors warn that the small sample size of male market vendors mean this later result should be viewed with caution.*
Micro-credit: most robust evidence of evidence of impact on savings		
Augsburg et al. (2011)	*- (significant at 5% level)*	*There was an overall reduction in the level of savings by clients. This is predominantly observed among business-owning borrowers, and among borrowers with higher levels of education. Authors also find that it is the same households who actually had a higher amount of savings at baseline that use these savings after receiving a loan.*

Study	Direction of effect	Narrative
Micro-credit: slightly less-than-robust evidence of impact on savings		
Barnes et al. (2001a)	+ *(significant at 1% level)*	*Authors found that clients were significantly more likely than non-clients to have increased their level of savings in the last 2 years (55% of clients, compared to 25% of non-clients had an individual bank savings account), but clients preferred to keep their non-mandatory savings elsewhere than in the bank account.*
Barnes et al. (2001b)	+ *(significant at 5% level)*	*Zambuko had a positive impact on clients having an individual savings account in 1999, and on the number of ways the extreme poor continuing clients saved (Barnes et al. 2001b:xiv, 105-106).*
Dunn and Arbuckle (2001)	*No significant effect*	*There was no significant effect of credit on levels of personal savings.*
Combined micro-credit and micro-savings: slightly less-than-robust evidence of impact on savings		
Erulkar and Chong (2005)	+ *(no significance levels available)*	*While more of the treatment group had savings at baseline, they had saved less than controls on average. However, by endline, the treatment group had more than doubled their savings and accrued significantly higher amounts than the control group. The treatment group was also significantly more likely to save in a bank.* *The significant difference between the treatment and control groups at baseline make it difficult to attribute differences in endline savings behaviour to the intervention, as the groups were clearly different in this regard even before the intervention.* *Subgroup analyses by age show that the older girls in the intervention (20+) were more likely than younger girls (under 20) to have greater savings (although this was only significant at the 10% level).*
Takahashi et al (2010)	*No significant differences*	*There were no significant differences in levels of savings between treatment and control groups.*

D. Does engagement in these economic activities impact on their accumulation of non-financial assets?

Study	Direction of effect	Narrative
Micro-savings: most robust evidence of evidence of impact on accumulation of non-financial assets		
Brune et al. (2011)	*Business investment/accumulation of business (non-financial) assets* *+ for commitment (no raffle) account (significant at 5% level)* *No significant effect for ordinary account (no raffle)*	*'The commitment (no raffle) treatment had a large positive and statistically significant effect on both land under cultivation and the total value of inputs used (which include seed, fertilizer, pesticides, hired labour, transport and firewood for curing) in the late-2009 planting.'* *There is no significant effect of the ordinary (no raffle) account on the accumulation of non-financial business assets.*
Micro-credit: slightly less-than-robust evidence of impact on accumulation of non-financial assets		
Barnes et al. (2001a)	*No significant effects on household non-financial asset* *+ (significant at 1% level) for business assets*	*The average value of durable assets - mattress, radio, tv, stove, refrigerator, and beds - purchased by client households was more than twice that spent by non-client households. But while more client households acquired specific durable items compared to non-client households, the results are not statistically significant. A small number of clients had to sell assets to make loan repayments.* *In the 3 months prior to the 1999 interview, as well as compared to 1997, client households had, on average, spent slightly more on agricultural inputs than non-client households.* *Clients, on average, spent more money on business assets between 1997 and 1999 compared to non-clients (Barnes et al. 2001a).*

Study	Direction of effect	Narrative
Barnes et al. (2001b)	*No significant effects on the accumulation of household or business non-financial assets*	*'The study found no impact on expenditure on housing improvements, and acquisition of a television, electric fan or means of transport.' (Barnes et al. 2001b: xiii).* *Household durable assets (like appliances and furniture): continuing client households averaged higher expenditure on durable assets in both 1997 and 1999 than the comparison groups (Barnes et al. 2001b). But ANCOVA analysis did not indicate any measurable impact of Zambuko on the sum invested in durable assets between 1997 and 1999 (Barnes et al. 2001b: 88).* *The value of fixed assets in businesses (like tools, equipment and machines) tended to be higher in both years for continuing and departing clients than for non-clients, but the impact analysis did not suggest that the differences in 1999 between the groups were associated with the Zambuko program (Barnes et al. 2001b: xiv).* *Participation in Zambuko did not have an impact on the value of fixed assets in clients' businesses (Barnes et al. 2001b).*
Dunn and Arbuckle (2001)	*No significant effects on household accumulation* *+ (for primary enterprise at 5% level);* *No effect when the value of all enterprise fixed assets associated with the households are combined*	*There were no significant effects of micro-credit on a households' accumulation of assets.* *Credit was found to have a positive impact on the accumulation of fixed assets in the primary micro-enterprises of borrower households, but not new entrant households.*
Micro-credit: evidence of associations (not evidence of causal relationship)		
Pitt and Khandker (1998)	*+ association with credit given to women (significant at 5% level)*	*There is a significant association between women taking out loans and their accumulation of non-land assets.*

Study	Direction of effect	Narrative
Combined micro-credit and micro-savings: slightly less-than-robust evidence of impact on accumulation of non-financial assets		
Takahashi et al. (2010)	*Durable: no significant effects* *Livestock: no significant effects*	*There were no significant differences in accumulation of durable assets between treatment and control groups.* *There were no significant differences in accumulation of livestock between treatment and control groups.*
Erulkar and Chong (2005)	*+ (significant at 1% level)*	*At endline the treatment group were significantly more likely than the control group to have 7 or more household assets.* *Subgroup analyses by age show that the older girls in the intervention (20+) were significantly more likely than younger girls (under 20) to have greater numbers of household assets (significant at the 1% level).*
Combined micro-credit and micro-savings: evidence of associations (not evidence of causal relationship)		
Bahng (2009)	*No significant association with the accumulation of livestock* *General holding assets direction of association: - (significant at 5% level)* *Sale of goods to pay basic needs direction of association: - (significant at 1% level)*	*The study found no significant association between length of time in the programme and number of livestock. The longer caregivers participated in WISDOM, the less likely they were to have livestock but this was not significant (at the 5% level).* *There was a negative association between length of time in the programme and holding household assets. It appears that the longer caregivers participated in WISDOM, the less likely they were to have household assets. The longer standing WISDOM clients were less likely than new clients to have sold their assets in the past year to pay for food and shelter in the last year.*

E. Does engagement in these economic activities impact on their expenditure?

Study	Direction of effect	Narrative
Micro-savings: most robust evidence of impact on expenditure		
Brune et al. (2011)	*+ for commitment (no raffle) account (at 5% level), no significant effect for ordinary account* *Household cash transfers/gifts: No significant effect of commitment account*	*The commitment account has a significant positive impact on the levels of household expenditures while the ordinary account has no significant impact.* *The authors found no evidence of a reduction in gifts (net transfers) to other members of social networks by those farmers with a commitment (no raffle) account.*

Study	Direction of effect	Narrative
Dupas and Robinson (2011)	*Direction of effect of actual account use: + for overall expenditure (at 1% level);* *+ for food expenditure (at 1% level);* *+ for private expenditure (at 1% level) (which includes meals in restaurants, sodas, alcohol, cigarettes, own clothing, hairstyling, entertainment expenses)* *Business expenditure (cash investment in business): no significant effect for those female market vendors who actually have an active account (only at 10% level which is not considered high enough in this review), nor for male vendors or bicycle taxi drivers* *Transfers of cash and gifts: no significant effect*	*Closer examination of this data showed that they were only significant for women, and mostly related to private expenditure.* *The authors discuss a significant effect of the account on the average daily amount of money invested in the business by female market vendors but not for male vendors or for bicycle-taxi drivers. However, this is only from the intention-to-treat analysis. When focusing on only those women who had an active account, this is no longer significant (at the 5% level).* *The authors found no significant effect of having a savings account on the transfer of cash or gifts within or out of the household even with disaggregating findings by business categories, or gender.*

Study	Direction of effect	Narrative
Micro-credit: most robust evidence of impact on expenditure		
Augsburg et al. (2011)	*No significant effect on consumption for existing business owners* *Increase in consumption of food stuffs for existing business owners with low levels of education: - (significant at 1% level)*	*The study finds no significant effect of credit on business consumption - the authors suggest this is because the loans were too small.* *The authors find a significant decrease in consumption of food at home among clients with businesses who have low levels of education. As the authors find no significant reduction in consumption outside the home, they conclude that borrowers had to adjust in-home expenses in order to protect business expenses.*
Micro-credit: slightly less-than-robust evidence of impact on expenditure		
Barnes et al. (2001a)	*Remittances and gifts: no significant difference*	*Client households were slightly more likely to provide assistance (and with higher amounts) to non-household members in the 3 months before interviews in 1997 and 1999 than non-client households, but these differences are not statistically significant.*
Barnes et al. (2001b)	*Remittances and gifts: no significant effect*	*After controlling for a number of initial differences, there was no significant difference between gifts given by clients and non-clients.*
Cuong (2008)	*+ (significant at 1% level)*	*Analyses suggest significant association between both programme participation and expenditure, and loan size and expenditure.*

Study	Direction of effect	Narrative
Dunn and Arbuckle (2001)	*Spending on education: - for new entrants (significant at the 1% level)* *Spending on food: no significant effects*	*Credit led to reduced expenditure on education among the new entrant group compared to controls.* *This study found no significant impact of credit on spending on food.*
Kaboski and Townsend (2009)	*Household consumption: + (significant at the 5% level)*	*Household consumption was significantly higher among borrower households than non-borrower households, specifically increasing the purchase of fuel, meat, dairy goods, alcohol and spending on household and auto repair. (The latter presumably refers to automobile repair, but this is not confirmed in the paper.) Expenditure on grain, tobacco, ceremonies and education remained stable.* *Specific focus on expenditure within female-headed households finds that those who took out loans were significantly less likely to have above average expenditure on education, and instead may shift expenditure to auto repair, clothing and meat.* *While female-headed household clients were less likely to spend money on alcohol consumed inside the home, there is some evidence that they increased their consumption of alcohol in the home.*
Khandker (2005)	*Household consumption: + (significant at the 5% level 'or better')*	*Borrowers were found to have significantly higher per capita annual consumption of both food and non-food items.*
Micro-credit: evidence of association (not evidence of causal relationship)		
Pitt and Khandker (1998)	*+ association with credit given to women (significant at 5% level)*	*There was a significant association between women taking out loans and household per capita expenditure.*

Study	Direction of effect	Narrative
Nanor (2008)	*+ association (significant at 1% level)*	*There was a significant association between average expenditure on non-food items (utilities, energy and miscellaneous expenses) and participation in the programme (participants spent more). This was true across all the districts except for Kwahu North District.*
Combined micro-credit and micro-savings: slightly less-than-robust evidence of impact on expenditure		
Chen and Snodgrass (2001)	*Housing and consumer durables: + (significant at 1% level);* *No significant effect on food expenditure*	*Members of the bank were found to spend significantly more on housing improvements and expenditure on consumer durables.* *Housing improvements included any payment for building materials and labour to repair or expand buildings - we do not know, but could hypothesise that these improvements included scope for income, for example from rent or using the house as a shop.* *There is no significant association between bank membership and expenditure on food.*
Combined micro-credit and micro-savings: evidence of association (not evidence of causal relationship)		
Brannen (2010)	*+ association (significant at 1% level)*	*There is a significant positive association between membership of VSLA and level of spending on household assets. The size of loan does not appear to be important, rather the membership of VSLA.*

F. Can we conclude anything about the differential impacts of individual vs group micro-credit?

Study	Country	Intervention	Study design	Our quality judgment	Outcomes assessed	Direction of effect
Evidence on micro-credit provided to individuals and groups						
Dunn and Arbuckle (2001)	Peru	Credit *Individual and small groups*	2 surveys 2 years apart to see change over time (only includes very small subset of 'new entrants' for whom we actually have 'before' and 'after' data)	Slightly less-than-rigorous evidence of impact	- Business income - Business assets - Employment - Household income - Income diversification - Household non-financial assets - Household expenditure	Positive Positive No effect to positive Positive No effect to negative No significant effect No effect to negative
Evidence on micro-credit provided to individuals						
Augsburg et al. (2011)	Bosnia and Herzegovina	Credit *Individual*	RCT	Rigorous evidence of impact	- Income diversification (business creation and development) - Employment (hours worked) - Business expenditure - Household savings	Positive Positive No significant effect Negative
Barnes et al. (2001a)	Uganda	Credit *Individual*	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Slightly less-than-rigorous evidence of impact	- Individual expenditure - Individual accumulation of financial assets (savings) - Household accumulation of non-financial assets - Income diversification - Business income - Business expenditure	No significant effect Positive No significant difference Varied, mostly positive Positive Positive

Study	Country	Intervention	Study design	Our quality judgment	Outcomes assessed	Direction of effect
Barnes et al. (2001b)	Zimbabwe	Credit *Individual*	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Slightly less-than-rigorous evidence of impact	- Individual expenditure - Individual savings (financial assets) - Household income - Household non-financial assets - Business assets (non-financial) - Other business outcomes	No significant effect Positive Varied Positive No significant effect No significant effect
Gubert and Roubaud (2005)	Madagascar	Credit and savings *Individual*	2 surveys 2 years apart to see change over time (not 'before' and 'after')	Slightly less-than-rigorous evidence of impact	- General business outcomes - Employment	Positive but not consistent across analyses No significant effect
Takahashi et al. (2010)	Indonesia	Credit and savings *Individual*	Type of controlled before-and-after study (collect data before joining and 1 year later)	Medium risk of bias	- Individual income - Business income (profits, sales from self-employment business, sales from non-farm enterprises, sales from farming/aquaculture) - Financial assets (savings) - Non-financial assets (durable assets, livestock)	No significant association No significant association No significant association No significant association

Study	Country	Intervention	Study design	Our quality judgment	Outcomes assessed	Direction of effect
Evidence on micro-credit provided to groups						
Bahng (2009)	Ethiopia	Credit and savings *Group*	Retrospective analysis of a single panel (2007)	Slightly less-than-rigorous evidence of impact	- Individual accumulation of non-financial assets (livestock) - Household non-financial assets	No significant association Negative association
Brannen (2010)	Tanzania	Credit and savings *Group*	Prospective data collection through a survey, interviews and focus groups	Evidence of associations , not causality	- Income generating activities - Household expenditure	Positive association Positive association
Chen and Snodgrass (2001)	India	Credit and savings *Group*	2 surveys 2 years apart to see change over time (not strictly 'before' and 'after' data)	Slightly less-than-rigorous evidence of impact	- Household income - Household expenditure - Income diversification - Business income	Positive Positive No significant effect Varied
Cuong (2008)	Vietnam	Credit *Group*	Retrospective analysis of 2 surveys in 2002 and 2004	Slightly less-than-rigorous evidence of impact	- Individual income - Individual expenditure - General poverty status	Positive Positive No significant reduction in 'poverty rate'

Study	Country	Intervention	Study design	Our quality judgment	Outcomes assessed	Direction of effect
Erulkar and Chong (2005)	Kenya	Credit and savings *Group*	Type of controlled before-and-after study (collect data before joining and 1-2 years later)	Slightly less-than-rigorous evidence of impact	- Household non-financial assets - Individual (salaried) income	Positive Positive
Kaboski and Townsend (2009)	Thailand	Credit *Group*	Type of controlled before-and-after study (collect data before roll out in 1997-2001, and then in 2002-2003 'after' roll out)	Slightly less-than-rigorous evidence of impact	- Household expenditure - Business income - Business investment - Impacts specifically on women's businesses	Positive Positive No significant difference Positive
Khandker 2005 (N.B. uses Pitt and Khandker 1998 single panel as baseline)	Bangladesh	Credit *Unclear if individual or group credit*	Retrospective analysis of two surveys in 1991/92 and 1998/99	Slightly less-than-rigorous evidence of impact	- Household expenditure - General poverty status	Positive Positive

Study	Country	Intervention	Study design	Our quality judgment	Outcomes assessed	Direction of effect
Pitt and Khandker (1998)	Bangladesh	Credit *Group*	Retrospective analysis of a single panel (no before data)	Evidence of association, not causality	- Employment - Household expenditure - Individual accumulation of assets	Positive association Positive association Positive association

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