WHAT IS THE IMPACT OF MICROFINANCE ON THE WELL-BEING OF THE POOR AND WHAT ARE THE CONDITIONS FOR MAKING MICROFINANCE WORK FOR THE POOR IN SOUTH ASIA?

SYSTEMATIC REVIEW [APRIL 2016]

The authors of this report are

Professor Arun Kumar Gopalaswamy (Department of Management Studies, IIT Madras, India)

Dr M. Suresh Babu (Department of Humanities and Social Sciences, IIT Madras, India)

Professor Umakant Dash (Department of Humanities and Social Sciences, IIT Madras, India)

Conflicts of interests

None of the authors has any financial interest in this review topic, nor have they been involved in the development of relevant interventions, primary research, or prior published reviews on the topic.

Contributions

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Picture

The picture was taken by the authors during a meeting of a self-help group in Tamil Nadu, India, in 2015.

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Findings from this Systematic Review on the impact of Microfinance (MF) interventions suggest an overall positive influence on various outcomes. However, the magnitude of the impact is small in some outcomes, and varies across regions. This mixed evidence could be due to differences in the nature of the intervention, the context, and modes of implementation. The findings of this systematic review broadly suggest that

- MF interventions appear to have positive influences on income, asset accumulation and consumption.

- With regard to women's empowerment, outcomes are sensitive to the definitional parameters used. Predominantly, studies have used the influence of women on household expenditure to measure empowerment. The findings from these studies indicate that MF may lead to positive changes. However, when the studies measured women's empowerment based on economic empowerment indicators[1], the findings from such studies suggest the mixed impacts of MF.

- MF programmes emphasising on girls' education may lead to beneficial impacts on school enrolment.

- For employment outcomes, MF interventions are portrayed as effective mitigation mechanisms during spells of unemployment.

Overall a credit-plus programme may lead to more positive impact than standalone lending programmes even for erstwhile participants who left the scheme. The MF coupled with skill development programmes, is likely to have positive impact on livelihoods. This could enable participants to obtain more regular employment, create income-yielding assets or micro-enterprises, rather than encouraging their engagement in activities that are low in productivity.

INTRODUCTION

Microfinance (MF) is considered by some to be a 'magic tool' to improve the social and economic status of the community by empowering women, enhancing financial inclusion, improving literacy and encouraging savings. Although MF has seen apparent success and increased popularity in recent times, there are also mixed effects observed regarding the social and economic well-being of the poor (Stewart et al. 2010, 2012, and Duvendack et al. 2011).

This brief presents an overview of the evidence on the impact of MF on the well-being of the poor in the South Asian context. This systematic review assumes relevance for three reasons.

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[1] Here, economic empowerment means the independently deciding on the finances for either the enterprise or household.

Firstly, the context: that is, a set of heterogeneous countries in the South Asian region that have witnessed large-scale MF programmes. Secondly, for the fact that this region includes a group of countries with a wide range of per-capita incomes, from very low to middle-income levels. Thirdly, there is no comprehensive review available of the varied research in the context of MF in the South Asia region (Duvendack et al. 2011).

The systematic review aims to address the primary question of:

What is the impact of microfinance on the well-being of the poor and what are the conditions for making microfinance work for the poor in South Asia?

Given the several implications of the core research question, a few sub-questions[2] were framed, captured and included in the context of the primary research question:

A. Which types of interventions or their components could affect the well-being of the poor on particular outcomes?

B. What are the direct and indirect, positive and negative effects on the participants and non-participants?

C. How are the effects distributed across target segments and outcome variables?

D. Do they affect individuals, households, small businesses and communities differently?

E. What are the critical success factors or enabling conditions at meso, macro and micro level for achieving greater positive benefits?

F. Does the context, or under which circumstances these interventions succeed or fail, matter?

SYSTEMATIC REVIEW APPROACH

Study sources: Eleven electronic databases; hand search of journals for a 25-year period; past reviews since 1990; ten website searches; personal communications; and references in identified studies were considered.

In-depth review: 69 studies met the inclusion and quality-appraisal criteria. Of these 69 studies, only 26 studies qualified for meta-analysis and 64 studies qualified for narrative synthesis (some studies overlap between narrative and meta-analysis-based synthesis).

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[2] We have attempted to unravel the complicated causal chain of interactions between variables. In doing so we have been constrained by the availability of quality studies for answering some of the above mentioned questions more specifically on the varied effects on individuals, households and communities (sub-question D) and critical success factors (sub-question E).

Synthesis method: Given the heterogeneity of the studies, two distinct methods were used in the synthesis: meta- analysis[3] and narrative synthesis[4].

RESULTS OF THE STUDY

To assess the impact of MF from the available evidence, we examined a variety of indicators and classified them in terms of three possible outcomes: economic outcomes, social outcomes and empowerment of women. The thematic framework is provided in figure A-1.

Figure A-1: Thematic description of outcomes
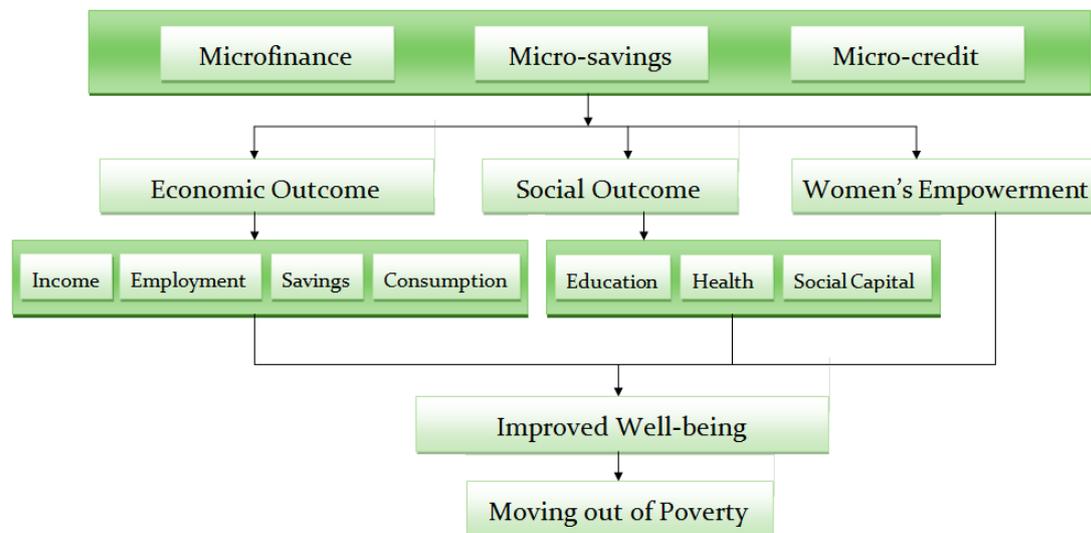
FINDINGS FROM META-ANALYSIS

Meta-analysis results indicate that there is, overall, positive evidence on increase in income, education, women's empowerment and employment; however, the effect seems to be small. MF programmes may lead to an increase in participants' asset creation and consumption/expenditure. Another impact is noticed on education outcome, in terms of higher school-enrolment rates, although this is more pronounced for girls' education. Even though there exist multiple indicators for measuring women's empowerment, empowerment measured by the decision-making power of women indicates a small, but positive and significant effect.

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[3] Meta-analysis is the statistical combination of results from two or more separate studies (Green et al. 2011). It combines evidence from independent studies to evaluate its magnitude and statistical significance on summary effect.

[4] In this review, the themes of outcomes observed in studies are presented in the form of short textual descriptions.

The studies in the context of Bangladesh yielded lower effect sizes compared to the rest of the regions, as these studies also had low risk of bias. MF interventions have had a greater effect on income than have micro-credit initiatives, while the situation is reversed with regard to assets. The consumption effects of microcredit are substantially higher than for MF; however, there is no significant difference across types of interventions for women's empowerment. The effects on employment were more pronounced for MF than for micro-credit, suggesting a greater need for a 'credit-plus'[5] programme.

The quality and methodological sophistication of studies was assessed in terms of their risk of bias[6], which is related to the outcome results reported. The studies with low risk of bias have low overall effect sizes[7] compared to studies with medium and high risk of bias across outcome indicators. This indicates that there exists the possibility of exaggerated effects, arising from low-quality impact evaluation.

FINDINGS FROM NARRATIVE SYNTHESIS

The narrative synthesis suggests that microcredit/MF has positive impacts on the household incomes of poor people. Participation in MF has led to the dampening of seasonal variations in the context of agricultural incomes. Increased consumption is found in the case of participants, due to asset creation. Micro-savings for women has a significant impact on their individual expenditure in the context of Bangladesh. Although there is a positive impact on overall expenditure, there is no significant difference between participants and non-participants for food consumption. The 'poorest of the poor' were more likely to benefit from the participation compared to other poor groups, which essentially addresses the sub-question on target segments (sub-question C).

Evidence on the impact on education is varied. In terms of employment generation, there exists little evidence of a quantum increase in employment at village level. Gender-differentiated impact analysis reveals that female employment has grown largely because of the increase in non-farm employment. Addressing sub-question F, it was observed that studies that the self-help groups (SHGs) mediated using micro-credit have helped women gain control over assets and, subsequently, acquire self-esteem, knowledge and power. It is documented that household consumption increases more if a woman, rather than a man, takes out a loan. Individual loans were mainly used to meet households' productive and consumption requirements and, in some cases, to finance self-managed enterprises. The impact on poverty reduction has been one of the most debated issues in terms of the outcomes of MF interventions. Evidence from Bangladesh-based studies indicates mixed results, ranging from

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[5] Credit plus means activities beyond lending, which includes training, mentoring and capacity-building activities.

[6] Risk of bias indicates the possible error or deviation in results or inferences from true results. The results of a study may be unbiased, despite a methodological flaw, hence the risk of bias should be assessed in order to understand deviations in results.

[7] An effect size is a measure of the magnitude of the strength of a relationship between an independent (intervention) and dependent (outcome) variable.

minimal impact on reduction of poverty to significant impacts, especially for female participants. The contrary view suggests that the impact on poverty needs to be assessed by classifying the poor, as the poor do not form a homogeneous category.

OVERALL FINDINGS

From the overall findings addressing the primary review question, corroborated by the meta-analysis as well as by narrative synthesis, we observe that there is inconclusive evidence of the impact of MF interventions in terms of alleviating poverty in the South Asian context. Addressing sub-question B on direct and indirect benefits, the evidence suggests that the impact of MF programmes in improving income, education, women's empowerment, and employment are marginal. With regard to women's empowerment, outcomes are sensitive to the definitional parameters used. For educational outcomes, participating in MF programmes can increase school enrolment, specifically in the case of girls. MF programmes could lead to an increase in asset creation and participants' consumption levels.

In terms of types of intervention, credit-plus programmes generate more positive impact than standalone lending programmes that address sub-question A on the type of intervention. On the context front, we find that MF programmes generate spill over effects, which, when synergized with other interventions, have the potential to yield higher benefits for the participants.

KEY CONCLUSIONS

1. MF programmes emphasising microenterprise-linked initiatives should be the focus of interventions leading to sustained income generation and diversification. Benefit accrued in terms of savings in interest cost due to MF borrowing does not necessarily lead to sustained benefits.
2. MF interventions, which are standalone lending models, have to be re-oriented incorporating credit-plus programmes, which would have components of training, exposure and mentoring, in addition to micro-savings and/or microcredit, leading either to employment or group enterprise, or asset creation for sustained benefits.
3. As a vulnerable mitigation strategy, income- and consumption-smoothing initiatives need to be built into the interventions by an appropriate mix of activities, to be undertaken by the participants, in conjunction with discouraging consumption of temptation goods.
4. Gender-based targeting in terms of credit disbursement may be a useful vehicle for enhancing the bargaining position of women within the household, especially regarding decisions on expenditure on education.
5. A high-quality database with descriptions of the contextual settings of intervention methods employed for collecting data and reporting impacts would help in producing higher-quality evidence on impacts.

It can be observed that benefits derived from MF interventions vary across outcomes. A possible reason for the mixed findings is the nature of intervention. The evidence included in this review comprises a range of MF models. These MF programmes are multi-component, complex interventions, and are delivered and evaluated across different contexts using a range of outcome measures. Secondly, the implementation method; that is, whether it is delivered through a microfinance institution (MFI) or an SHG-linked organisation. This is because the focus of MFIs is predominantly credit disbursements where poverty reduction is an indirect outcome, whereas, if an intervention is SHG-linked the focus is on poverty reduction, with credit being an enabler. Although SHG-linked schemes focus on poverty reduction, they have fallen short of creating a sustained income-generating activity. The focus should shift towards skill development that could enable participation in more regular employment or create income-yielding assets or micro-enterprise, rather than encouraging engagement in petty labour.

IMPLICATIONS

This review provides directions and pointers for further research and policy formulation. MF interventions have created an impact on the plight of the poor; however, the assessment on the quantum of such impacts and the time frame for accrual of benefits needs refinement. This review shows that such refinements need to be along the following lines for impact assessment.

IMPLICATIONS FOR PRACTICE AND POLICY

For designing MF interventions, the following possible directives could lead to greater accrual of benefits:

- ➢ Interventions should target sustained income generation through asset creation, specifically non-livestock. The benefit accrued in terms of savings in interest cost due to MF borrowing does not necessarily lead to a sustained benefit.
- ➢ Programmes should help in diversification of income by non-farm employment, as it is an effective vulnerability-mitigation strategy.
- ➢ Consumption-smoothing benefits need to be built into the initiatives. However, credit-induced consumption needs to be discouraged by the programme.
- ➢ A more realistic approach incorporating the possibility of not generating child labour could be effective in enhancing school-education benefits, especially for girls.
- ➢ Micro-enterprise-linked initiatives could resolve some of the issues regarding asset creation, income generation and consumption smoothing.
- ➢ A model incorporating credit-plus programmes needs to be designed for sustained income generation, which could replace the stand-alone lending model.
- ➢ Finally, training and exposure are key components that need to be built into the initiatives. They are vital to income generation, women's empowerment and employment creation.

IMPLICATIONS FOR RESEARCH

➢ There exists the need for a high quality of databases for assessing the impacts. A thicker description of the data and methods employed for collecting data would be useful while reporting the impacts. This would help in formulating more meaningful policies, as well as producing higher-quality evidence on the impacts.

➢ Conceptual mapping of the benefits needs to be conducted before venturing into any analysis of the impacts.

➢ There exists a need to recognise the heterogeneity among target groups, be it across poor or gender categories.

➢ Comparisons across beneficiaries and non-beneficiaries need further refinement in terms of proper identification.

➢ From a methodological perspective, the challenge of ensuring randomisation needs to be addressed.

➢ A richer description of the contextual setting of interventions would help in terms of more meaningful interpretation of evidence.

➢ Inclusion of more situational and behavioural variables in assessing impacts would be useful in shedding more light on the benefits accrued.

CONTENTS

1 BACKGROUND

1.1 AIMS AND RATIONALE FOR CURRENT REVIEW

"The stark reality is that most poor people in the world still lack access to sustainable financial services, whether it is savings, credit or insurance. The great challenge before us is to address the constraints that exclude people from full participation in the financial sector. Together, we can and must build inclusive financial sectors that help people improve their lives."

- *UN Secretary General Kofi Annan, 29 December 2003, announcing 2005 as the International Year of Microcredit*

Inclusive growth is emphasised as being a central development issue and a rising economic priority in South Asia. The primary or the key factor that is considered for inclusive growth is inclusive finance. In most of the emerging countries, financial services are available only to a small percentage of the population and a vast majority is largely considered 'non-bankable'. The current emphasis of many emerging economies is to convert these so called 'non-bankable' demographics into 'bankable' ones. One could argue that access to well-functioning and efficient financial services can empower individuals economically and socially, allowing them to integrate more effectively into a country's economy and actively contribute to its growth. Focusing on this path of empowering individuals, development agencies and local governments have adopted and encouraged multiple means for financial inclusion. Among the many tools that are used for 'including the excluded', microfinance (MF) is considered to be one of the successful methods. This has attracted the attention of policy-makers, donors, private investors and a host of other entrepreneurs. It has also demanded the generation of clear evidence on the outcomes, concerning which there exists considerable ambiguity (Armendáriz de Aghion and Morduch 2005, 2010). Attempts to examine the impacts of MF (Gaile and Foster 1996, Goldberg 2005, Odell 2010, Orso 2011) have shown that the methodology, tools and techniques used for assessing the impact itself suffer from several drawbacks. There are numerous constraints that hamper the inclusion of different population groups that need access to financial services, notably women.

Despite these constraints, MF plays an important role in expanding that access to finance. Critical to global development efforts, it had a vital role to play as part of the Millennium Development Goals (MDGs), and in the current Sustainable Development Goals (SDGs). The current emphasis, on the idea that financial services are an integral part of the poor for an

inclusive financial sector, stresses the role of MF in development and inclusion. Although the financial sector is expanding in terms of assets, it is believed that these assets are not widely distributed. The potential of financial markets to act as drivers of growth and poverty reduction over the long term, by placing greater value and emphasis on access to financial services for poor households and enterprises, has been given heavier emphasis in recent times.

The popular method of using anecdotes and other inspiring stories showed that MF could make a real difference in the lives of those served (Todd 1996, Duvendack et al. 2011). As the MF industry matures, there are more opportunities for domestic and international finance players to enter this market profitably, while contributing to poverty reduction worldwide. Although the positive effects of MF have been stated in numerous studies, rigorous quantitative evidence is scarce and inconclusive (Armendáriz de Aghion and Morduch 2005, 2010). With the change in definition and practice of MF to a 'financial-inclusion' approach, the reliance of operating along commercial lines, leading to reduction in subsidies and agency financial support, has gained momentum (Mahajan and Nagasri 1999, Tiwari and Fahad 2004, Fernando 2006). The financial-systems approach supports the argument that MFIs should aim to provide sustainable financial services to low-income demographics, which may undermine the potential for poverty reduction and social empowerment. According to Cull et al. (2009), the argument that MFIs should seek profits has an appealing 'win-win' resonance, entailing little trade-off between social and commercial objectives (Imai et al. 2010).

There are recent studies that have shown the significant effect on poverty using longitudinal multipoint household survey data. Using panel data at both participant and household levels in Bangladesh, Khandker (2005) confirms that MF programmes have a sustained impact in reducing poverty among the participants, especially for female participants, and a positive spillover effect at village level, contributing to national economic growth. There are studies that have seriously questioned the positive effects of MF (Morduch 1998), either through superior statistical technique or by measuring outcomes after controlling for other effects. Studies have proved that MFIs have not yet reached the poorest of the poor in Asian countries (Weiss and Montgomery 2005) or in some Latin American countries, such as Bolivia (Mosley 2001). Consequently, the relationship between MF and poverty reduction is still in question. Even though there exists some consensus on the interconnections and pathways through which MF could potentially alleviate poverty, multiple indicators used to assess these pathways have resulted in conflicting evidence, in particular showing a relatively small impact on poverty at macro level. Studies have also proven that MF programmes, in isolation, may not be successful in alleviating poverty, whereas results are significantly more positive if the programme is accompanied by other developmental initiatives. Recent attempts to synthesize the available literature on the impact of MF show that, 'Almost all impact evaluations of MF suffer from weak methodologies and inadequate data; thus, the reliability of impact estimates are adversely affected' (Duvendack et al. 2011).

This is further complicated by the wide product proliferation in the MF industry since the 1990s — micro-credit, micro-savings, micro-leasing and micro-insurance — which has

necessitated continuous synthesis of the outcomes. Three prominent systematic reviews (SR) — one on micro-credit worldwide by Duvendack et al. (2011); a study by Stewart et al. (2010) covering Sub-Saharan Africa; and the third Campbell Systematic Review by Vaessen et al. (2014) on the effects of micro-credit on women's control over household spending in developing countries — form a large corpus of synthesized evidence. Although Duvendack et al. (2011) focus on MF interventions in addition to micro-credit, the studies on micro-savings, which forms a part of MF, have been excluded (Stewart et al. 2012). Some recent reviews (for example, Brody et al. 2013) focus on the impact of women's participation in SHGs on their individual empowerment in low- and middle-income countries, while Kennedy et al. (2014) focus on income-generation interventions, including MF and vocational-skills training for HIV prevention. More recently, Vaessen et al. (2014) studied the effect of micro-credit on women's control of household finances, in the context of developing countries. There exists a paucity of reviews that explicitly examine the role of MF in poverty reduction in the South Asian context. The specific focus on the South Asia region, which is host to a large number of MF interventions, and has also pioneered different models, ranging from Grameen Bank, to group-lending models, to the Bangaldesh Rural Advancement Committee (BRAC) model of lending to the poorest of the poor, are relevant to attaining a comprehensive understanding of the impact of MF.

The aim of this study is to undertake a systematic review of the evidence on the impact of MF, micro-credit, and micro-savings on poverty reduction. The review was carried out on the dimensions of access to finance, coverage, activities generated and outcomes, as the literature indicates a strong link between these variables and poverty reduction (Hulme and Mosley 1996). Given the need for substantial expansion of coverage in order to strengthen inclusion, it is felt that this review is very relevant and timely for policy-makers. It is also expected that this review will contribute to evidence-based policy decisions in this area, in terms of designing an effective programme, based on the outcomes that it is intended to achieve. The evidence base for the topic is greater for some specific countries; for example, a majority of studies synthesized in this review pertain to Bangladesh and India, with very few from the context of Sri Lanka and Pakistan, and no studies on other South Asian countries, such as Afghanistan, Nepal or Bhutan. However, there is a growing evidence base and literature on South Asia (Shetty 2010).

1.2 DEFINITIONAL AND CONCEPTUAL ISSUES

In line with the systematic-review methodology, we have set clear and precise definitions of the interventions/institutional mechanisms studied and the impacts to be assessed. We have attempted to stress these aspects, as the concept and practice of MF has changed significantly in South and East Asia over recent years. This is influenced by financial literacy, financial-service providers, population density, attitudes to debt, group cohesion and enterprise development, to name just a few.

The causal links between access to MF and the outcomes are elucidated in Brody et al. (2013), who hypothesise that, 'For women's participation in economic and livelihoods, SHGs will

enable them to gain access to resources in the form of credit, training, loans or capital' (p 6). However, given the significant inter-country variations in South Asia, we will consider two important impacts in terms of reduction in vulnerability and access to better education. Consequently, in our conceptual framework, building on Brody et al. (2013), we include the impacts of vulnerability and access to better education due to MF. In figure 1.1, below, the entire process, mapping the benefits based on access to MF, is presented.

Figure 1.1: Access to Microfinance and its benefits
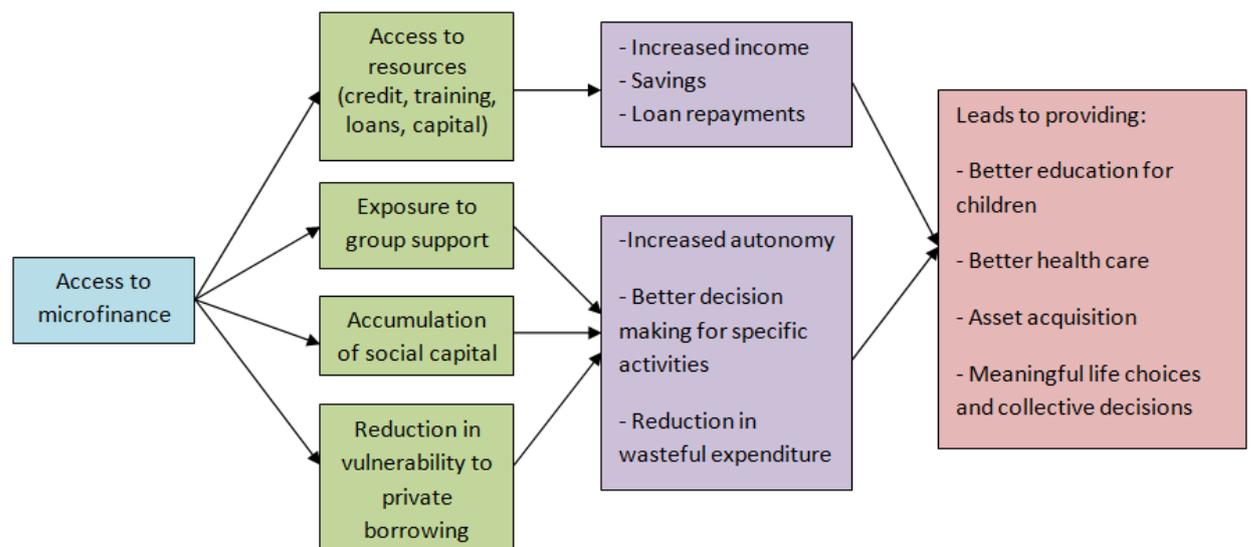
DEFINITION OF MICROFINANCE

MF literature currently defines MFIs as SHGs that offer women a collective finance, enterprise and/or livelihoods component (Brody et al. 2013), including institutions that offer micro-credit, micro-leasing and micro-savings (Stewart et al. 2012).

The magic wand of MF is expected to provide very high access to superior-quality, affordable financial services for low-income households, as well as the 'non-bankable' population, or the poorest of the poor. It is expected to induce enterprise creation and assist in building assets, stabilising consumption and protecting against risks and catastrophes, and thereby assist in the fight against poverty (CGAP website; Brau and Woller 2004, p 3); Duvendack et al. 2011; Robinson 2001 and Yunus 1999). MF/Micro-credit refers to small loans given to unsalaried borrowers with little or no collateral (http://www.microfinancegateway.org/what-is-microfinance).

Micro-savings refers to financial products that facilitate poor people in saving small, variable amounts of money, frequently offering different terms of access and generating differing returns (CGAP 2005, p 3). Micro-insurance products provide protection to low-income people in managing risks, including death, disability, hospitalisation or crop failure, in exchange for regular 'premium' payments, proportionate to the likelihood and potential cost of risk

occurring (Ledgerwood and Gibson 2013). According to the USAID definition, a micro-enterprise consists of a poor owner-operator and a few workers, who are typically small shopkeepers, craftsmen and vendors. Initiatives for improving financial inclusion, such as vocational training and other forms of technical assistance, while crucial to improving the impact of MF services, are not included as MF in this review.

For this review, we follow Brody et al.'s (2013) definition of MF, wherein we focus on studies that concentrate on a collective finance, enterprise and/or livelihoods component. Collective finance and enterprise includes savings and loans, group credit and collective income-generation. However, it should be noted that the terms *micro-credit* and *microfinance* have been used interchangeably to indicate the range of financial services offered specifically to poor, low-income households and micro-enterprises (CGAP website 2010, Brau and Woller 2004). MF principally encompasses micro-credit, micro-savings, micro-insurance and money transfers for the poor. Micro-credit, which is part of MF, is the practice of delivering small, collateral-free loans to usually unsalaried borrowers or members of cooperatives, who otherwise cannot get access to credit (CGAP website 2010, Hossain 2002).

SPECTRUM OF MICROFINANCE PRODUCTS

The poor and vulnerable households require an array of financial support for a variety of purposes, from acquiring productive assets to the more pressing needs of consumption or taking care of unanticipated emergencies, such as sickness, loss of employment, the death of a breadwinner, nutrition issues and floods (Matin et al. 1999, Hatch 2011, Hossain and Knight 2008, Khandker 2000 and Afrane 2002). The outcome indicators include increased food consumption, better health and education outcomes, better employment opportunities, reduction in vulnerability to shocks, reduced inequality, enhanced empowerment, and strengthened local economic and social development. The benefits accruing from the MF programme extend beyond the standard classification of 'credit only', 'credit-plus' and 'credit-plus-plus' programs. Based on the synthesis, it is felt that grouping all the interventions under one of the three categories presents difficulties. Since poverty reduction is one of the main objectives of MF, changes in income levels of individuals and households are often used as a measure of its impact (Zaman 1999, Johnson and Rogaly 1997, quoted in Makina and Malobola 2004). Sometimes, the extent to which female micro-entrepreneurs have been empowered is also seen as one of the outcome indicators (Hussain et al. 2014, Mayoux 1999 and Rahman 1999).

For this review, we have classified the programmes according to the outcomes. We have created three broad outcome parameters: *economic benefit*, *social benefit* and *women's empowerment*. Each component of the economic-benefit and social-benefit categories has been further classified, based on the types of outcome derived (Duvendack et al. 2011). Figure 1.2 presents the taxonomy of outcome classifications. Economic benefits are further classified into benefits derived from acquisition of new assets or increase in consumption, employment, increase in income and creation of new business. Social benefits are classified into benefits derived due to increases in education enrolment, lesser incidence of sickness measured in terms of better health, and creation of social capital. Given the varied outcomes, the

requirements of financial support are also affected by age, gender, life-cycle events, the structure of the family, livelihoods, geography and income levels (Ledgerwood and Gibson 2013).

MF is not limited to borrowing, but also includes other financial services, such as savings, insurance, transfer facilities, etc. Savings facilities, in particular, constitute an important question for MFIs, because the prospective MF target group is usually larger in deposit business than in lending. The other important aspect of MF is that it helps in providing access to the formal financial system. The service currently available does not acknowledge the diverse requirements of the poor (Matin et al. 1999). Even though informal financial mechanisms entail high costs, and can cause inconvenience and embarrassment, the poor often prefer it because of its easy access, flexibility and other customised product features. There has been a prolific increase in the number of MFIs operating in this region, as well as the number of SHGs that have been created. This is also forced by the generic enhancement of awareness of the perceived benefits associated with being part of a group-lending scheme. With the focus on credit-plus programmes, MFIs are able to have a better reach among rural households. Some of the impact will be felt at micro level (for example, individual and/or household-level impacts), while others are felt at meso and macro levels (for example, impacts at community, district and national levels). This review initially attempted to include meso-, macro- and micro-level impacts driven by MF, but could not satisfactorily address these impacts.

Figure 1.2: Taxonomy of Outcomes
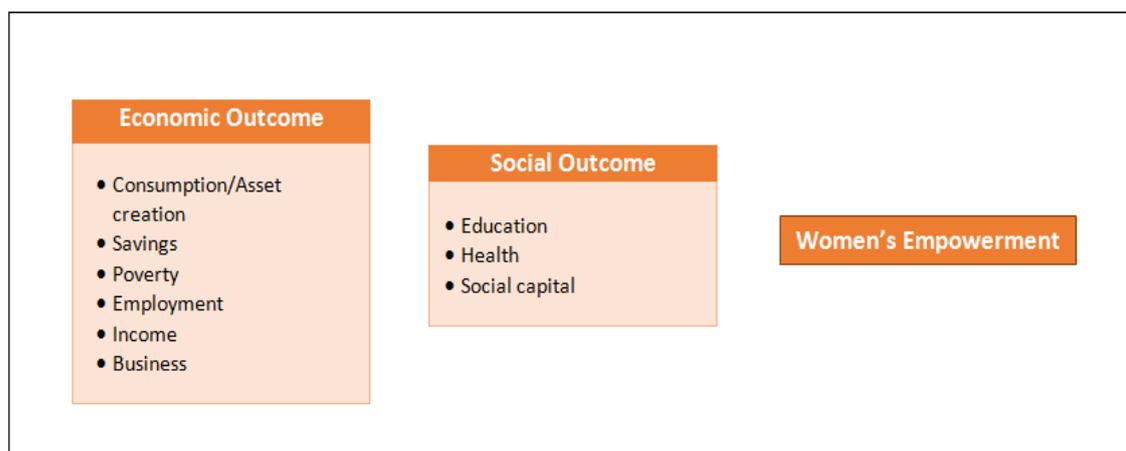
1.3   POLICY AND PRACTICE BACKGROUND

The previous section highlights several outcomes that can be attributed to the effects of MF. Studies have also reiterated the diversity and heterogeneity of the MF industry in South Asia, as evidenced through the actual implementation of various schemes and models (World Bank 2007). Multilateral agencies and international aid agencies have greatly helped in strengthening the institutional environment and also the reach of MFIs. The significant benefit documented by some researchers (Pitt 2000, Khandker 2000, Latif 2001) are framed in terms

of improving access to basic financial services for the poor, which is viewed as a vital ingredient in developing economies' efforts to promote economic growth and reduce poverty.

The incidence of poverty or social exclusion is higher in South Asia than in a number of otherwise comparable regions across the world. Even within South Asia, a significant disparity exists in terms of interventions, delivery mechanisms, outcomes and impact. Despite these varied models, none of the models or combinations of models stands out as a solution for creating sustained impacts or replicability. All these economies still run a high risk of poverty or social exclusion, despite variations in implementations within country and also in the models by implementing MFIs.

In general, the approach is market-driven, with financial sustainability paramount. In many cases, a market approach is possible because MFIs use group lending and other techniques to offset borrowers' lack of collateral. The broad strategy in emerging countries is to develop micro-, rural-, small- and medium-enterprise finance, which includes a number of key measures in the overall legal and regulatory framework. This development is also extended in building institutional capacity and in the introduction of financial-systems infrastructure.

Nevertheless, the heterogeneity of countries in the region and variations in user needs suggest that MFI measures need to be flexible to fulfil the market's needs. In addition, target groups' intervention measures need to be sufficiently broad in order to provide efficient support, based on the requirements. This also necessitates that the product range be sufficiently wide in order to meet the target groups' needs.

These varied models and the wide range of product portfolios pose the serious problem of, firstly, identifying the outcomes and their spillovers and, secondly, measuring them. The product portfolios have been designed to fit into a heterogeneous market environment, with a wide range of financial intermediaries applying different MF models and going through various stages of development. A single, uniform measurement of both impacts and outcomes could lead to biased results, depending on the measurement variable used. The impact-measurement variable has to be broad and flexible to capture the qualitative spillover effects of interventions. This is more important, given the valid rationale claimed by researchers for the existence of MFIs in South Asia, which operate in diverse market environments, and has resulted in a variety of MFI models in the region. A categorisation of these models can be made, either according to the 'legal' classification — MFI with/without a banking license — or with regard to the 'nature' of the MFI. The diversity of these business models or focus areas forms the basis for the varied effects or mixed results of these interventions.

1.4   RESEARCH BACKGROUND

The proliferation of MFIs and their benefits has attracted the attention of researchers, leading to the emergence of studies looking into the empirical evidence on MFI models. It is established that credit markets are characterised by asymmetric information, with the existence of moral hazard and adverse selection problems. These can lead to complete collapse of the formal credit market (Daripa 2000). The conventional financial intermediaries

provide financial services based on the borrower's reputation or collateral, both of which are impediments to the poor, especially the poorest of the poor. The poorest of the poor — or even just the poor — are considered to be high-risk borrowers, due to inherent difficulties in assessing their creditworthiness, coupled with their inability to provide collateral. The formal banking system brands them as 'too poor' to save, which further complicates their borrowing capabilities. This branding by formal financial systems also has a cascading effect on the formal insurance industry, which is completely unwilling to target, even remotely, this segment. This problem is magnified, given the literacy level in terms of financial transactions, exposing them to high risk, especially in the unorganised or informal credit market. This issue of 'no credit' is magnified greatly when hit by personal catastrophe or exposure to a natural disaster.

The failure of the formal system in addressing the financial needs of the poor, coupled with the vulnerability associated with using the informal markets, provides substantial reason for the interventions to provide financial services specifically targeting the poor at micro level. The emergence of MF as a new paradigm has encouraged MFIs to provide a host of services associated with growth and alleviating poverty. It emphasises institutional and programme innovations to reduce costs and risks, and has greater potential to expand the financial frontier to the poor in a sustainable manner (Littlefield et al. 2003).

The process of MF intervention is made through social intermediation, which is defined as 'a process by which investments are made in the development of both human resources and institutional capital, with the aim of increasing self-reliance of marginalised groups, preparing them to engage in formal financial intermediation' (Bennett 1996, Pitt and Khandker 1998).

MFIs, by playing the role of social intermediator, are building self-reliant groups of poor people in rural areas that can foster long-term business relationships by exploiting informal enforcement systems. An important feature of the group-based lending is the use of peer pressure and group support, which acts as collateral. There are a number of studies examining the impact of MF on different lower- and middle-income countries.

Another key feature of a group-based lending mechanism is its potential to reduce transaction costs and financial risk to facilitate a greater range of transactions in output. Based on the literature, it could be argued that households' access to MF reduces the incidence of borrowing from informal sources, but not the amount of borrowing. Moreover, less poor households benefit more in terms of reducing their reliance on informal borrowing and that the benefit accrues over time. Further, it is found that having access to MF increases women's informal borrowing for small consumption usage, without facilitating access to new business opportunities.

A host of researchers have utilised the three-period panel survey data conducted jointly by The World Bank and the Bangladesh Institute of Development Studies (BIDS) during the years 1991/92, 1998/99 and 2010/11, in order to study the role of MF in economic and social upliftment among the poor. Based on the longitudinal data spanning 20 years, Khandker et al. (2014) used a dynamic panel model to assess whether (a) credit effects are declining over time, (b) market saturation and village diseconomies are taking place, and (c) whether

multiple programme membership, arising as a consequence of micro-credit expansion, is harming or benefiting borrowers. The results confirm that micro-credit programmes increase household welfare, benefiting the poor.

Studies based on the dataset of BIDS and The World Bank have also documented that the effect of benefits was higher for the female than the male borrowers. Studies have also documented that a credit-plus programme has helped to raise assets and net worth more than it has contributed to indebtedness. The results were a little contrasting in the context of India, as documented by Banerjee et al. (2014), insomuch that consumption patterns did not change significantly, with no difference seen in terms of the parameters of health, education or empowerment. The study also proves that group lending found that only small-business investment and profits of pre-existing businesses increased. Imai et al. (2010) document that MF had significant positive impact on poverty reduction.

Studies have attempted to analyze the impact of MF and micro-enterprise development on the economic and social empowerment of women entrepreneurs, and have reported that MFI initiatives for provision of financial services, policy framework and legal reforms are key elements in the greater economic and social empowerment of women. It is documented that MF and micro-enterprise development may serve as a catalyst towards social change and, in turn, improve the political and social status of women. Setboonsarng and Parpiev (2008) explore the contribution of MF to the MDGs in Pakistan, using data from a survey of clients of a microfinance bank (MFB; Khushhali Bank), in 2005. The study found that, despite the bank's strict poverty-targeting programme, used in client selection, the selectivity bias clearly still existed in the sampled households. The study found that the lending programme contributed significantly to income-generation activities, such as agricultural production and, in particular, animal raising. However, the impacts on other MDGs — education, health, female empowerment, and so forth — were of limited significance. Studies have reported a positive and significant effect of MF programmes on children's education and household expenditure, and no significant impact of MF on housing conditions, consumption of food items and ownership of household assets.

Despite the success stories of MF and its impact, there are researchers who have questioned the impact measurement or econometric methods used to measure them (Morduch 1998). Duvendack et al. (2011) emphasise the need to re-investigate the existing MF impact evaluations, due to the inconclusive nature of the results of existing studies. It is documented that there has been no well-known study that shows robust evidence of any strong impact of MF on poverty alleviation and women's empowerment. Although some studies focus on intervention (for example, provision of micro-credit), the measurement of outcomes (for example, income, expenditure, assets, health and education, empowerment, and so on) and contextual factors that are likely to affect differences in outcomes in different contexts, including other MF services, should also be analysed. This mixed and inconclusive evidence forms the basis for this systematic review.

1.5   AUTHORS, FUNDERS AND OTHER USERS OF THE REVIEW

Arun Kumar Gopalaswamy (Professor of Finance) is the Principle Co-ordinator of the research team for this project. The research team consists of M. Suresh Babu (Associate Professor of Economics) and Umakant Dash (Professor of Economics) at the Indian Institute of Technology, Madras, Chennai, India. M.S. Elayaraja (Project Associate) took the responsibility of conducting the electronic search for studies, key word and author searches, and also working on EPPI-reviewer software. The entire research team was advised by V.R. Muraleedharan (Professor of Economics) and M.S. Sriram (Professor of Public Policy). The entire research team was involved in the creation of this review. During the mapping exercise, Professor Gopalaswamy managed and administered the process, with research team members contributing. Professor Umakant managed the qualitative synthesis and also wrote the corresponding section of the report and Dr. Babu managed the meta-analysis and quantitative synthesis section of the report. The writing of the review was undertaken on two levels, and was extremely well coordinated by the team. The composition of the chapters was managed by Associate Professor Babu and the overarching review was coordinated by Professor Gopalaswamy. The team members played more individual roles, maintaining a critical eye on the production of the material. References, tables and figures for the report were made by our project associate, Mr Elayaraja. This project is funded by the EPPI-Centre, UCL Institute of Education, with financial support from DFID-SARH.

User summaries will be circulated among the researchers and policy-makers once the review is complete. These summaries will be published on popular press, disseminated at conferences and through the communication networks of the different constituencies.

1.6   ADDITIONS TO THE REVIEW QUESTION

The key review question addresses the broad topic of the effect of MF on poverty. In this review, we address the main question of **'What is the impact of microfinance on the well-being of the poor and what are the conditions for making microfinance work for the poor in South Asia?'** and have, in addition, formulated a few sub-questions to capture the linkage between delivery systems and multiple outcomes. Based on discussions with DFID and EPPI-SG, an attempt has been made to address the following sub-questions in this review:

A.   Which type of interventions or their components could affect the well-being of the poor on particular outcomes; for example, income, consumption, savings, investment, profits, accumulation of assets, health, education and women's empowerment?

B.   What are the direct and indirect, positive and negative effects on the participants and non-participants?

C.   How are the effects distributed across target segments (for example, different poverty segments, women, entrepreneurs, farmers, etc.) and outcome variables?

D.   Do they affect individuals, households, small businesses and communities differently?

E. What are the critical success factors or enabling conditions at meso, macro and micro level for achieving greater positive benefits, such as legal form (for profit/not for profit), delivery model (individual vs. group, mono product vs. multiple financial services), non-financial services (financial literacy, skills training, etc.), presence of resource agencies (capacity building, on-lending funds), supportive regulation, etc.?

F. Does the context (geographical, political and socio-economic), or under what circumstances these interventions succeed or fail, matter?

Although the attempt was to unravel the causal linkages through an in-depth examination of evidences to address the sub-questions in our review, only some of the sub-questions could be addressed. This is partly because of the lack of high-quality quantitative evidence to examine these sub-questions, which were formulated at the protocol stage.

1.7   OUTLINE OF THE REPORT

The report starts with an executive summary, which gives a brief overview of the systematic review. The complete report is organized into five chapters, excluding the executive summary. The current chapter introduces the report, followed by a detailed description of the methods and search strategies adopted in Chapter 2. Chapter 3 provides a detailed description of the process of identifying the studies and the study characteristics. This is followed by Chapter 4, which describes the in-depth review process of the studies identified. In this chapter, both the narrative synthesis and the qualitative synthesis are discussed. This is followed by Chapter 5, which discusses the implications, limitations and key findings of this review.

2 METHODS USED IN THE REVIEW

This chapter provides details of the terms used for the literature search in the database, the search strategy and the methods used to carry out quality assessment and to synthesise the findings from the studies included in the review. The process comprises the following steps:

- Identifying the key terms and developing the country context for the study search.

- Describing the search methods used for identifying the studies for the review.

- Formulating the inclusion and exclusion criteria to determine the studies included for the review.

- The studies shortlisted based on inclusion/exclusion criteria were screened for clarity in objective formulation and data used, and this was followed by a search for causal mechanisms that lead to the outcomes. This activity was carried out by two lead reviewers to ensure consistency.

- The shortlisted studies were assessed for risk of bias, based on (a) quality of attribution methods, (b) the possibility of spillovers in comparison groups, and (c) outcome and analysis reporting biases. The studies were screened for selection bias, performance bias, detection bias, attribution bias and reporting bias.

- The identified studies were divided into three groups: the studies suitable only for meta-analysis; those suited only to narrative synthesis; and those that qualified for both meta-analysis and narrative synthesis.

- From the studies identified for meta-analysis, we extracted effect-size estimates using the data provided in the studies. We used random-effects meta-analysis for estimating average effects on the different outcomes and for examining heterogeneity. Publication-bias analysis was also carried out.

- Studies identified for narrative synthesis were classified into three broad thematic groups (economic benefits, social benefits and women's empowerment). This was arrived at by combining pre-determined themes, based on the links (in terms of process flow from intervention to intermediate outcome and impact – see figure 2.1) and assumptions on the impact in theory, as well as other themes emerging from detailed coding of the included studies. For each of these thematic groups, we identified specific outcomes. The studies were grouped based on the outcomes and synthesised. Some of the studies had multiple outcomes; hence, they overlap.

The entire search operation has been completely documented and the number of studies included and excluded, followed by the rationale for exclusion, is documented at every stage of the review process. A clear documentation of the study search process, and also the inclusion and exclusion criteria, helps in reducing the selection bias.

2.1 USER INVOLVEMENT IN THE REVIEW

Evidence-based policy decisions are emerging as a major imperative for international funding and developmental agencies, as well as for MFIs operating in this arena. The funding agencies, as well as implementing agencies, have based their decisions on past evidence, which is one of the key parameters for developmental-assistance decisions. This review is aimed at providing the imperative for such decision making and targets the policy-makers, developmental agencies, and also MFIs.

USER ENGAGEMENT

Since the main target group of the review are policy-makers, developmental agencies and MFIs, we would be disseminating the findings of this review to policy-makers, developmental agencies and MFIs at various levels. We have worked closely with the SARH and EPPI-Centre SG team in addressing the research questions. Based on the consultations with the advisory group and the policy-makers, the dissemination was planned on multiple levels, ranging from publication in the popular press to conducting a one-day workshop aimed at policy-makers and MFIs. A one-day workshop for dissemination aimed at institutions and individuals involved in policy advocacy was conducted on 11 February 2016 at IIT Madras, Chennai, India (the details of the workshop in terms of invitees, participants and discussion summary are provided in Appendix 22). This study is relevant to organisations (research, implementing and developmental agencies), that work in policy, field-level implementation and related areas. It is also relevant to policy-makers involved in the governance of state-initiated MF schemes across the South Asia region. In addition, the authors of the report are planning to disseminate the findings in popular theme-based conferences across the globe. In addition, an attempt has been made to ensure that the review clearly addresses the question in a way that can have a strong relevance to policy-makers.

2.2 IDENTIFYING AND DESCRIBING STUDIES

DEFINING STUDIES: INCLUSION AND EXCLUSION CRITERIA FOR MAPPING

In any systematic review, the primary step is to develop inclusion and exclusion criteria to be used for identifying the studies to be included in the review. After developing the broad inclusion/exclusion criteria, the studies were searched using both electronic-search and hand-search methods. The first step was to screen the studies based on title, followed by abstract screening and then full-paper screening. The studies that were excluded at each stage were not evaluated further. Only studies that met all the inclusion criteria were chosen for further evaluation. Appendix 2 provides the inclusion and exclusion criteria used for identifying the studies.

Our inclusion focus has been on quantitative studies, since this review is a quantitative review. Further, we have included only such studies that have shown a causal chain or clear pathway, in addition to stating the outcomes clearly in a comparative framework (See figures 2.1 and

4.15). For this review, we also carried out narrative synthesis of the research findings to complement the quantitative analysis.

IDENTIFICATION OF POTENTIAL STUDIES: SEARCH STRATEGY

A comprehensively mixed approach was adopted to search for the studies relevant to the question being addressed for the review. The search strategy adopted for electronic databases is described in Appendix 4. We have used a combination of electronic-database searches, hand searches, communication with key authors, key-author searches, etc., for systematically identifying the studies for the review.

ELECTRONIC DATABASE

An electronic search of bibliographic databases was carried out in Springer link, Science direct, EBSCO, Emerald, Wiley online library, ProQuest, JSTOR, SSRN, Taylor and Francis, Web of Science and PubMed.

SYSTEMATIC REVIEW DATABASES

Databases such as The Cochrane Library and The Campbell Collaboration Library were reviewed. We also searched existing systematic reviews, including Duvendack et al. (2011), Stewart et al. (2012), and Vaessen et al. (2014), to ensure that all the studies included in the earlier systematic reviews in similar domains are identified and examined for inclusion in this review.

WEBSITE SEARCH

We also searched on specific websites, which we thought would potentially have various unpublished studies and evaluation reports. Websites of various MFIs were also searched to check for any available evaluation reports. The website search further enhanced our understanding of the literature in the area, which helped in sharpening the automated-search process.

HAND SEARCH

We identified journals that extensively publish on developmental aspects with specific focus on poverty alleviation; they were shortlisted and hand searched for articles between 1990 and 2015. These studies were manually examined and the references from these articles were further analyzed. All these hand-searched articles were exported to EPPI-reviewer 4 and were subjected to further screening.

REFERENCE SEARCH

As a further step in the review process, the references from all the studies included for the review were searched for possible additional studies that might not have been included in the previous searches.

KEY-AUTHOR SEARCH

The names of the key authors identified from the searches, such as Banerjee, Duflo, Duvendack, Khandker and Pitt, were used for further searches for any possible publications that would have been excluded during the electronic or hand search.

DIRECT CORRESPONDENCE

As the final step, the most active researchers in the field were contacted for any recent or unpublished work that they could share for the review. We did receive a good number of papers based on direct correspondences with the key authors.

In addition, book collections from reputed publishers (both national and international) from the South Asian countries and reputed universities were browsed. The search engines used were Google and Google Scholar. To increase the sensitivity of our searching and to avoid missing any relevant high-quality research from the region, in addition to our multi-disciplinary research team, we drew on the expertise of potential users of the review, including researchers, policy advisers, and microfinance organizations (MFOs), particularly seeking their input on where to search for relevant literature that we might have missed.

The EPPI–Reviewer software was used to manage the entire search process. All the documents, including citations, abstracts and PDF documents, were imported into the reviewer for screening. The entire repository of studies was managed using the EPPI-reviewer software. The list of hand-searched journals, the key words/search terms used and web sites searched are presented in appendices 6, 7 and 8, respectively, of this report.

SEARCH STRATEGY: KEYWORDS

Given the wide spectrum of study designs accepted for this review, a highly sensitive search strategy was adopted. Wherever possible, we used the existing keyword indices of particular databases. The following keywords were used for the search:

micro credit/microfinance/micro-lending/micro saving

- *credit
- *finance
- *lending
- *loans
- women
- gender

- control
- decision-making*
- empower*
- bargain*
- underserved/deprived/poor*
- expenditure*
- spend*

Keyword combinations relating individual words were used, depending on the keyword-search limitations of the database.

SCREENING STUDIES: APPLYING INCLUSION CRITERIA

We applied our inclusion and exclusion criteria in three stages. Initially, all search results were screened on title and abstract. This initial screening process (title screening) was carried out by only one reviewer. To minimise the risk of missing any relevant papers, we were over-inclusive in this round of screening —applying only the inclusion/exclusion criteria on region and intervention (see appendices 2 and 3 for more details). In the second stage (abstract screening) all the results from title screening were again screened, and only those meeting our criteria of inclusion on region and intervention were entered into EPPI-Reviewer.

Full texts of all likely material for inclusion were then sought and a third round of screening conducted. Full texts in languages other than English, which could not be translated within the timeframe of the study, were excluded.

In the third round of screening, we applied our inclusion/exclusion criteria on region, intervention, population, study design and outcomes (see appendices 2 and 3). The first 20% of the full texts were screened by two reviewers independently, and our decisions compared. To enable us to take on board the views of stakeholders and to ensure transparency of our approach, we had few rounds of discussions over Skype among the reviewers, experts and practitioners.

In most cases, we were in agreement in our screening decisions. We therefore divided the remaining papers between the review-team members and continued to screen them independently; that is, without double screening. If any reviewer was uncertain, we discussed the paper and reached a decision together.

As we screened, we also checked reference lists for relevant papers, which were then sought online. If they were not excluded on abstract (and we included all papers if at all uncertain), the full text was then collected and screened again.

2.3   IN-DEPTH REVIEW PROCESS

SELECTION OF STUDIES FOR SYNTHESIS

Eligible studies identified were imported from different sources to EPPI-Reviewer 4.0 software, and each study went through inclusion/exclusion criteria at successive stages before a final decision as to whether to include it for the in-depth review was made. The following steps were adopted:

Title screening: The first step was quickly to screen the title of the article/report for judging the relevance in relation to the review question. In this process, the review team examined country context, intervention type, indications of outcomes, type and year of publication. It was observed that most of the studies did not have information pertaining to all parameters that were screened for assessing relevance from the title. We shortlisted the studies to the next stage if they met either the intervention type criteria or outcome criteria. We also shortlisted studies that met country-context criteria, along with either outcome or intervention type. Three sets of studies were identified in this process: (a) studies that were found suitable for further evaluation — that is, for abstract screening; (b) studies that were not relevant to the review question; and (c) studies for which a decision could not be made on the basis of title, which were also passed on for abstract screening.

*Abstract screening***:** The shortlisted studies from the title-screening stage were examined in the light of the inclusion/exclusion criteria for the availability of information on intervention type, outcomes and methodology. The studies that did not meet the inclusion criteria in terms of outcomes, intervention type and methodology were considered non-suitable for further review. Studies that were ambiguous in terms of suitability (intervention type, outcome and methodology) were shortlisted for the next stage of full-text review.

*Full-text screening***:** After the titles and abstract-screening process, the shortlisted studies qualified for full-text screening. Prior to this, duplicates were identified and deleted using the review-management software. The full-text review examined studies closely in terms of nature/type of intervention, methodologies, study design and outcomes. Only studies that followed the indicated pathway in figure 2.1 from intervention to impact, and that met all inclusion criteria, were shortlisted for the quality-appraisal process and synthesis.

Figure 2.1: Process flow pathway
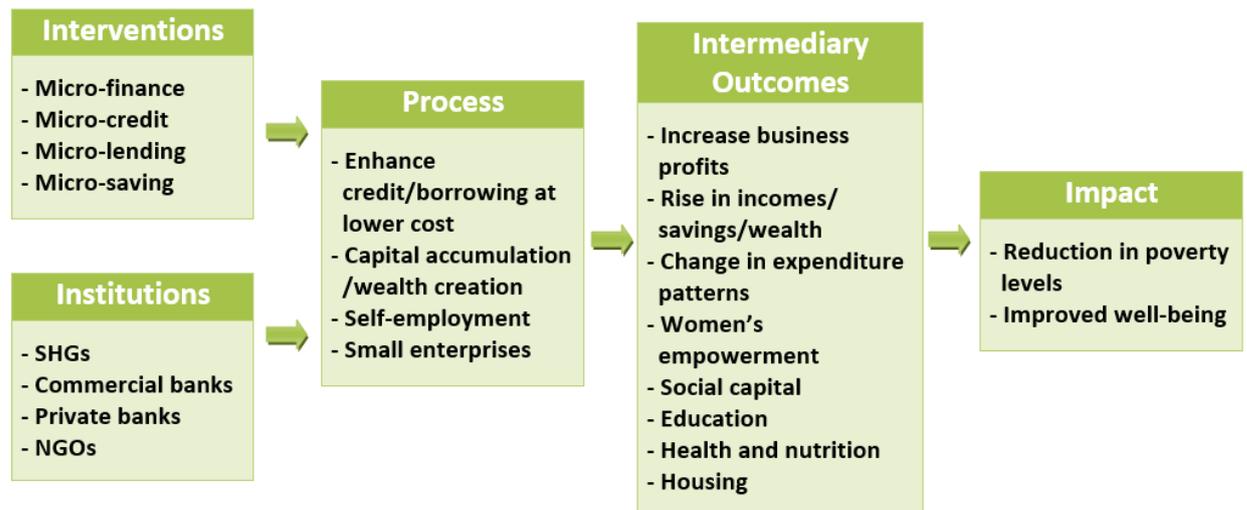
At each stage of this process, two reviewers worked independently and, whenever there was a disagreement, a third reviewer assessed the suitability of the study and the final decision was based on the majority decision of the reviewers.

2.4   CHARACTERISING INCLUDED STUDIES

After the screening stage, a rapid characterisation of the studies was carried out, based on the population target, the type of intervention, comparator, and outcomes (PICO) framework. Additional to the PICO framework, we also developed additional codes to describe the studies; these were study design, regional minimum number of subjects per study, background of the participants, baseline status, minimum information for characterising the intervention, outcome measures of interest and statistical/econometric analysis. Thoughtfully and unambiguously specifying the parameters for each study allowed for refining the scope of the review at the synthesis stage. This also helped us to achieve a broad characterisation and overview of the included studies. Characterisations of the studies included in the review are presented in the subsequent sections.

QUALITY-ASSURANCE PROCESS

Our review processes, inclusion and exclusion criteria, electronic-search string, coding sheets and synthesis, were piloted initially and discussed among the team members. Appropriate changes were incorporated into the process.

We adopted the following approach to reduce researcher bias and ensure that all the relevant studies were included in our review.

The inclusion criteria were initially applied to a sample of papers by a team of two reviewers working independently and there was continued deliberation and discussion until all differences were resolved and inter-researcher correlation reached almost 100%. The same

approach was adopted to screening the potentially relevant full reports. One final check was added when three reviewers assessed the quality of the final 'cut' of papers.

Three members of the review group, working together, discussed and compared their decisions as they went along, carrying out the coding (see Appendix 11) of included papers. The papers were divided in equal proportions further to ensure consistency in the way the coding frame was applied to the synthesis. A fourth member of the team was available to discuss any uncertainties. In case of confusion or disagreement between members, the expert member was consulted. All the shortlisted studies passed to the next stage of assessing for risk of bias.

2.5   QUALITY APPRAISAL AND RISK OF BIAS

In the quality-appraisal stage, the included studies were assessed for methodological quality and for the quality of the theoretical framework. The shortlisted studies from the full-text-screening stage were examined and data were extracted on study design, method of analysis, type of intervention, and other relevant quantitative information. In the methodological quality-assessment stage, we also extracted data and assessed studies for the availability of a theoretical framework in explaining the outcome in terms of economic outcome, social outcome and women's empowerment. Further, coherence between theoretical framework and discussion of data collection and appropriateness of techniques of analysis were also examined. The quality of theoretical reasoning underlying the quantitative-data analysis was the primary motive for the quality-appraisal process.

Impact evaluations of MF interventions are complicated by a range of factors that influence outcomes, and by biases caused by self-selection of households and individuals for programmes. The differences in outcomes between participants and non-participants might result from pre-existing differences and cannot be attributable to the programme under evaluation (Romani 2003). In the case of assessing impacts on income and consumption, the likelihood of confounding, particularly by other government programmes, means that an appropriate method of addressing attributes had to be developed. There also exists the possibility of overestimation of the impacts in case of simple before-and-after comparisons. Further relying on small samples could emerge as a weakness in evaluating the impacts, especially on social outcomes. Less rigorous standards of evidence would also throw light on some of the intermediate outcomes, but falls short of addressing the final impacts effectively, especially in the context of women's empowerment.

Studies included in the review were critically appraised according to risk of bias in internal validity and external validity and publication bias. The assessment of risk of bias was based on (a) quality of attribution methods, (b) the possibility of spillovers in comparison groups, and (c) outcome and analysis reporting biases. The studies were screened for selection bias, performance bias, detection bias, attribution bias and reporting bias, as discussed in Appendix 12. Risk of bias was assessed on both study design and implementation of the impact assessment. Low-risk-of-bias studies were identified as those in which clear measurement of and control for confounding was made. Studies were identified as having medium risk of bias

when there were moderate threats to the validity of the attribution methodology, mainly arising out of inadequate description of interventions or comparison groups. High-risk-of-bias studies were all other studies, including those where study design was questionable, and whose internal validity was not confirmed, such as those where comparison groups were not matched on observables. Two reviewers (Suresh Babu and Arun Kumar) undertook the critical appraisal of the risk of bias.

Using the Cochrane collaboration tool for assessing risk of bias, studies were appraised on the basis of scores within six domains (seven criteria): selection bias, performance bias, detection bias, attrition bias, reporting bias and other bias (Higgins and Green 2008). The seven criteria are 1) random sequence generation (that is, description of the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups); 2) allocation concealment (that is, whether sufficient detail has been provided on intervention allocations); 3) blinding of participants and personnel; 4) blinding of outcome assessment; 5) completeness of outcome; 6) the level of selectivity in reporting; and 7) any other important bias not covered in other domains in the tool. Studies were scored as low-risk, high-risk and medium-risk, with low-risk having a score of '3', followed by medium-risk, having a score of '2', and high-risk, having a score of '1' under each criterion. The scores of the studies consequently ranged between 7 and 21, with 21 signifying that the study has the lowest risk, indicating high validity. In case of a study scoring 1 or 2 in any of the indicated seven parameters, that study was classified as medium-risk. Studies scoring 1 or 2 in more than one of the seven parameters are classified as high-risk, indicating low validity.

Further, based on Duvendack et al. (2011), studies were assessed on research design and statistical method of analysis, from low threat of validity to high threat of validity. Studies using randomised assignment and credible quasi-experimental (QE) methods with data analysis, such as regression discontinuity (RD), difference in differences (DID), statistical matching (SM) and instrumental variables (IV) are assessed and judged as low-threat-to-validity. Pipeline studies using multivariate or bivariate methods, and panel studies using simple multivariate methods only, are classified as having a medium threat to validity. All other studies, including cross-sectional (CS) with/without studies that use multivariate regression and tabular methods, are classified as having a high threat to validity. Studies using randomised assignment (RA) and credible QE methods, with data analysis such RD, DID, SM and IV, are assessed and judged as low-threat-to-validity. Pipeline studies using multivariate or bivariate methods, and panel studies using simple multivariate methods only, are classified as having medium threat to validity. All other studies, including CS with/without studies that use multivariate regression and tabular methods, are classified as having a high threat to validity.

PUBLICATION BIAS

We have assessed publication bias in meta-analysis using funnel-plot measures standard error (SE) in vertical axis and standardised mean difference in the horizontal axis. The top of the

graph indicates large trials, because studies with large samples have small standard errors and the vertical axis has to be inverted — that is, standard error '0' at the top. The statistical power of the trial is determined by factors such as number of participants who have benefited in the case of dichotomous outcomes, and the standard deviation of the responses in the case of continuous outcomes, in addition to sample size. That is, the standard error is used to summarise other factors (smaller studies with lower quality may have exaggerated effect sizes). Plotting the standard error on the reversed scale places the larger and most impactful studies on top.

Egger's test is a funnel-plot-asymmetry (small-study-effect) test. It tests whether the association between estimated intervention effects and a measure of study size (such as the standard error of the intervention effect) is greater than what might be expected to occur by chance. For the outcome measure on the continuous or numerical scale, testing for the association is straightforward. Using the publication-bias approach (Egger et al. 1997, 1998; Harbord et al. 2005; Peters et al. 2008) a linear regression is estimated for assessing the intervention effects and their standard error. Estimates from small 'n' studies (that is, less precise studies with larger standard errors) will show more variability in the effect-size estimates, thereby yielding a wider scatter of the plot. Estimates from larger 'n' studies will show less variability in effect-size estimates and, consequently, have a narrower scatter of the plot. No empirical investigation has examined choice of axis for funnel plots for continuous outcomes (Higgins et al. 2008).

2.6   METHODS FOR SYNTHESIS

As the included studies were characterised by substantial heterogeneity in terms of the data, methods of analysis and outcomes used, we chose to employ two approaches to synthesise the results. Firstly, we used a meta-analysis technique to synthesise evidences that are amenable to the use of statistical techniques. It should be noted that this set of studies forms a subset of the total studies identified for synthesis. Secondly, a narrative approach was used to synthesise evidence of studies included. In our view, this combination was an approach better suited to addressing the review question. Textual narration would also help in bringing more clarity to the study contexts and make heterogeneity between studies more transparent.

The included studies examined the impact of an intervention of either micro-credit or an MF programme. These included studies are from the South Asian countries: namely, Bangladesh, India, Pakistan, Afghanistan and Sri Lanka. Studies were categorised based on the impact of the MF intervention on income/savings of the households, health, education and women's empowerment, assets, consumption and social capital. We then drew on the relevant studies, which:

- measured the impact of MF, micro-credit on the incomes of the poor;

- measured the impact of MF, micro-credit on the wealth of the poor;

- measured the impact of MF, micro-credit on the level of poor people's expenditure and asset accumulation (in terms of livestock);

- measured the impact of MF, micro-credit on other non-financial outcomes for the poor, such as health, education, women's empowerment.

SELECTION OF OUTCOME DATA

We included all eligible studies, irrespective of whether they reported impacts or intermediate outcomes. We examined intermediate outcomes, such as an increase in business profits, a rise in income/savings/wealth, changes in expenditure patterns, women's empowerment, creation of social capital, better opportunities for education, enhanced benefits of nutrition and better health, and better housing. While some studies reported single outcomes for an intervention, there were some that reported multiple outcomes for a single intervention, and these have been collated separately. Table 2.3, below, shows an indicative list of the different ways of measuring outcomes reported in included studies.

Table 2.3: Indicative measurements of outcomes

Increase in business profit	• increase in business revenue • increase in sales • new-income-generating activity
Rise in income/savings/wealth	• creation of new assets • increase in savings • increased employment opportunities • reduction of debts • improved access to finance • reduction in seasonality of income and jobs
Change in expenditure patterns	• increased food consumption • diversified consumption baskets • enhanced expenditure on non-necessities • changes in patterns of consumption
Better opportunities for education	• increased years of schooling • better schooling • moving to post-school education • acquiring technical/professional education • enhanced skill-based learning
Enhanced benefits of nutrition and better health	• reduction in morbidity rates • access to better health facilities • improved nutritional status of the households • change in health-seeking behaviour
Better housing	• shifting to a more permanent structure • increasing household amenities • enhanced sanitation facilities • modification, extensions and repairs to the existing house

Creation of social capital	• creation of civic amenities • increased provisioning of local public goods • interactions and creation of social networks • increased awareness driven by group activities • increased mobility beyond caste/religious institutions
Women's empowerment	• change in healthcare-seeking behaviour of women • ability to influence household decisions • starting an entrepreneurial venture • enhanced possibilities for entering into labour market • increased awareness of reproductive rights • enhanced awareness about the business and financial systems (banking) • ability to influence and articulate their needs to the local civic bodies • increased self-esteem and sense of capacity for solving problems

METHODS ADOPTED FOR META-ANALYSIS

To synthesise evidences from multiple studies, especially quantitative evidences, and to arrive at conclusions, we use meta-analysis (Donna et. al. 2000, Haidich 2010). Meta-analysis is the statistical combination of results from two or more separate studies (Green et al. 2011). Meta-analysis combines evidence from independent studies to evaluate its magnitude and statistical significance on summary effect. The use of meta-analysis has been extensive in medical, social sciences, economic and public-policy research. For performing meta-analysis, quantitative evidences were obtained from variables that provided evidences affecting various outcomes of MF. The evidence in the treatment group was compared to the evidence in the control group. In order to combine different analysis, we first put treatment estimates on a common scale. Given the diversity of methods followed by studies, we use different effect-size formula, in each case measuring improvements in the outcome variables.

The meta-analysis consisted of the following steps:

- Extraction of parameters to be used in effect-size calculation.
- Selection of effect-size formula to be used for each study.
- Effect-size calculation
- Collation of effect sizes and merging with study characteristics.
- Meta-analysis across studies by outcomes and sensitivity analysis by removing outliers.
- Meta-analysis across studies based on sub-groups in the context of country, intervention, and risk of bias.

We carried out meta-analysis on the outcomes obtained from 26 included studies. Among the 26 studies, two studies used experimental research (randomised controlled trial, RCT)

(Banarjee et al. 2009 and Field et al. 2012) and the rest of the studies used QE, before/after cross-sectional design. The studies (refer to Appendix 10) have used econometric techniques such as, IV, Propensity Score Matching (PSM), 2 Stage Least Square (2SLS), Limited Information Maximum Likelihood (LIML), DID and RD.

We calculated the effect sizes based on reported outcome data. These outcome data were collected, along with information on sub-groups such as country, research design and types of intervention. Outcome variable is normally measured in terms of dichotomous data and continuous data. The intervention effect can be measured using odds ratio, risk ratio or risk difference from dichotomous outcomes, and in terms of mean differences or standardised mean differences for continuous outcomes. Meta-analysis was performed using EPPI-Reviewer 4.0 on the following outcomes: income, assets, consumption/expenditure, education, women's empowerment and employment.

We implemented random-effect meta-analysis because we can reasonably expect effect sizes to differ across studies due to the range of factors, including contextual variation and study design. Contextual variations could be related to location, type of intervention, beneficiary groups, implementation process and duration of participation. Random effects meta-analysis produces a pool effect size with greater uncertainty attached to it in terms of wider confidence intervals than a fixed-effect model.

The effect size can be calculated using different techniques (Rosenthal 1991, Smith and Glass 1997, Lipsey et al. 2001, Ellis 2010, Green et al. 2011). The formulae used for calculating effect sizes for each of the studies are presented in Appendix 21.

The heterogeneity of effect sizes was computed with the statistic 'I' square, a measure proposed by Higgins et al. (2003). This measure captures the proportion of total variance across the total observed effects, which is explained by the heterogeneity between the effect sizes. The 'I' square is a descriptive statistic and not an estimate of any underlying quantity. Therefore, alternatively, we report an estimate of the variance of true effect size (that is, 'τ' square, which is a measure that can be seen as an estimate for the between variance). The smaller the 'τ' square, the narrower is the interval confidence around the summary effect. Forest plots are used to illustrate the synthetic effect of the sample of studies. It shows the treatment effect of each study, its standard error, confidence intervals and the overall effect. Funnel plots are used to assess the publication bias for validity of meta-analysis. 'The funnel plot is based on the fact that precision in estimating the underlying treatment effect will increase as the sample size of component studies increases' (Egger et al. 1997). Therefore, the results from small studies will scatter widely at the bottom of the graph, with the spread narrowing among larger studies. In case of an absence of bias, the plot will resemble a symmetrical inverted funnel and, in the case of a publication bias, it will be skewed and asymmetrical.

LIMITATIONS TO THE APPROACH

Synthesis through meta-analysis is only possible for comparable studies. Comparability could be either on a conceptual level or on similar statistical/econometric approaches. However, studies could be varied due to differences in the treatment indicator or analytical methods. It should also be noted that there exists heterogeneity in outcome variables across studies. As the studies are diverse, comparability issues are more pronounced in studies that are distinctly different or pooled. In our analysis, we have limited ourselves to studies with comparable outcomes, but included diverse econometric methods. As is well established, studies that are methodologically flawed or of low quality should be avoided in the meta-analysis (Vaessen et al. 2014). We have included one study of low quality in our analysis; however, sensitivity analysis excluding that study has also been carried out. Heterogeneity of treatment indicators could be either membership or participation in intervention, which is dichotomous or, in some instances, when they are measured in terms of length of membership or the number of loans taken, which is continuous. We pooled studies with dichotomous variables and omitted treatment indicators that are continuous, as this raises issues of comparability. Several studies included in the meta-analysis had more than one treatment variable and many effect-size estimates could be recovered when the treatment indicator was binary. One way to address this limitation is to combine effect sizes and arrive at a single effect size; however, such an approach depends upon the method by which we arrive at the single effect size. Hence, we do not combine effect sizes. Further sample sizes could vary across interventions, with the same study posing problems in aggregating effect sizes.

METHODS USED FOR NARRATIVE SYNTHESIS

As the studies were analyzed through various processes after they were shortlisted, based on abstract screening, full-text screening and study characterisation, we were able to extract sufficient information on the variables used in the analysis, and the outcomes and impacts of the MF interventions. This information enabled us to embark on the content analysis of the studies that were not a part of the meta-analysis. Major and recurrent themes in literature were identified and thematic synthesis was carried out to summarise the findings of the primary studies (Dixon and Woods 2004). Narrative description within thematic headings based on outcomes clearly highlights the heterogeneity of the studies and contextualises the studies. The themes identified from the included studies are presented in figure 2.2.

The themes observed in the studies are presented in the form of short textual descriptions in Appendix 9. Knowledge gained about themes by the reviewers in an in-depth review of the studies was used to develop a detailed description of the intervention to outcome/impact pathways. The chosen outcomes for the themes — economic, social and women's empowerment — were identified so as to include evidence that can encompass multiple forms of benefits that could be attributed to a specific outcome. For example, the outcome 'consumption' could mean increased or decreased consumption of nutritional products, basic food consumption, household consumption, and its spillover effects. Some of the studies had

outcomes that cut across themes. We attempted to identify commonalities across themes and looked into causal links that were repeated.

Figure 2.2: Thematic description of outcomes
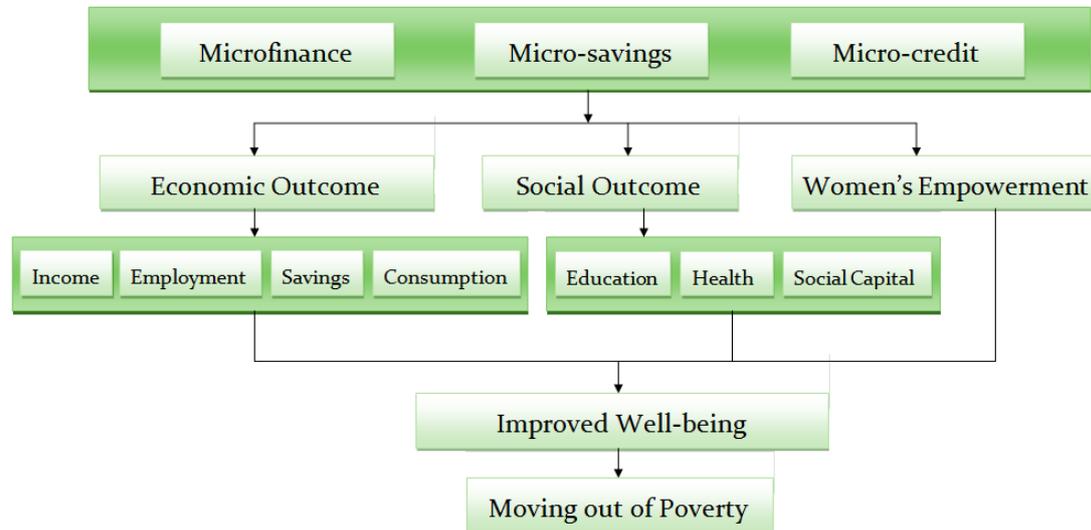
2.7 SUMMARY

This chapter provides a description of the systematic review methods used. We followed a detailed process for the searching and screening of the studies to identify relevant studies for the review. We extracted data on key characteristics, study designs, and outcomes, and subsequently assessed the quality of studies included for the synthesis. For synthesis, we used two approaches: meta-analysis and narrative synthesis. The study followed the steps outlined in the protocol document for this systematic review. The review question, the inclusion/exclusion criteria, and the coding tool were finalised at protocol stage and were strictly adhered to throughout the review process.

3   IDENTIFYING AND DESCRIBING STUDIES: RESULTS

3.1   AIM

This chapter reports the results of the identification process for the studies and describes them. A total of 69 studies qualified for inclusion after applying the inclusion and exclusion criteria. We describe these studies in terms of the context, the evidence based on effects on outcome, and research design. Studies reported on any intermediate or final outcomes along the causal chain have been characterised. Some of the studies characterised report only findings for single outcomes, while others report on multiple outcomes.

3.2   RESULTS FROM SEARCHING AND SCREENING

The process of identifying studies was followed, as explained in Chapter 2. An electronic search yielded 6,189 studies and, from a hand search of journals, books, and backward and forward tracking of references, we identified 42,772 studies, yielding a total of 48,961 studies. Based on the title screening of all the identified studies, 3,061 studies qualified for abstract screening. After the abstract screening, we had about 1,200 studies shortlisted for stage one of full-paper screening. In stage one, 969 studies not conforming to the study question were eliminated. The rejection criteria were (a) non-South Asian countries; (b) intervention not conforming to our inclusion criteria; (c) qualitative studies; and (d) policy and review studies. This resulted in 233 studies, which qualified for stage two of full-text screening. At the end of the second stage of full-text screening, 39 studies qualified for the scoping exercise. At this stage, 194 studies were rejected, based on (a) studies that focused only on social-capital creation and occupational rehabilitation; (b) studies not focusing on direct benefit of MF; (c) studies that focused only on social empowerment, without the MF linkage; (d) studies focusing on lending-model efficiencies; and (e) studies that focused on empowerment not linked to MF. At this stage, we added 30 more studies that we obtained from web searches and key-author searches, which met the inclusion criteria. Therefore, we shortlisted 69 studies for the review synthesis, of which nine were replication studies, based on the same dataset. The 60 studies identified were based on the process-flow criteria of Interventions — process — intermediary outcome — impact, as described in figure 2.1 of Chapter 2.

Out of the 69 studies, 26 were found to be eligible for conducting meta-analysis and 64 studies qualified for narrative synthesis. There were 21 studies overlapping between meta-analysis and narrative synthesis, and five studies were exclusively included for meta-analysis. A schematic overview of the study-identification process is presented in figure 3.1.

Figure 3.1: Schematic overview of study identification

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                                 │
┌──────────────────────┐    ╱◇◇◇◇◇╲              ┌─────────────────────────────┐
│ Inclusion Criteria:  │   ╱ Stage 1: Full- ╲    │ 969 studies not conforming to│
│ - Quantitative studies│  ◇  paper screening ◇  │ the study question           │
│ - Intervention       │   ╲               ╱     │ Rejection Criteria:          │
│ (microfinance, credit,│   ╲◇◇◇◇◇◇◇◇◇◇◇◇◇◇╱      │ - Non-South Asian countries: 477│
│ savings, etc.)       │      │  Rejected          │ - Interventions: 22          │
│ - South Asian Studies│      │ ─────────────────→ │ - Qualitative studies: 9     │
│ - Outcomes (financial│   Accepted               │ - Policy and review studies: 461│
│ protection,          │      │                    └─────────────────────────────┘
│ empowerment,         │◀────▶┌────────────────────┐
│ poverty, etc.)       │      │ 233 shortlisted for │
│ - Study design (RCT, │      │ stage 2 of full-paper│
│ experimental, etc.)  │      │ screening           │
└──────────────────────┘      └────────────────────┘
```

Inclusion Criteria:
- Quantitative studies
- Intervention (microfinance, credit, savings, etc.)
- South Asian Studies
- Outcomes (financial protection, empowerment, poverty, etc.)
- Study design (RCT, experimental, etc.)

233 shortlisted for stage 2 of full-paper screening

969 studies not conforming to the study question
Rejection Criteria:
- Non-South Asian countries: 477
- Interventions: 22
- Qualitative studies: 9
- Policy and review studies: 461

Stage 1: Full-paper screening — Accepted / Rejected

Stage 2: Full-paper screening — Accepted / Rejected

Inclusion Criteria:
- Studies with direct linkage to benefits from microfinance, credit, etc.
- Impact Studies

115 shortlisted for Scoping

118 studies not conforming to the study question
Rejection Criteria:
- Only social-capital-creation studies
- Occupational-rehabilitation studies
- Studies not focusing on direct benefit from microfinance
- SHG-linked social-empowerment studies without microfinance linkage
- Lending-model efficiency studies
- Empowerment not linked or backed by microfinance, credit, etc.

Quantitative Studies — Accepted / Rejected

76 Studies not conforming to the study question

39 shortlisted for Systematic Review

Additional Studies:
Studies from web searches, key-author searches and author correspondence; 30 studies for inclusion

Total 39 studies shortlisted from web searches and key-author searches, etc., finalised to meet the inclusion criteria for systematic review (N=69)

Narrative Synthesis
64 Studies
43 studies exclusively for Narrative Synthesis
21 studies overlapping with Quantitative Synthesis

Quantitative Synthesis
26 Studies
5 studies exclusively for Quantitative Synthesis
21 studies overlapping with Narrative Synthesis

3.3   DESCRIPTION OF INCLUDED STUDIES

Of the 69 finally shortlisted studies that met the criteria to be included in the synthesis, 57% of them were from the electronic database, followed by website searches (22%), and cross references (14%). The study sources and classification based on type of publication for the 69 included studies are presented in figure 3.2 and figure 3.3, respectively. Of these 69 publications, 46 studies were from refereed journals. Only four studies were from unpublished sources and 19 studies were from book chapters and reports. The majority of the studies have discussed only one intervention that is micro-credit or MF in the broader sense. The number of studies focusing on MF and micro-credit were almost equal, possibly because of the interchangeable usage of these two terminologies in the context of intervention. The reviewed studies generally have a time lapse of three years between intervention and follow-up. This applies both to designs that included a baseline and those with only 'endline' data. Figure 3.4 presents the intervention type for the chosen studies.

Figure 3.2: Study source (n = 69, code mutually exclusive)

Study sources

Source	Number of studies	Percentage
Electronic search	39	56.52%
Website research	15	21.74%
Cross references	10	14.49%
Author correspondence	1	1.45%
Google and google scholar	4	5.80%
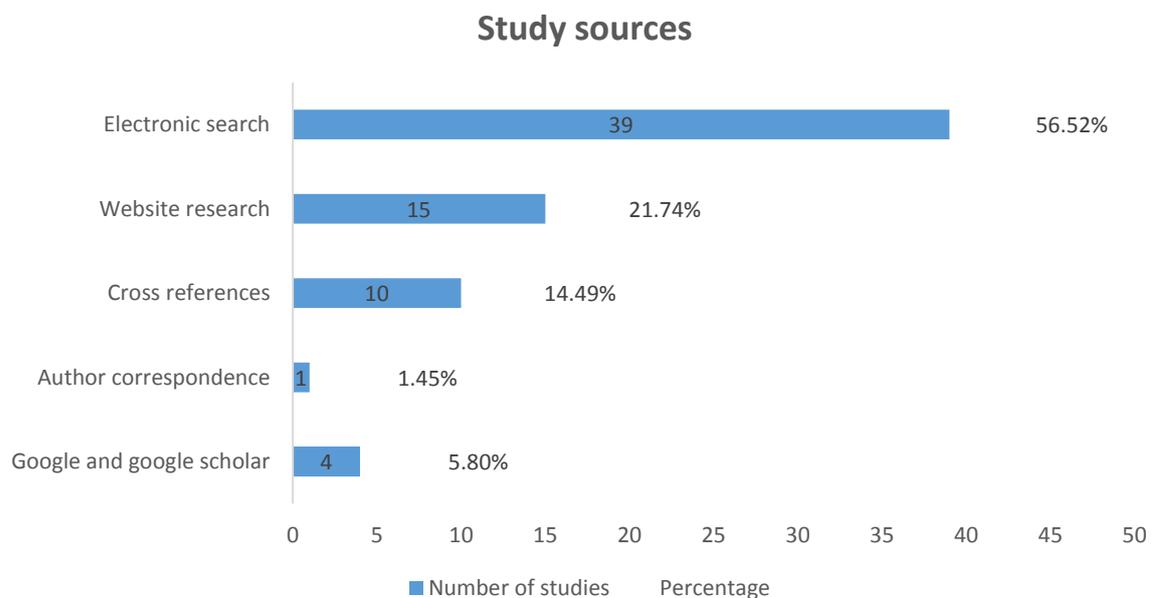
Figure 3.3: Type of publication (n = 69, code mutually exclusive)

No. of studies - based on publication

■ Journal publication ■ Reports ■ Working papers ■ Book chapter

1%(1)
6%(4)
26%(18)
67%(46)
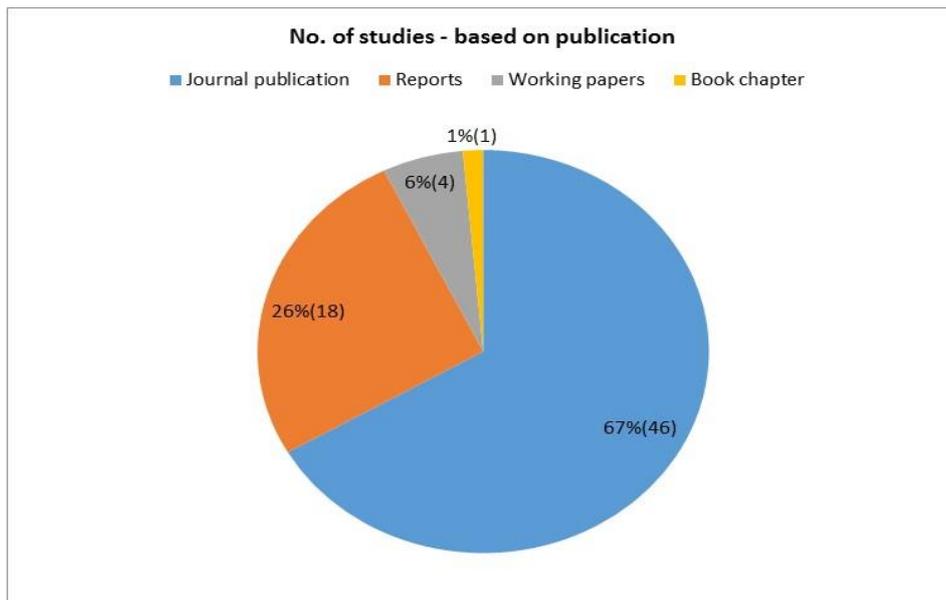
Figure 3.4: Classification of studies based on intervention (n = 69, code mutually exclusive)

No. of studies - based on intervention

■ Micro-credit ■ Microfinance ■ Micro-saving

2%(1)
46%(32)
52%(36)
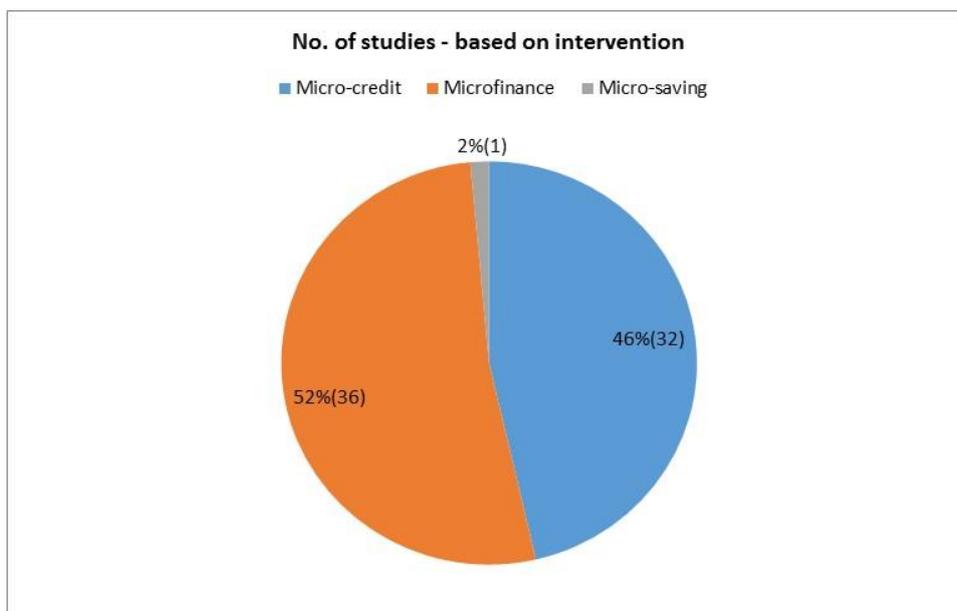
A majority of the studies in the South Asian context were focused on Bangladesh (n = 40, 58%). We found very few studies pertaining to Pakistan and Sri Lanka, and none pertaining to Afghanistan and Nepal, that were qualified for inclusion in the review. Surprisingly, we did not find any study pertaining to Bhutan or Maldives, even during our initial screening. Figure 3.5 presents the studies chosen for the review by country.

Figure 3.5: Studies chosen for review by country (n = 69, code mutually exclusive)
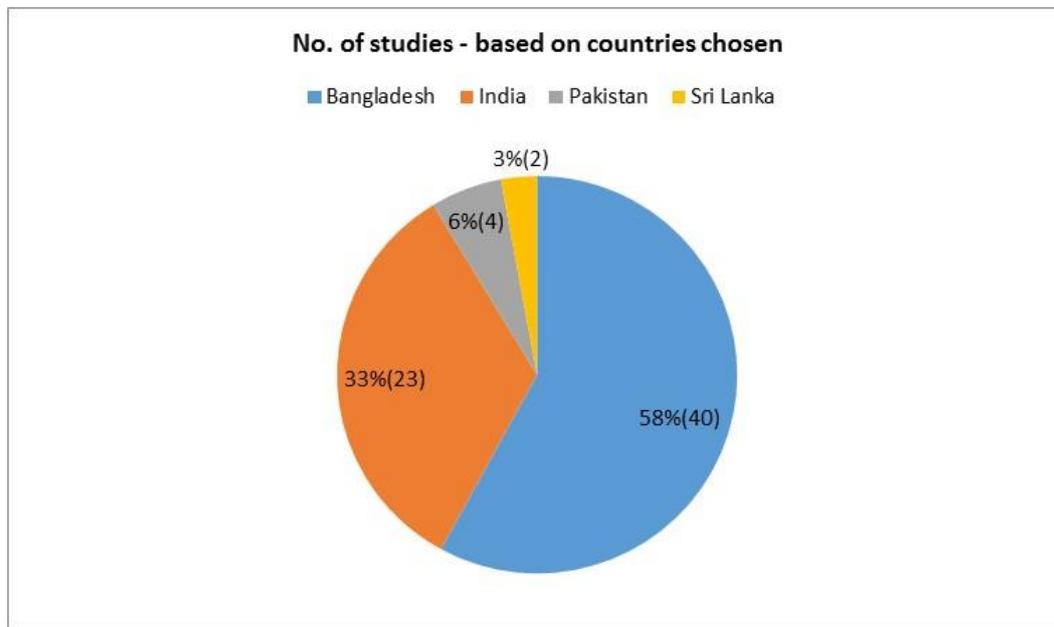
As indicated in the rationale for choosing the year of publication, we found only one study published before 1995. Of the 69 studies chosen, 46 studies were published post-2005 (figure 3.6 provides the classification of the studies by year of publication). A possible reason for this is that, in many regions, studies have focused on data a few years after the intervention. Among the research methods adopted, studies have predominantly used an observational approach; the next most common approach is longitudinal. Most of the longitudinal studies used data from Bangladesh. Figure 3.7 presents the summary statistics of the research methods used in the chosen studies.

Figure 3.6: Year of publication (n = 69, code mutually exclusive)
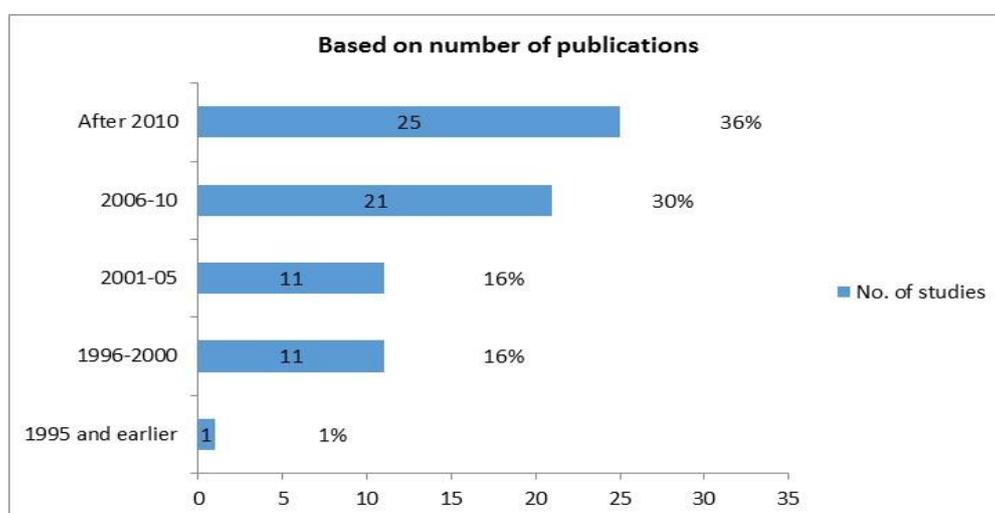
Figure 3.7: Research methods used in the study (n = 69, codes mutually exclusive)
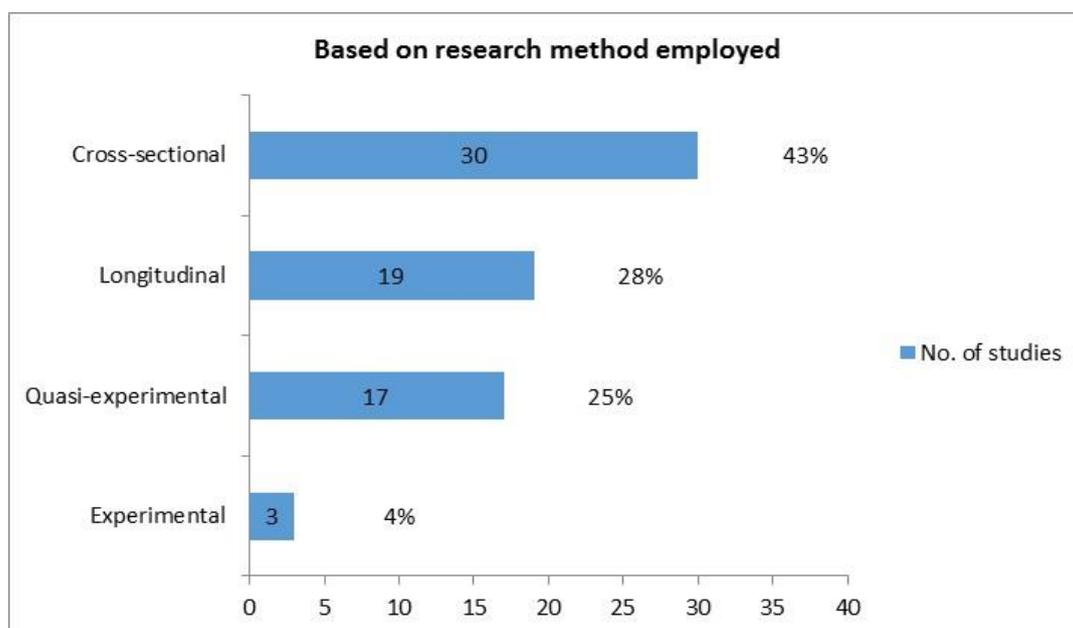
Studies have used different research methods, including experimental, QE, longitudinal and cross-sectional methods, in addition to different statistical and econometric methods, to analyse the data. Even though all these methods attempt to ensure randomness in the selection of the unit of analysis, the extent to which such randomness is translated into the sample selection varies across these methods. Furthermore, it should be noted that the experimental method provides an ideal setting for analysing the outcomes, as it controls for a set of extraneous factors, which might confound the relationships between interventions and outcomes. In QE studies, while some of the factors are controlled, other factors that might influence the outcomes are not controlled. In our assessments of quality based on risk of bias, we therefore accord higher weighting to experimental studies than other methods. Longitudinal studies provide the possibility of revisiting the same sample in further rounds of empirical investigation, while, in contrast, cross-sectional comparisons are often made between groups/individuals that have been exposed to interventions and those that have not been exposed. Table 3.1 presents the data-analysis methods used in these studies. Studies have predominantly relied on cross-section, with a comparison group for analysing the data (only studies having a comparison group and before/after studies have been included in the synthesis). CS studies in which comparison groups are included rely on comparing the effects of intervention across samples drawn from either the same or a different geographical area, while before/after studies use comparisons of the same sample pre- and post-intervention. Only about 38% of the studies were classified as before/after studies. Table 3.1 presents the data-analysis method used in the studies.

Table 3.1: Data-analysis method

Method of analysis	No. of studies	%
Multivariate regression analysis (OLS, IV, 2SLS)	20	33%
Logistic regression (Probit, Tobit)	18	30%
Difference-in-difference analysis	4	7%
Propensity score matching	10	17%
Other treatment effect model	6	10%
Simple statistical method	2	3%
Total	**60**	**100%**

Note: Nine studies have not been included in this table, as they are replication studies.

We found that 75% of the studies (n = 45) fall into the low-risk-of-bias category, 20% in the high-risk and 5% in the medium-risk category (nine studies that were repetition studies are not included) (see Table 3.2).

Table 3.2: Risk of bias validity (Codes mutually exclusive)

Validity	No. of studies	%
Low risk of bias	45	75%
Medium risk of bias	3	5%
High risk of bias	12	20%
Total	**60**	**100%**

As indicated in section 2.5.1, Table 3.3 indicates that more than half the studies are classified as posing a low threat to validity. Only 20 studies were classified as posing a high threat to validity and 11 were classified as posing a medium threat to validity, based on study design and statistical technique adopted.

Table 3.3: Threat to validity in the included studies (n = 60, code mutually exclusive)

Research Design	Methods of Analysis		
	IV/PSM/2SLS/	Multivariate	Tabulation
RCT		3	0
Pipeline	2	2	0
Panel or b/a or w/wo	13	9	0
Either b/a or w/wo	1	4	0
Observational	19	15	1
Legend	Low threat to validity	38	High threat to validity	20
	Moderate threat to validity	11		

Note: IV: instrumental variables, PSM: propensity score matching, 2SLS: two-stage least squares, LIML: limited information maximum likelihood, DID: difference in differences, and RD: regression discontinuity.

Source: Duvendack et al. (2011).

The studies also varied with regard to outcome variables. The outcome measurements were grouped under the classifications of economic outcomes (n = 50), social outcomes (n = 23) and women's empowerment (n = 13) (it should be noted that some studies have multiple outcomes, making n> 69). Classification of studies on the basis of outcome depended on the variable used to measure the outcomes. Grouping of these studies on the basis of outcome did force fit some studies into more than one outcome.

It appears that most of the studies focused on economic outcomes; that is, impact on income and consumption expenditure (Berg 2010, Islam 2011, Pati and Lyngdoh 2010, Rahman 2010, Woutersen and Khandker 2014). Impact on consumption expenditure is another important variable of focus, irrespective of the country of intervention (Bashar and Rashid 2012, Pakistan; Chemin 2008, India; Czura 2010, Sri Lanka; Hoque 2004, Bangladesh). Impact on vulnerability to shocks has been investigated as another outcome variable (Swain and Floro 2012). Impact on health is also an important outcome variable in the category of social outcomes (Montgomery 2005, Pakistan; Saha 2014; India). Social-capital formation has been investigated particularly in the context of Bangladesh (Kuchler 2012). Impact on education has been analysed in the contexts of Bangladesh, Pakistan and India (Khandker and Samad 2013, Setboonsarng 2008, Banerjee et al. 2009). Impact on women's empowerment has been analysed in the context of India and Bangladesh (Deininger and Liu 2013, Desai and Joshi

2013). Studies indicate that SHG-driven micro-credit has helped women acquire self-esteem, knowledge and power, which are used as indicators of women's empowerment (Pitt et al. 2006, Chowdhury 2009). Furthermore, some studies have provided evidence of increased women's empowerment, measured in terms of the ability of women to protect households in time of crisis (Garikipati 2008).

The table presented in Appendix 9 provides a descriptive overview of the studies included in the synthesis. The findings of the studies, the research design, and the causal relationship between these and the outcome variables, are also presented in Appendix 9. Appendix 14 provides the context of intervention, type of intervention, the target groups, and outcomes, along with risk-of-bias assessment.

3.6   COUNT OF EVIDENCE

The numerical summary of evidence obtained from 60 studies (excluding nine repetition studies), is provided in table 3.4. A total of 1,122 counts of evidence were obtained from the studies. This evidence has been classified as either positive or negative[8], with 765 examples of positive evidence and 357 examples of negative evidence. Classification as positive evidence implies that the impact of the intervention is beneficial to the participant, whereas classification as negative evidence indicates that the MF intervention has not led to the specific benefit for which the intervention was carried out. Furthermore, we have classified this evidence on the basis of type of intervention. We found that MF interventions provided 458 examples of positive evidence, followed by micro-credit, with 303. Interestingly, we also found that examples of negative evidence are more common in the context of micro-savings than are examples of positive evidence. Viewed from a different perspective, with regard to outcomes, the majority of the evidence was found in the context of economic outcomes (872), followed by social outcomes (177). The positive and negative evidence with regard to social outcomes in the context of micro-credit intervention seems to be more or less equal. Empowerment evidence, especially on MF interventions, is balanced (27 each for positive and negative), while micro-credit provides more evidence on positive outcomes, and micro-savings indicate more evidence towards negative outcomes.

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[8] Positive indicating that the treatment faired better than the control or before — after measurement in terms of the outcome indicator, however, the statistical significance of these outcomes had not been tested.

Table 3.4: Count of Evidence

Outcomes	Microfinance			Micro-credit			Micro-savings			Total		
	+	-	*Total*	+	-	*Total*	+	-	*Total*	+	-	*Total*
Economic outcome	368	145	513	237	94	331	4	24	28	609	263	872
Social outcome	63	25	88	47	42	89			0	110	67	177
Empowerment	27	27	54	19	0	19			0	46	27	73
Total	**458**	**197**	**655**	**303**	**136**	**439**	**4**	**24**	**28**	**765**	**357**	**1,122**

3.7 DESCRIPTION OF EVIDENCE USED FOR META-ANALYSIS

The impact on each of the identified outcomes used for meta-analysis was based on the effects on the factors affecting these outcomes as reported in the studies. For example, the outcome of 'expenditure' is measured by effects on 'monthly consumption expenditure', 'monthly consumption expenditure per capita', 'monthly consumption expenditure on food', 'monthly expenditure on non-food items', etc. The effect on each of these factors is identified as 'evidence'. Altogether, the 26 studies chosen for meta-analysis generated 341 evidences. One-hundred and eighty-three evidences were based on MF interventions, and the remaining 158 were based on micro-credit interventions. Two-hundred and forty-nine evidences were pertaining to economic outcomes, followed by 63 pertaining to social outcomes, and about 29 relating to women's empowerment. Table 3.5 presents the overall description of evidence based on outcomes and intervention.

Table 3.5: Description of the evidence used for meta-analysis

		Interventions		Total
Panel A: Evidence by different outcomes		**Microfinance**	**Micro-credit**	
1	Economic outcomes	128	121	249
2	Social outcomes	29	34	63
3	Women's empowerment	26	3	29
	Total	**183**	**158**	**341**
Panel B: Economic outcomes				
1	Impact on assets	23	31	54
2	Impact on business profile	19	5	24
3	Impact revenue and profits	14	3	17
4	Impact on consumption/expenditure	22	27	49
5	Impact on employment	22	30	52
6	Impact on income	17	13	30
7	Impact on savings	9	7	16

8	Impact on poverty index/status	1	5	6
9	Improved access and borrowing finance	1	0	1
	Total	**128**	**121**	**249**
Panel C: Social outcomes				
1	Impact on education	10	18	28
2	Impact on health	14	7	21
3	Impact on social capital	4	8	12
4	Impact on vulnerability to shocks	1	1	2
	Total	**29**	**34**	**63**
Panel D: Women's empowerment				
1	Empowerment	**26**	**3**	**29**
Total		**183**	**158**	**341**

The numerical summary of the 341 evidences obtained from 26 studies that qualified for inclusion for meta-analysis show interesting trends. Although the evidences obtained from other outcome indicators, such as vulnerability to shocks, have been documented, the synthesis was restricted to evidences of impacts on income, assets, consumption/expenditure, employment, education, and women's empowerment, due to lower number of evidences for other outcomes. Even though most of the studies chosen for synthesis examined multiple outcomes (refer to Appendix 9), the predominant impact on interventions was more pronounced for economic outcomes than for other outcomes, based on the evidences.

MF interventions have resulted in more economic outcomes than social outcomes or women's empowerment outcomes, while micro-credit has resulted in more social outcomes. With regard to impact on assets and employment, micro-credit has resulted in more outcomes than MF interventions. With regard to empowerment, MF interventions yielded more outcomes than did micro-credit (refer to Table 3.4). The included studies provided information on characteristics such as size of land holdings, age, and sex of the participants, as well as non-participating households. However, the degree of participation and its impact on the outcome variable has been analysed only in a very few studies (Hussain and Nargis 2008, Berg 2010 and Augsburg 2006). Furthermore, it is unclear how representative the study participants are, in terms of being able to draw broad generalisations based on the evidence produced by the studies.

3.8   SUMMARY

In this chapter, a summary of the description of the studies, research design and statistical methods adopted for the study is presented. The studies included in the review have been classified in terms of source, type of publication, nature of intervention, and the country in which the intervention has been carried out. Further classification in terms of research methods, data analysis and research design is also provided. Description of the included

studies indicates heterogeneity in terms of type of intervention and outcomes. To ascertain the quality of studies included, an assessment of studies on research design and statistical method of analysis, from low to high threat to validity, is provided. As a precursor to the meta-analysis, a total count of evidence and its classification in terms of economic outcomes, social outcomes and women's empowerment is also presented. A brief overview of the studies and evidence used for meta-analysis concludes the chapter. In the next chapter, the quantitative and narrative syntheses are discussed.

4   IN-DEPTH REVIEW: RESULTS

4.1   QUANTITATIVE SYNTHESIS OF INCLUDED STUDIES

In light of the review question, we attempted to synthesise evidence pertaining to the impact of MF interventions on the key outcomes using meta-analysis. Based on a comprehensive analysis of outcomes, we focused our analysis on income, assets, consumption, employment, education and women's empowerment. Studies that are largely homogeneous in terms of outcome measure have been used in meta-analysis. Furthermore, we found a limited number of studies on other possible outcomes, such as impact on health, and these studies were not included in the meta-analysis. Eligible study designs for the synthesis were measurable using counterfactual impact evaluations, including RCT, experimental or QE and CS studies, before-after study designs and, within intervention comparisons, methods of analysis. Results of meta-analysis for outcomes are provided in the sections below.

As a prelude, we present the risk-of-bias assessment of the included studies for the meta-analysis. We use seven parameters: namely, *random sequence generation*, *allocation concealment*, *blinding of participants and personnel*, *blinding of outcome assessment*, *incomplete outcome data*, *selective reporting*, and anything else, ideally pre-specified, to assess the risk of bias. Studies were scored as low-risk, high-risk and medium-risk, as described in section 2.5. The results are presented in figure 4.1. As is evident from the figure, more than 95% of the studies fall into the low-risk-of-bias category for six out of the seven parameters. It was observed of the 26 studies assessed that 24 studies had low risk of bias with one each under the category of medium and high risk of bias.

4.2   META-ANALYSIS OF OUTCOMES

META-ANALYSIS RESULTS: IMPACT ON INCOME (N = 11)

Raising members' income is considered to be a key objective of any MF intervention (Augsburg 2006). Studies have examined the hypothesis that MF makes households wealthier, yielding an income effect that would push up consumption levels, increase the demand for children's education and increase health-related expenditure. Furthermore, in the case of female borrowers, added income is expected to boost spending in areas of particular concern to women. In this context, we identified income as an important outcome variable for meta-analysis. Eleven out of 26 studies demonstrated clear effects on income.

Figure 4.1: Risk of bias assessment for studies used in meta-analysis (n = 26)
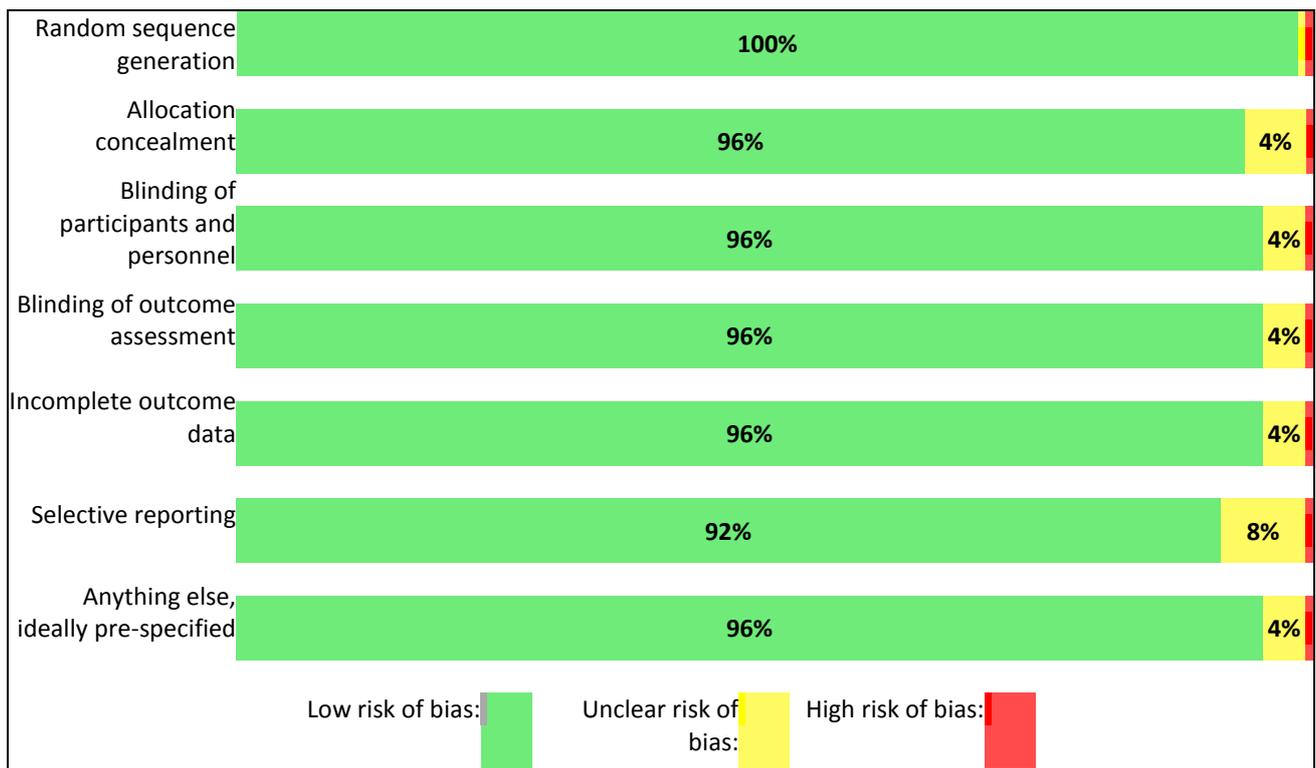
Figure 4.2: Forest plot of microfinance effects on income

Augsburg (2006) — 0.473 (0.029 | 0.917) W:0.2
Augsburg (2006) — 0.441 (-0.002 | 0.884) W:0.2
Bashar et al. (2012) — 0.08 (0.005 | 0.155) W:7.4
Chandrakumarmangalam et al. (2012) — 0.369 (0.089 | 0.648) W:0.5
Desai et al. (2014) — -0.016 (-0.115 | 0.084) W:4.2
Field et al. (2012) — 0.021 (-0.035 | 0.076) W:13.6
Field et al. (2012) — 0.028 (-0.027 | 0.084) W:13.6
Hussain et al. (2008) — -9.576 (-10.178 | -8.973) W:0.1
Hussain et al. (2008) — -0.285 (-0.375 | -0.196) W:5.2
Hussain et al. (2008) — -0.117 (-0.203 | -0.032) W:5.7
Hussain et al. (2008) — -0.342 (-0.415 | -0.269) W:7.9
Imai et al. (2012) — 0.147 (-0.046 | 0.34) W:1.1
Imai et al. (2012) — 0.026 (-0.127 | 0.178) W:1.8
Imai et al. (2012) — -0.026 (-0.138 | 0.086) W:3.3
Imai et al. (2012) — 0.037 (-0.132 | 0.206) W:1.5
Imai et al. (2012) — 0.034 (-0.142 | 0.21) W:1.3
Imai et al. (2012) — 0.012 (-0.152 | 0.175) W:1.6
Imai et al. (2012) — -0.064 (-0.174 | 0.046) W:3.4
Khandker et al. (2013) — 0.043 (-0.071 | 0.157) W:3.2
Khandker et al. (2013) — -0.022 (-0.14 | 0.097) W:3
Khandker et al. (2013) — -0.05 (-0.164 | 0.064) W:3.2
Khandker et al. (2013) — 0.145 (0.026 | 0.263) W:3
Khandker et al. (2013) — 0.119 (0.005 | 0.233) W:3.2
Khandker et al. (2013) — 0.035 (-0.079 | 0.149) W:3.2
Mula et al. (2013) — 4.736 (4.051 | 5.42) W:0.1
Mula et al. (2013) — 5.458 (4.514 | 6.402) W:0
Mula et al. (2013) — 7.894 (6.328 | 9.459) W:0
Pati et al. (2010) — 0.392 (0.113 | 0.672) W:0.5
Setboonsarng et al. (2008) — -0.025 (-0.12 | 0.07) W:4.6
Setboonsarng et al. (2008) — -0.014 (-0.132 | 0.103) W:3
TOTAL: — 0.067 (-0.093 | 0.226)

-10 -8 -6 -4 -2 0 2 4 6 8

Favours intervention   Favours control

53

Figure 4.3: Funnel plot of microfinance and income
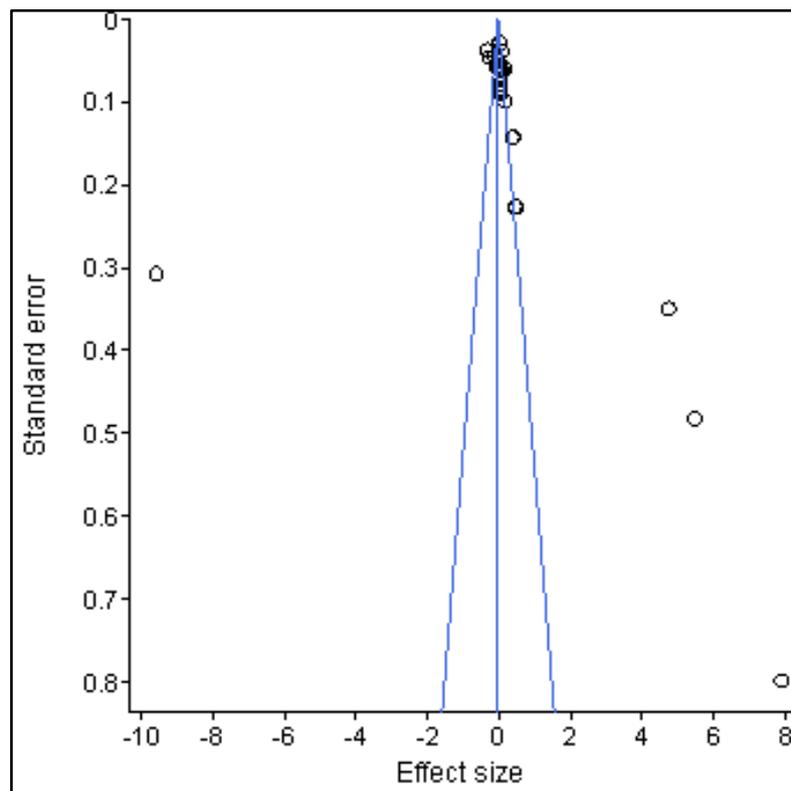
Of the 11 studies, nine have a low risk of bias, with one having a medium risk of bias and one a high risk of bias. A further six studies (Augsburg 2006, Pati and Lyngdoh 2010, Desai and Joshi 2013, Field et. al. 2012, Chandrakumarmangalam and Vetrivel 2012, and Mula and Sarker 2013) focus on the Indian context, whereas four studies (Hussain and Nargis 2008, Khandker and Samad 2013, Bashar and Rashid 2012, and Imai and Azam 2012) focus on the Bangladesh context, and one study (Setboonsarng and Parpiev 2008) on the Pakistan context.

Regarding the nature of interventions in the context of Bangladesh, assessments have been made on the basis of longitudinal surveys of the three micro-credit interventions by Grameen Bank, BRAC Bangladesh and BRDB, Bangladesh (Khandker and Samad 2013). A majority of these programmes have a rural orientation, as documented by Khandker and Samad (2013), who observe that, in 2010 and 2011, about 69% of rural households were micro-credit members. However, Bashar and Rashid (2012) present evidence of urban MF in Bangladesh, breaking the hitherto focus on rural poverty. This is owing to the urban-poor demographic growing more rapidly than the rural-poor demographic. Imai and Azam (2012) confirm a positive impact of MFI loans on poverty reduction through enhanced incomes. Hussain and Nargis (2008) provide evidence to support the finding that the contribution of micro-credit programmes lies in helping the households on the lower economic strata to keep up with the rest of society.

In the Indian context, the intervention of SEWA Bank in Ahmedabad, resulting in a significant and positive effect on members' incomes was analysed by Augsburg (2006). In their analysis

of the poorest districts in rural India, Desai and Joshi (2013) document that there is no positive evidence of participation increasing members' incomes. Field et al. (2012) present evidence on the impact of less frequent repayment on financial stress and economic outcomes and wage incomes, and show that increasing repayment flexibility reduces the burden of indebtedness. Evidence from eastern India shows positive changes in the income of members after joining SHG-linked MF initiatives, especially for scheduled-caste farming families (Mula and Sarker 2013). Increased household incomes have also been reported in the context of MF interventions in the hilly regions of eastern India (Pati and Lyngdoh 2010).

Using the evidence of the interventions of Khushhali Bank in Pakistan, Setboonsarng and Parpiev (2008) document that MF contributions to MDGs are effective, both directly and indirectly, in the context of all eight MDGs.

The findings from the meta-analysis suggest that the overall effect of MF interventions on incomes seems to be small. It can be noted that the pooled effect size is positive and not significant. As the effect size is small (SMD = 0.067, CI = -0.093, 0.226), the results indicate that there is limited effect in terms of enhancing income. The forest plot also suggests a high degree of heterogeneity, which is confirmed by the statistical test (I-Square 98.1%). Many of the studies (Imai and Azam 2012, Khandker and Samad 2013) have assessed the outcome based on multiple interventions and time periods; hence, it gets repeated in the forest plot. Figure 4.2 and table A15.1 in Appendix 15 show the forest plot and random effect meta-analysis results for the outcome-variable income.

The effect size and, to some extent, heterogeneity are driven by two studies (Mula and Sarker 2013 and Hussain and Nargis 2008). Hussain and Nargis (2008) and Mula and Sarker (2013) are regarded as outliers in terms of analysing impact on income, as one study reported large positive effects (Mula and Sarker 2013) and the other large negative effects (Hussain and Nargis 2008). Mula and Sarker's (2013) study was based on surveying the household beneficiaries of SHG-provided MF in the rural districts of West Bengal, India. Although the study attempted a household survey, the sample size pertaining to income was low (144 households). Using a before-after research design, they analyse impact on income, along with a number of other outcome indicators. In contrast, Hussain and Nargis (2008) carried out a longitudinal survey of micro-credit beneficiaries over a period of seven years. The panel data thereby generated was analysed in a before-after framework. Incomes of households were decomposed into two broad sources: endogenous and exogenous incomes. The exogenous incomes have a component that is unearned, accruing to individuals in a manner that is unlikely to depend on their MFI-participation status. This decomposition of total incomes has led to an element of arbitrariness in assessing the effects of interventions.

The meta-analysis results for the incomes outcome, after removing these outliers, are presented in table A16.1 in Appendix 16. It was observed that the overall effect size of the income is 0.015 (-0.043, 0.072), after excluding outliners.

META-ANALYSIS RESULTS: IMPACT ON ASSETS (N = 6)

Participation in MFIs is expected to generate two types of asset. In the long run, it is expected that the participants will acquire assets such as land and buildings; however, in the short run, it is unlikely that they will acquire land and buildings, and may acquire assets that can generate income rapidly, such as livestock. The composition of assets is regarded as a measure of the economic strength of MFI participants (Mula and Sarker 2013). It is expected that, after joining the MFIs, the asset position of the members would increase and lead to additional income. Studies have analysed the effect on non-land assets, as they include financial assets such as savings in a bank (Khandker and Samad 2013). Out of 26 studies, only six have focused specifically on asset creation, either as a standalone benefit or as a pool of benefits derived from MF intervention.

Figure 4.4: Forest plot of microfinance effects on assets
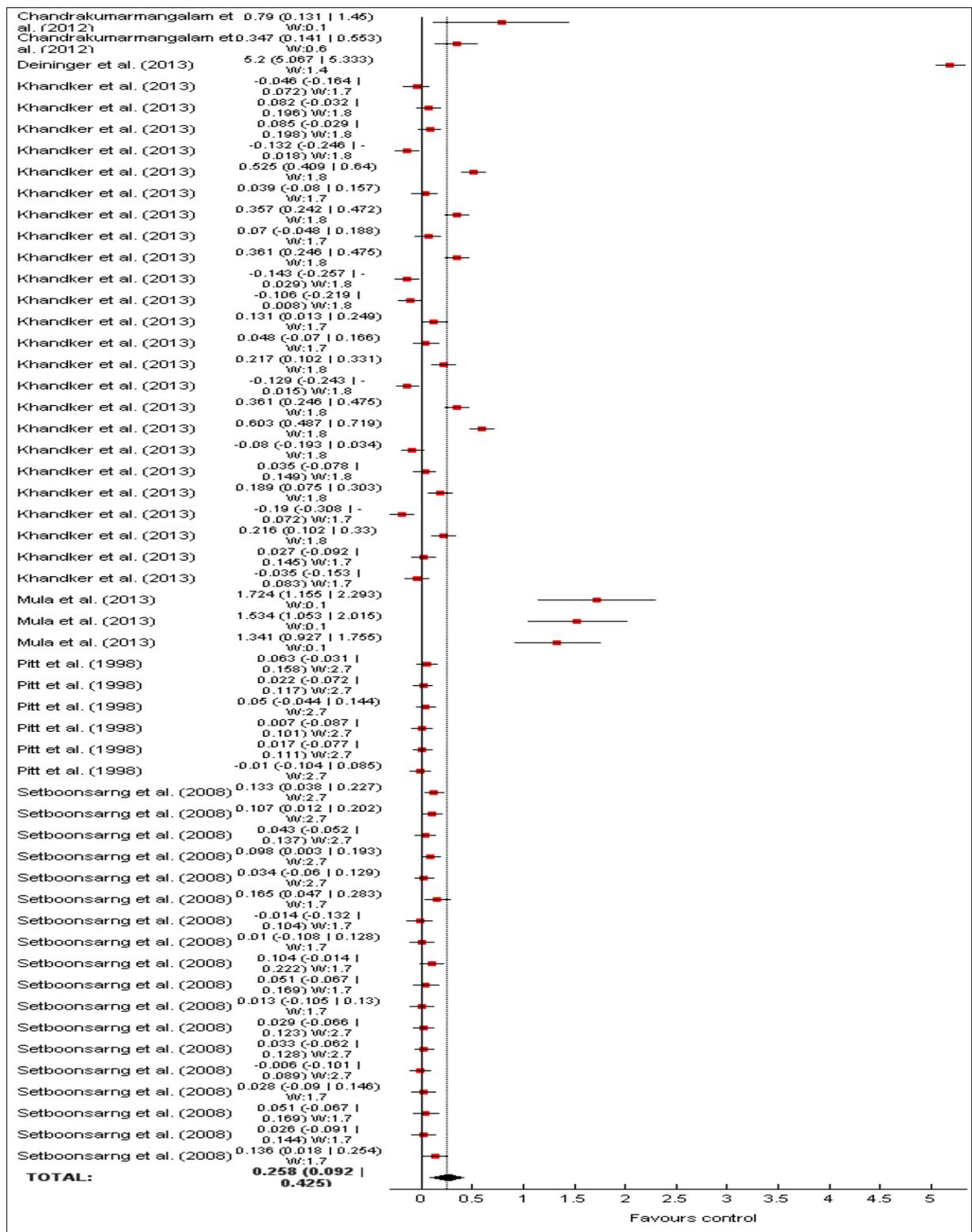
Figure 4.5: Funnel plot of microfinance and assets
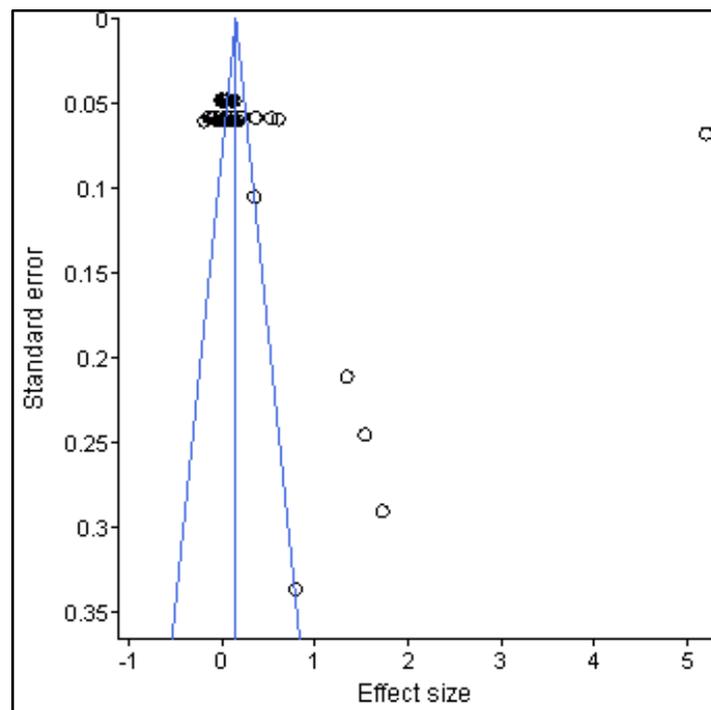
Of the six studies, three have focused on the Indian context (Deininger and Liu 2013, Chandrakumarmangalam and Vetrivel 2012, and Mula and Sarker 2013), two on the context of Bangladesh (Pitt and Khandker 1998, Khandker and Samad 2013), and one on the context of Pakistan (Setboonsarng and Parpiev 2008). Among the studies that analysed asset creation, five studies belonged to the low-risk-of-bias category and one to the high-risk category.

All the three studies in the Indian context were based on rural SHG members. Deininger and Liu (2013) show that participation in MF interventions improved a range of outcome variables, but not assets and income. This lack of significant impact could be due to exogenous shocks, which may have prevented participants from realising their potential (Deininger and Liu 2013). Mula and Sarker (2013) document that the percentage of the population in the low-asset category before joining SHG was 50.69%, reduced to 20.14%, based on a survey conducted in Eastern India. Chandrakumarmangalam and Vetrivel (2012), in contrast, studied benefits to asset creation in terms of house construction and repairs, and report a positive impact for participation.

Pitt and Khandker (1998), analysing the effects on the rural poor in Bangladesh, document that female credit affects non-land asset holdings by women. They find that participation in credit programmes by women increased the value of non-land asset holdings, whereas male participation did not. They also note that, for women, on average, every increase of 100 taka (USD 1.28[9]) of credit from BRAC, BRDB and Grameen Bank increased the value of their non-land assets by 15, 29 and 27 taka, respectively. Furthermore, in the context of rural

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[9] Converted as of 22/03/16's conversion rate

Bangladesh, Khandker and Samad (2013) document that the value of non-land assets increased by 12% for the participants in an MF programme, while the non-participants' non-land assets grew by more than 21% per year.

In the context of Pakistan, Setboonsarng and Parpiev (2008) document that Khushhali Bank membership had a strong impact on animal raising, implying an increase in the value of livestock owned by the clients. The value of livestock owned by Khushhali Bank clients is, on average, PR17,705 (USD 169.17[10]) higher than that of non-borrowers

Figure 4.4 and table A15.2 in Appendix 15 show the forest plot and random effect meta-analysis for assets, based on six studies. The funnel plot is presented in figure 4.5. The results suggest that the pooled effect size is positive and statistically significant (SMD = 0.258, CI = 0.093, 0.425). In terms of the magnitude of the effect size, we found it to be greater than that for income. This essentially indicates that MF/micro-credit interventions had a positive impact on asset creation for the participants.

The forest plot suggests a high degree of heterogeneity, further substantiated by high 'I'-Squared values. One reason for the high effect size could be the inclusion of Deininger and Liu (2013), who report a significant positive effect size. This is partly because the evidence of activities that they document had the potential to generate positive externalities beyond private benefits from access to credit, and also generated impacts beyond group participants. The study uses a combined pipeline comparison (CPC), PSM and DID methods, and allows heterogeneity of expected programme impacts across different sub-groups. They distinguish between three groups of participants: new participants, converted participants and non-participants. While this provides a nuanced measure of benefits, mean programme impacts could be affected by the above-stated composition of participants.

Meta-analysis was carried out after removing the Deininger and Liu (2013) study, and it can be observed from table A16.4 of Appendix 16 that the overall effect size, which was 0.258 prior to removing the outlier study, dropped to 0.112 (CI = 0.065, 0.159) after the outlier was removed.

META-ANALYSIS RESULTS: IMPACT ON CONSUMPTION/EXPENDITURE (N = 13)

MF interventions impacting on poverty reduction through consumption expenditure, especially food consumption, has been identified as a major line of causation in linking MF and poverty. The evidence on this has been a matter of debate (Pitt and Khandker 2002, Morduch 2008, and Roodman and Mordoch 2009). In this context, we examine the effects on consumption and expenditure. Twelve studies provided us with empirical details to allow us to examine the effect sizes. Of these, only one study had a high risk of bias and the rest had a low risk of bias. Seven studies were in the Indian context, four in the context of Bangladesh and one in the context of Pakistan.

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[10] Converted as of 22/03/16's conversion rate

Figure 4.6 Forest plot of microfinance effects on consumption/expenditure
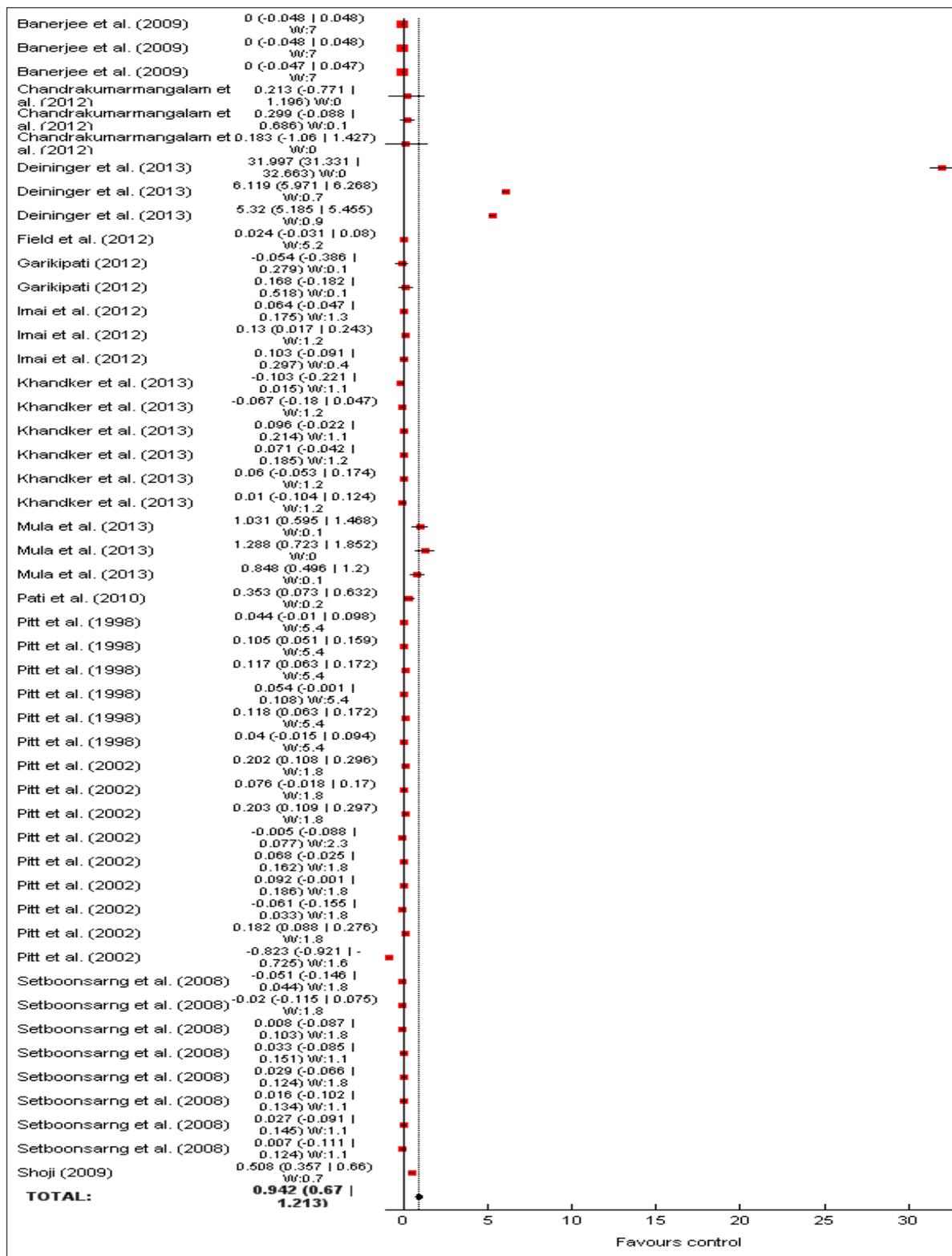
Figure 4.7: Funnel plot of microfinance and consumption/expenditure
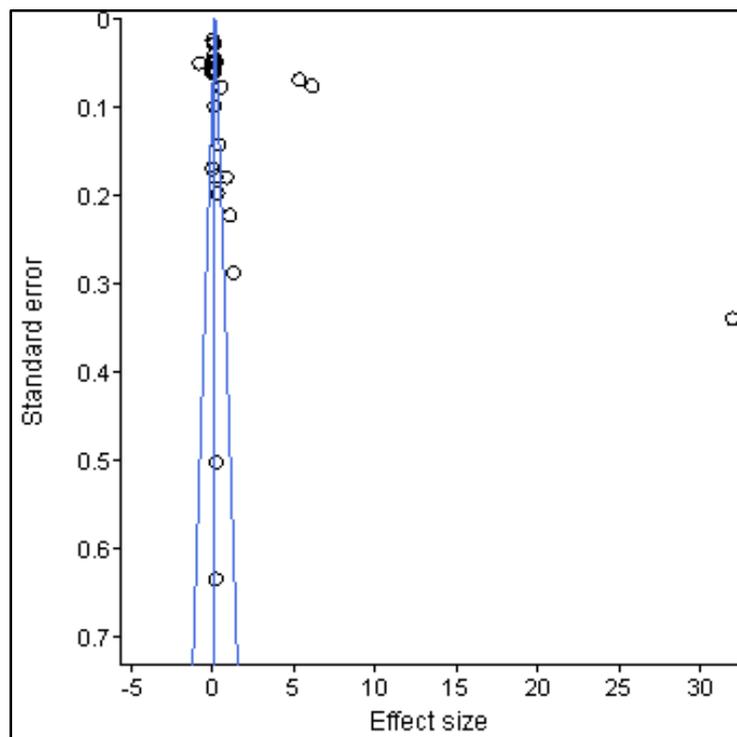
In the context of Bangladesh, studies such as Imai and Azam (2012) report a positive and significant effect of MFI loans on food consumption. They confirm that households that accessed MFI loans in 2004–05, but not in 1999–2000, had higher food-consumption growth than those which did not access MF loans in either of these years. Shoji (2009) analysed effects during natural disasters and reports that 30% of people reduced meal frequency in the rescheduled households, while, for the non-rescheduled households, the figure is only 11%. The study further notes that females are more likely to sacrifice meals — approximately 1.6 times more likely than males. Pitt and Khandker (2002) report a positive and statistically significant effect on total expenditure and show that, on average, an additional 1 taka (USD 0.01[11]) of credit added 0.18 taka (USD 0.23[10]) to the total household consumption expenditure for females and 0.11 taka (USD 0.14[10]) for males. Pitt and Khandker (2010) show that the effect of both male and female credit on consumption expenditure is greatest in the season of greatest expenditure, suggesting that an MF programme may not reduce the seasonal fluctuation in consumption.

In the Indian context, Deininger and Liu (2013) show that the target groups aim to smooth consumption. They further report that there is a significant impact on intake of calories and protein, by 5% and 13%, respectively, due to the programme. Pati and Lyngdoh (2010) report increases in consumption expenditure of the treatment group, indicating a transformation in the economic status of the clients. Mula and Sarker (2013) show that participation of households in SHG activities significantly contributed to increases in their consumption

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[11] Converted as of 22/03/16's conversion rate

expenditure. The total percentage change in average consumption consumption of a member, according to them, was 5.12%. Field et al. (2012) indicate that higher household incomes derived from MF interventions resulted in higher household expenditure, and noted that, relative to weakly claims, monthly claims more than double their incomes, which led to increased consumption. Chandrakumarmangalam and Vetrivel (2012) record the highest increase in annual household consumption in the target group over the control group, in the case of productive assets and household consumables. Garikipati (2012) reports that women's loans were mainly used to meet household production and consumption needs (84.7%) and only a small proportion of SHG women used their loans for the businesses they managed. Banerjee et al. (2009) indicate that increases in durable spending by treatment households was partially offset by reduced spending on temptation goods, such as alcohol, tobacco, etc., and food consumed outside the home. According to them, spending on temptation goods is reduced by Rs9 (USD 0.14[12]) per capita per month.

In the study on Pakistan, Setboonsarng and Parpiev (2008) report that Khushhali Bank members appear to spend less than non-borrowers, particularly on food, but the difference is not statistically significant. They attribute this to the fact that agriculture loans have led to increases in on-farm food production, leading to borrowers' spending less on food and more on non-food items.

Figure 4.6 and table A15.3 in Appendix 15 show the forest plot and random effect meta-analysis for consumption/expenditure. Figure 4.7 presents the funnel plot. The results indicate that the pooled effect size is positive and statistically significant (SMD = 0.942; CI = 0.67, 1.213). It should also be noted that the size of pooled effect is considerably larger, pointing to the fact that available evidence shows that the intervention has a positive effect on the participant's consumption. This evidence also assumes significance due to the fact that there exists a considerable degree of heterogeneity, as indicated by the forest plot and 'I'-Squared values.

Meta-analysis was carried out after removing the Deininger and Liu (2013) study, and it can be observed form table A16.2 of appendix 16 that the overall effect size, which was 0.942 prior to removing the outlier study, dropped to 0.06 (CI = 0.02, 0.112) after the outlier was removed. Further, there exists variation across studies and countries in terms of the basket of consumption, as discussed.

META-ANALYSIS RESULTS: IMPACT ON EDUCATION (N = 5)

A number of studies on men's (as opposed to women's) decisions show that women spent more on children's health and education (Pati and Lyngdoh 2010). This can be interpreted as women's having a greater capacity for decision making or bargaining. Given the focus on compulsory primary education in many countries, such as India, the additional influence on education of MF required careful examination. Out of the 26 studies, only five studies listed education as an outcome variable. All the five studies belonged to the low-risk-of-bias

[12] Converted as of 22/03/16's conversion rate

category. Of the chosen studies, two each were in the Indian and Bangladeshi context, and one in the Pakistani context.

Figure 4.8: Forest plot of microfinance effects on education
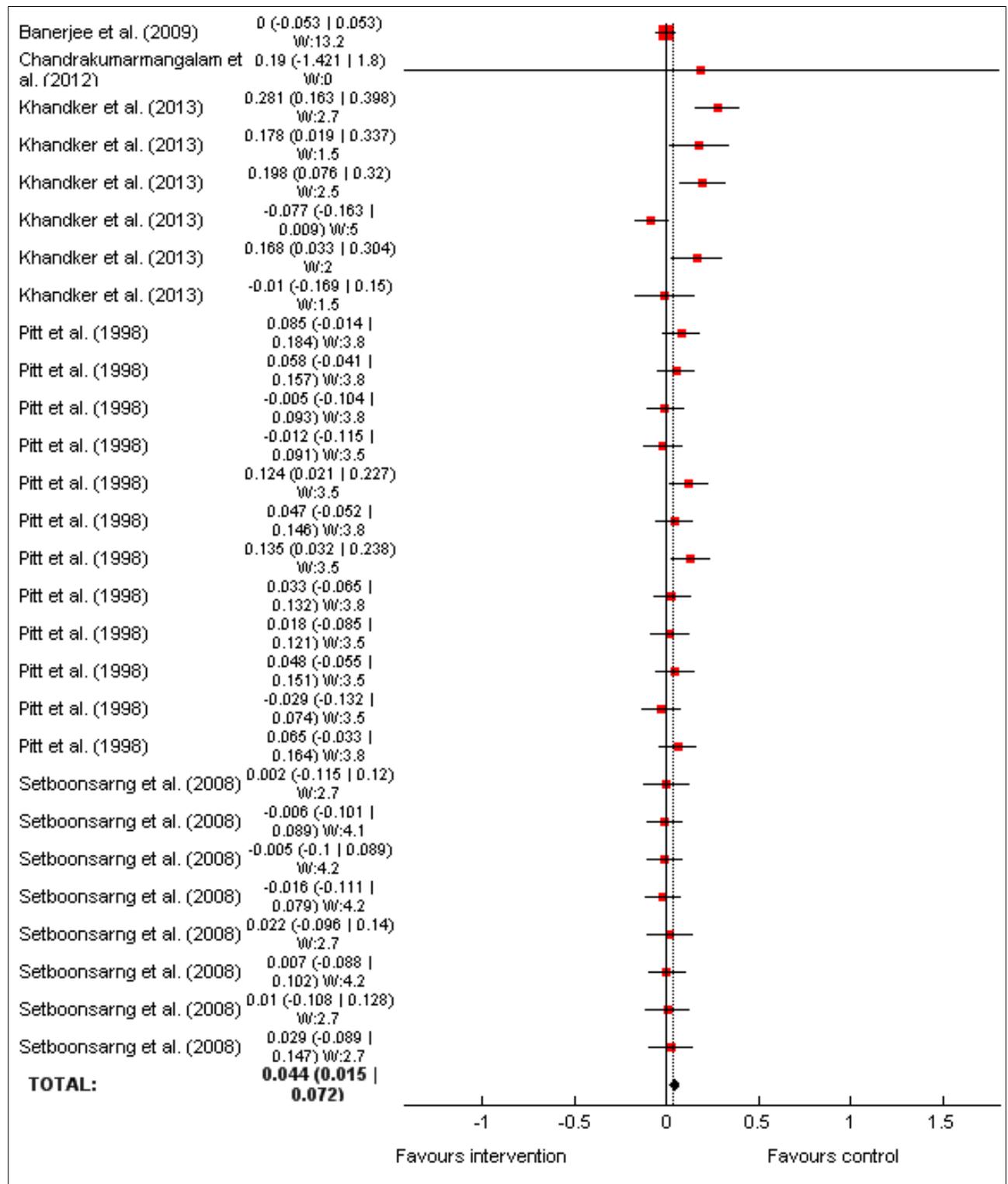
Figure 4.9: Funnel plot of microfinance and education
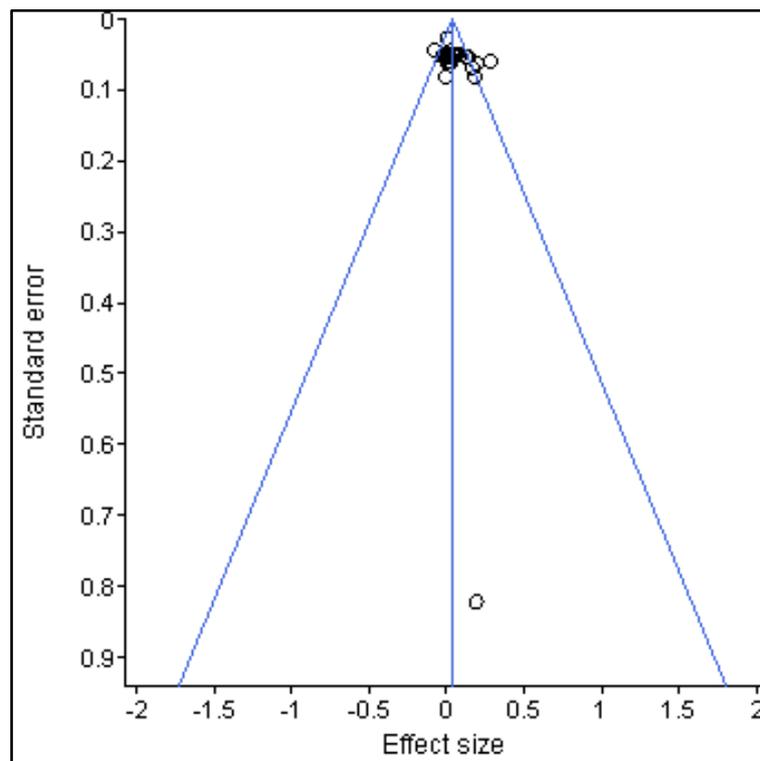
In the Bangladeshi context, Pitt and Khandker (1998) provide evidence of an increase in the schooling of children. According to them, a 1% increase in Grameen Bank credit provided to women is predicted to increase the probability of girls' school enrolment by 1.86%. However, the other credit programmes that they studied did not yield statistically significant results, which they attribute to the substitution of women's and girls' time in terms of production of household goods and self-employment. Khandker and Samad (2013) show that there is incremental growth in the trends in the rate of children's school enrolment over time for both boys and girls. They conclude that micro-credit expansion has helped to reduce gender disparity in children's education in rural Bangladesh.

In the Indian context, Banerjee et al. (2009) show that there is no effect on education outcomes. This, they argue, is primarily because of the fact that the majority of children are enrolled in school, even in treatment areas. Chandrakumarmangalam and Vetrivel (2012) note that literacy has been significantly impacted by MF interventions. They find that target households had a 12.16% higher literacy rate as compared to that of the controlled households, which they attribute to pushing the effects of MF interventions. Setboonsarng and Parpiev (2008), in the context of Pakistan, show that the impact of Khushhali Bank borrowing on the education of children is not significant in terms of any of the indicators they examine. They further note that this is possible, as most of the borrowers are in the initial phase of capital accumulation and, hence, income-generating capacities have not translated into increased education expenditure.

Figure 4.8 and table A15.4 in Appendix 15 show the forest plot and random effect meta-analysis for education. Figure 4.9 presents the funnel plot. We found that the pooled effect size is positive and significant (SMD = 0.044; CI = 0.015, 0.072). The forest plot shows that the studies do not exhibit a high degree of heterogeneity. This is further confirmed by the 'I'-Squared value of 49.5%.

META-ANALYSIS RESULTS: IMPACT ON WOMEN'S EMPOWERMENT (N = 6)

The effects of MF access on women's empowerment have been widely debated. While some studies report that male exclusion may have a perverse effect on women's empowerment (for example, Armendariz de Aghiom and Morduch 2010), some argue that earned incomes are more important than unearned income in enhancing women's empowerment (Anderson and Eashwarn 2009). Therefore, there exists mixed evidence in the literature on the effects on women's empowerment. Of the 26 studies, four studies in the Indian context and one each from Bangladesh and Pakistan have studied the outcome effects in terms of women's empowerment. All the studies fall in the low-risk-of-bias category.

Figure 4.10: Forest plot of microfinance effects on women's empowerment
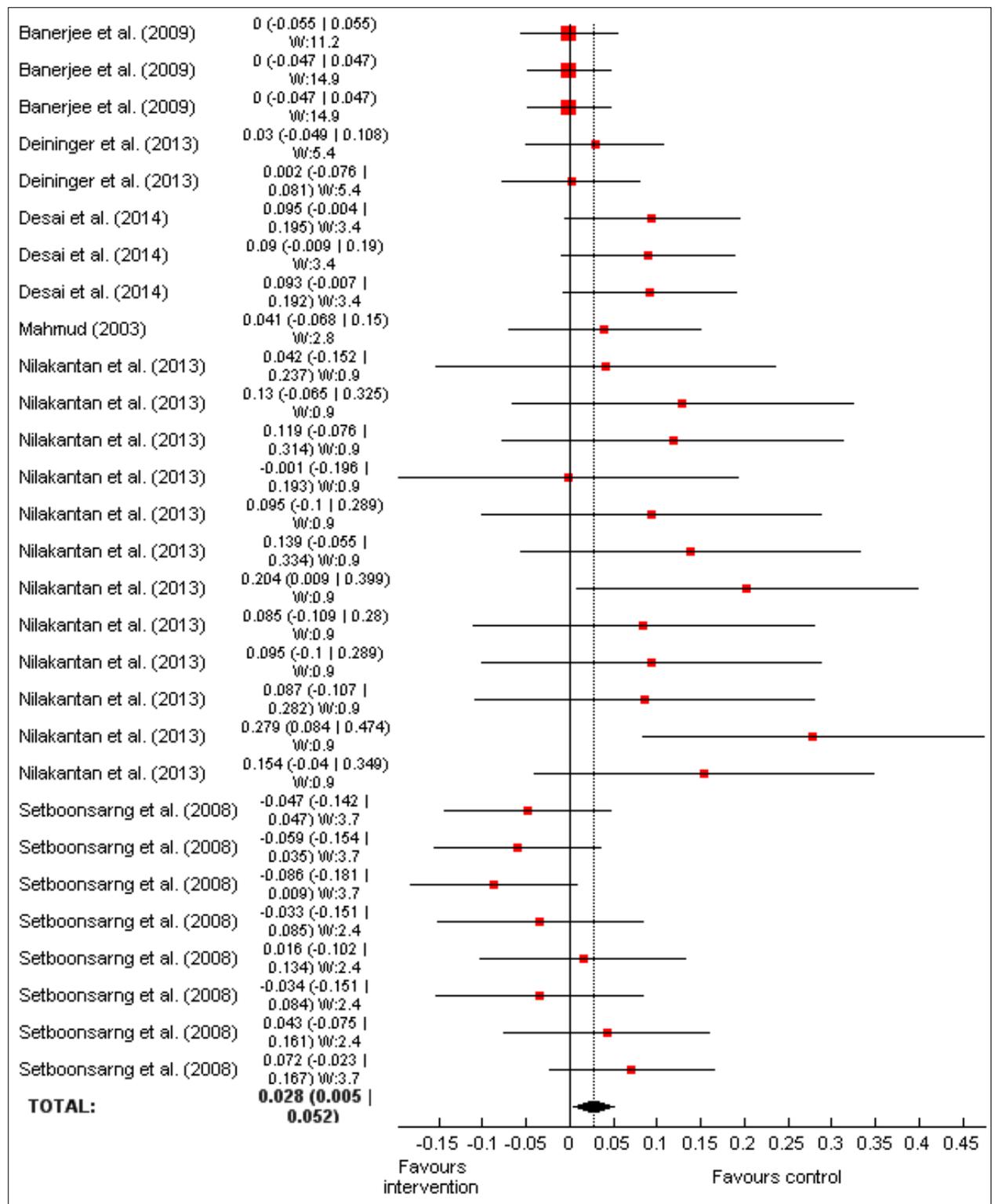
Figure 4.11: Funnel plot of microfinance and women's empowerment
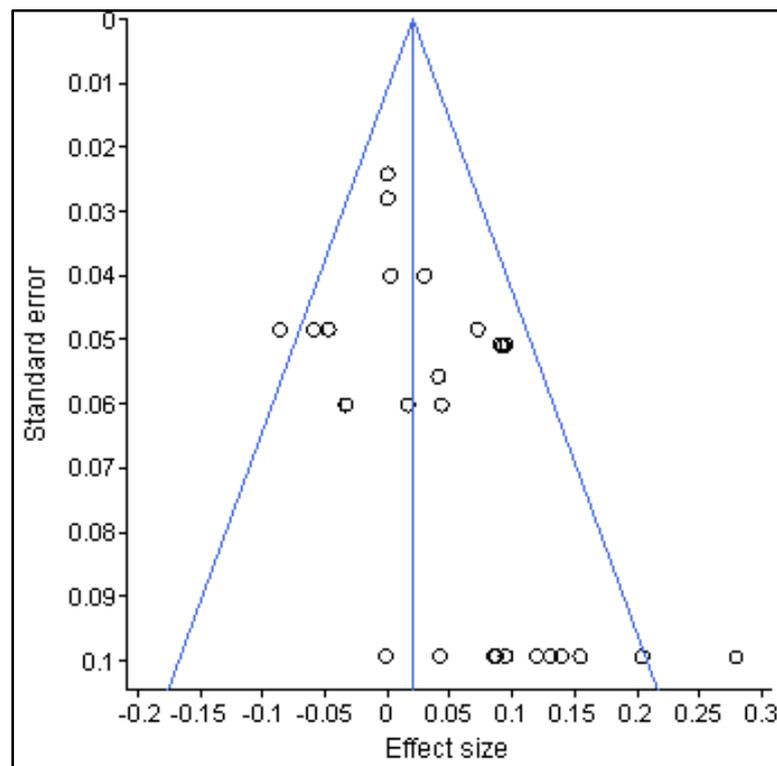
In the Indian context, Nilakantan et al. (2013) examine the effect of MF on women's empowerment, with empowerment measured on four dimensions, namely: (a) management of enterprises; (b) influence over credit matters; (c) influence over consumption; and (d) influence over child-related issues. They report that greater access to MF is associated with a decreased likelihood of the borrower's managing the enterprise, a lower likelihood of increased influence over expenditure, and a higher likelihood of influence over child-related issues. They indicate a reallocation of influence between family members along traditional gender lines. Desai and Joshi (2013) report that SEWA programmes strengthened women's participation in household decision making. Treated women were 6–8% more likely to have a say in decisions about children's schooling, medical care and family planning. Deininger and Liu (2013) examine empowerment in the context of economic environment, political participation and social capital. The study reported that the programme villages have higher shares of low-caste, tribal populations and females who are economically active. Their results suggest that a programme that fosters group formation through a federated structure can have significant social benefits, even in the short term. Banerjee et al. (2009) note that women's empowerment could translate into increased spending in areas such as child health and education, which demonstrate greater bargaining power for women. However, they report no effect on health or education outcomes.

Mahmud (2003), in the context of Bangladesh, reports that women actively participated most frequently in decisions on food expenditure, and least frequently in decisions on crop-production expenditure, and fairly commonly in decisions on expenditure on children's schooling. They further point to the fact that poor women were more likely to have active

roles in certain types of decision, while non-poor women would have an active role in other types of decision. Participation also increased women's welfare by allowing them to reallocate work time within the home. Setboonsarng and Parpiev (2008) note that, in the context of Pakistan, non-borrowing women had a greater say in schooling matters and health-related issues and benefited from a reduced incidence of domestic violence. However, these results are not statistically significant.

Figure 4.10 and table A15.5 in Appendix 15 show the forest plot and random effect meta-analysis for women's empowerment. Figure 4.11 presents the funnel plot. The pooled effect size is positive and significant (SMD = 0.028; CI = 0.005, 0.052). The studies are largely homogeneous in terms of outcome measure. Banerjee et al. (2009) use decision making in respect of household purchases, while Nilakantan et al. (2013) use influence over decision making on credit-related issues, along with expenditure, as a measure of empowerment. The low level of heterogeneity is reflected in the 'I'-Squared value (28.7%).

META-ANALYSIS RESULTS: IMPACT ON EMPLOYMENT (N = 8)

The central objective of MF interventions is enhanced inclusion in financial and labour markets. It is expected that participation in these interventions would increase labour-force participation rates, especially of females. There is also an argument for the diversification of labour-force participation in terms of a movement from the farm to the non-farm sector (Desai and Joshi 2013). It is in this context that we examine employment as an outcome indicator. Out of the eight studies that qualified for meta-analysis, seven studies have a low risk of bias, with one in the high-risk category. Five studies were in the Indian context, two in the Bangladeshi and one in a Pakistani context.

Figure 4.12: Forest plot of microfinance effects on employment

Banerjee et al. (2009)	0 (-0.081 | 0.081) W:1.6
Chandrakumarmangalam et al. (2012)	0.492 (0.211 | 0.774) W:0.1
Desai et al. (2014)	0.098 (-0.001 | 0.198) W:1.1
Garikipati (2012)	-0.303 (-0.637 | 0.032) W:0.1
Garikipati (2012)	0.051 (-0.298 | 0.401) W:0.1
Mula et al. (2013)	7.475 (6.306 | 8.645) W:0
Mula et al. (2013)	5.28 (4.482 | 6.078) W:0
Mula et al. (2013)	8.997 (7.365 | 10.629) W:0
Pitt et al. (1998)	-0.003 (-0.051 | 0.045) W:4.6
Pitt et al. (1998)	-0.013 (-0.06 | 0.035) W:4.8
Pitt et al. (1998)	-0.016 (-0.063 | 0.031) W:4.8
Pitt et al. (1998)	-0.174 (-0.222 | -0.126) W:4.6
Pitt et al. (1998)	-0.051 (-0.098 | -0.004) W:4.8
Pitt et al. (1998)	-0.166 (-0.214 | -0.118) W:4.6
Pitt et al. (1998)	-0.145 (-0.193 | -0.097) W:4.6
Pitt et al. (1998)	-0.052 (-0.099 | -0.005) W:4.8
Pitt et al. (1998)	-0.061 (-0.108 | -0.014) W:4.8
Pitt et al. (1998)	-0.003 (-0.052 | 0.045) W:4.6
Pitt et al. (1998)	-0.004 (-0.052 | 0.043) W:4.8
Pitt et al. (1998)	0.004 (-0.044 | 0.052) W:4.6
Pitt et al. (2002)	-0.022 (-0.105 | 0.061) W:1.6
Pitt et al. (2002)	-0.089 (-0.17 | -0.008) W:1.6
Pitt et al. (2002)	-0.008 (-0.09 | 0.075) W:1.6
Pitt et al. (2002)	0.007 (-0.076 | 0.09) W:1.6
Pitt et al. (2002)	-0.093 (-0.176 | -0.009) W:1.5
Pitt et al. (2002)	-0.278 (-0.359 | -0.196) W:1.6
Pitt et al. (2002)	-0.029 (-0.111 | 0.054) W:1.6
Pitt et al. (2002)	-0.104 (-0.185 | -0.023) W:1.6
Pitt et al. (2002)	-0.034 (-0.116 | 0.048) W:1.6
Pitt et al. (2002)	0.066 (-0.018 | 0.15) W:1.5
Pitt et al. (2002)	-0.088 (-0.169 | -0.007) W:1.6
Pitt et al. (2002)	0.091 (0.009 | 0.174) W:1.6
Pitt et al. (2002)	-0.243 (-0.324 | -0.162) W:1.6
Pitt et al. (2002)	-0.291 (-0.373 | -0.21) W:1.6
Pitt et al. (2002)	-0.006 (-0.089 | 0.077) W:1.6
Pitt et al. (2002)	-0.034 (-0.116 | 0.048) W:1.6
Setboonsarng et al. (2008)	0.061 (-0.033 | 0.156) W:1.2
Setboonsarng et al. (2008)	0.083 (-0.012 | 0.178) W:1.2
Setboonsarng et al. (2008)	-0.053 (-0.171 | 0.065) W:0.8
Setboonsarng et al. (2008)	0.115 (-0.002 | 0.233) W:0.8
Setboonsarng et al. (2008)	-0.121 (-0.239 | -0.003) W:0.8
Setboonsarng et al. (2008)	0.04 (-0.078 | 0.158) W:0.8
Setboonsarng et al. (2008)	0.06 (-0.035 | 0.155) W:1.2
Setboonsarng et al. (2008)	0.158 (0.04 | 0.276) W:0.8
Setboonsarng et al. (2008)	0.131 (0.036 | 0.226) W:1.2
Setboonsarng et al. (2008)	-0.073 (-0.167 | 0.022) W:1.2
Setboonsarng et al. (2008)	0.066 (-0.029 | 0.161) W:1.2
Setboonsarng et al. (2008)	0.028 (-0.09 | 0.145) W:0.8
Setboonsarng et al. (2008)	0.116 (-0.002 | 0.234) W:0.8
Setboonsarng et al. (2008)	0.123 (0.005 | 0.241) W:0.8
Setboonsarng et al. (2008)	0.025 (-0.07 | 0.119) W:1.2
Setboonsarng et al. (2008)	-0.096 (-0.191 | -0.001) W:1.2
TOTAL:	**0.007 (-0.035 | 0.049)**

Favours control

Figure 4.13: Funnel plot of microfinance and employment

In the Indian context, Desai and Joshi (2013) estimate that, in the case of village-level impact, participating women were 11% more likely to be employed outside of agriculture, and the effect is significant at the 10% level or above. Furthermore, they find that there was no strong effect of vocational training among women who reside in villages where those modules were run, with the exemption of non-farm employment. Banerjee et al. (2009) examine the estimates of effects on businesses operated by households and show that households in treated areas are 1.7% more likely to report operating a business opened in the past year. They also find that the effects on monthly business revenues and spending on business inputs are both positive, but not significant. Garikipati (2012) shows a gendered pattern of time use, with female time use variables differing significantly from those of men. The study also found that, for females, time spent in self-employment is positive, but, for time spent on wage work and leisure, it is negative, indicating that SHG wives spend more time working in self-employment and less in wage work. Chandrakumarmangalam and Vetrivel (2012) report the evidence of a positive impact on employment, indicating that participants had more employment man days as compared to the control group. The annual average employment man days per household in the target group was 447.76, while it was 371.79 for the control group. This shows that target households had a significantly higher average number of employment days, by 20.73%, over that of control households. Mula and Sarker (2013) indicate that there was a significant difference in employment before and after joining SHGs: on the whole, they find that there has been a 78.94% change in employment for the participants.

In the context of Bangladesh, Pitt and Khandker (1998, 2002) show a statistically significant positive effect of participation in Grameen Bank on women's labour supply, but only marginal significance for participation in BRAC and BRDB. In the context of Pakistan, Setboonsarng and Parpiev (2008) report that Khushhali Bank clients do not have significantly longer working hours in crop production and animal raising.

Figure 4.12 and table A15.6 in Appendix 15 show the forest plot and random effect meta-analysis for employment, and are followed by figure 4.13, showing the funnel plot. The pooled effect size is positive, but not statistically significant, indicating very low positive effects of intervention on employment (SMD = 0.007; CI = -0.035, 0.049). Even though studies use differentiated measures of employment across gender, evidence does not point to very significant outcomes. The forest plot shows heterogeneity, which is validated by high 'I'-Squared (93.2%). One study (Mula and Sarker 2013) produced a very high positive effect size, as stated earlier, due to low sample size, while the bulk of the remaining studies showed a negative effect size. As is evident from table A16.3 of appendix 16, the results changed dramatically after the removal of outliers, with a change of the effect size to -0.0253 (-0.0526, 0.00206). This was evident in the earlier analysis, where the overall pooled effect size was not statistically significant.

4.4   PUBLICATION BIAS AND SENSITIVITY ANALYSIS

PUBLICATION BIAS: FUNNEL PLOTS AND EGGER'S TEST

Publication bias refers to bias that occurs when research found in the published literature is systematically unrepresentative of the population of studies (Rothstein, et al. 2005). The funnel plot is a simple scatter plot of the intervention-effect estimates from individual studies against some measure of each study size or precision. The key purpose of the funnel plot and Egger's test is to detect possible bias in the studies that are included in the meta-analysis, and arises from the fact that the precision of the intervention-effect estimates increases as the size of the study increases (Eggar et al. 1997). As discussed in the method chapter, effect estimates of the small studies will, therefore, be scattered more widely at the bottom of the graph, with the spread narrowing among large studies. In the absence of the bias, the plot should resemble a symmetrical or inverted funnel.

To analyse publication bias using Egger's test and funnel plots, full sample analysis of MF and micro-credit intervention or outcome in vertical axis, and covariate or study size in the horizontal axis are used. The different outcomes are presented in table 4.1 and in a funnel plot in figure 4.14.

Table 4.1: Egger's test values for outcomes

Outcomes	Z-value	p-value
Income	z = 5.5194	p < .0001
Assets	z = 17.4162	p < .0001
Consumption/expenditure	z = 48.7127	p < .0001
Education	z = 2.5641	p = 0.0103
Women's empowerment	z = 3.4552	p = 0.0005
Employment	z = 15.4063	p < .0001

Testing for publication bias using Egger's test (Egger et al. 1997), which regresses effect size on its standard error, suggested that statistical evidence for publication bias was present for all outcomes, except for education and women's empowerment outcomes. However, the scatter graphs for all outcomes except women's empowerment are asymmetrical funnel plots. The reason behind the asymmetrical funnel plots may be that most of the studies included in the meta-analysis had a large sample size of treatment and comparison groups, and employed experimental and QE study designs. Perhaps in some of the studies (Mula and Sarker 2013 and Chandrakaumarmangalam and Vetrivel 2012), especially CS, before/after studies, the sample sizes are small. This does not imply that the assessments are of low quality.

Figure 4.14: Funnel plots for intervention of microfinance and micro-credit and different level of outcomes (95% confidence of interval):

Income Assets Consumption/Expenditure
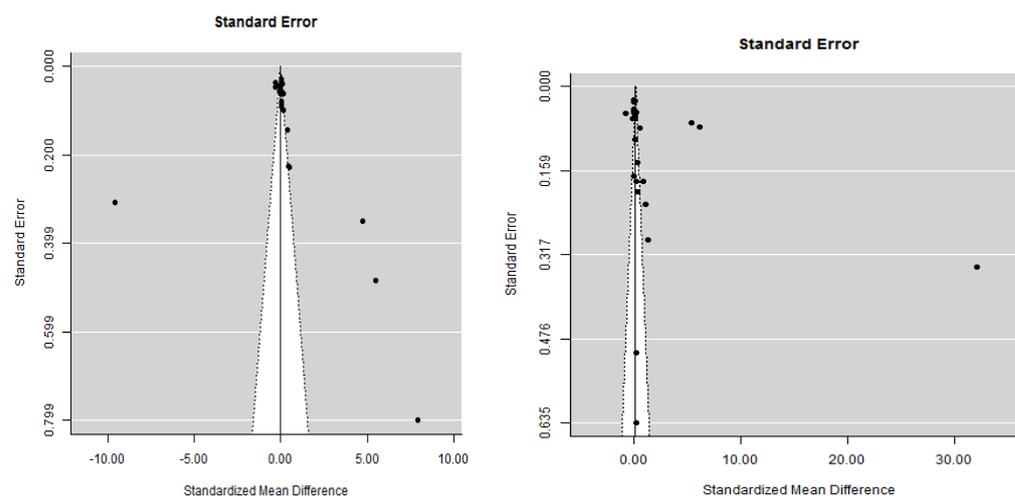
Education Empowerment Employment
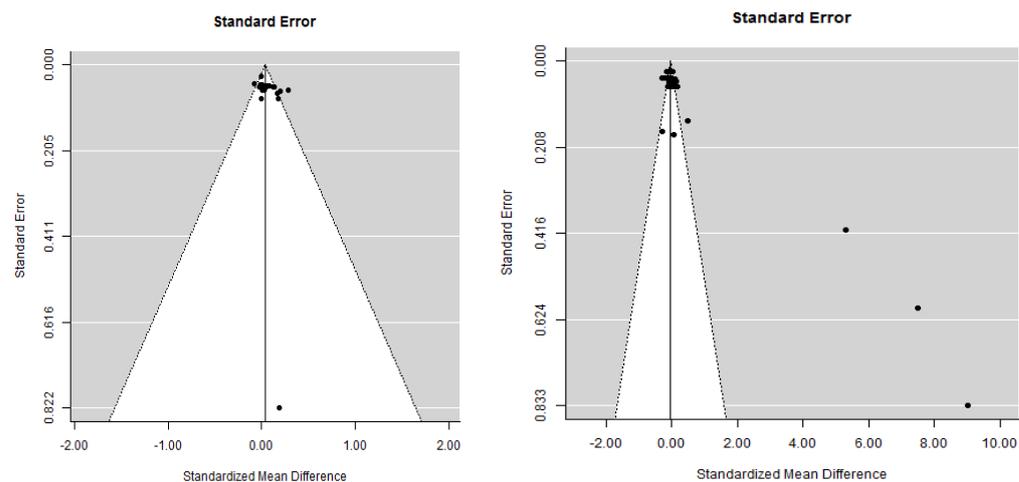
SENSIVITY ANALYSIS BY STUDY DESIGN AND RISK OF BIAS

Furthermore, we explored the possibility that studies with weaker causal-identification strategies tended to produce larger (upwards-biased) effect sizes, using sensitivity analysis by study design and risk of bias.

The figures and tables in Appendix 19 present the sensitivity analysis by study design. We combined the RCT and QE studies as one group and the rest of the research design as another group, for all the outcomes. The results indicate that more internally valid designs consistently showed smaller effects across outcomes.

Figures and tables in Appendix 20 show the forest plot and the corresponding meta-analysis for studies by risk-of-bias status. We combined studies of medium and high risk as one set and low risk as another set. The findings of the sensitivity analysis on the outcome suggest that low-risk-of-bias studies had an effect size of 0.04 (CI = 0, 0.07), while the effect size increased to 0.69 (CI = -0.16, 1.54) in the case of medium- and high-risk-of-bias studies. With regard to asset outcomes, we find that the low-risk-of-bias studies had a total effect size of 0.19 (CI = 0.02, 0.36), but medium- and high-risk-of-bias studies had an effect size of 1.49 (CI = 1.22, 1.77). In the case of consumption expenditure, we find that low-risk-of-bias studies report an overall effect of 0.93 (CI = 0.66, 1.21), while medium- and high-risk studies have an effect of 0.99 (CI = 0.74, 1.24). The results in the context of employment are striking. Low-risk-of-bias studies yielded an effect size of -0.03 (CI = -0.03, -0.05), while high-risk-of-bias studies yielded 7.16 (CI = 5.01, 9.31). The results confirmed, firstly, that studies in which we suspected higher risk of bias appeared systematically to inflate effect sizes. Secondly, the results regarding the outcome on employment suggested that much of the heterogeneity in effect sizes arose from the inclusion of high-risk-of-bias studies in the analysis.

ASSESSING DIFFERENCES IN EFFECT BY LOCATION

Finally, given the large number of MF/micro-credit impact studies in Bangladesh, and the length and scale of engagement of MFOs/micro-credit organisations in that country, we examined whether there were systematic differences in results by location. The forest plots and tables (Figure A18.1 to A18.6, table A18.1 to A18.6) are presented in Appendix 18.

With regard to income, the pooled effect size for studies on Bangladesh is -0.4 (CI = -0.61, -0.18), while, for studies from other countries, it is 0.81 (CI = 0.57, 1.06). In the case of assets, studies on Bangladesh yielded an effect size of 0.09 (CI = 0.02, 0.15), while studies on the other countries in South Asia yielded 0.49 (0.01, 0.87). With regard to consumption as an outcome indicator, studies on Bangladesh yielded an effect size of 0.05 (CI = -0.02, 0.12), while the other studies had an effect size of 1.96 (CI = 1.33, 2.59). In the context of education studies on Bangladesh, there was an effect size of 0.07 (CI = 0.03, 011), and, for other countries, it was zero (CI = -0.03, 0.03). Therefore, it can be noted that, except in the case of education, effect size seems to be systematically higher for all the outcome variables for studies done on countries other than Bangladesh. This is partly because of the fact that there exists a wide variation in sample size, as well as the duration of the evaluation across studies in Bangladesh. Furthermore, one study (Mula and Sarker 2013) on other countries (India) is judged to be in the high-risk-bias category, while studies in the context of Bangladesh are in the low-risk category.

ASSESSING DIFFERENCES IN EFFECT BY TYPE OF INTERVENTION

Although the terms *microfinance* and *micro-credit* have been used interchangeably, there are some studies that have focused specifically on the effect of MF (Bashar and Rashid 2012, Chandrakumarmangalam and Vetrivel 2012, Desai and Joshi 2013, Field, et al. 2012, Imai and Azar 2012, Mula and Sarkar 2013, Setbonsarang and Perpiev 2008), while Augsburg (2006), Hussain and Nargis (2008), Khandar and Samad (2013), and Pati and Lyndogh (2010) study the effect of micro-credit alone. We examined whether there were systematic differences in results by type of intervention. The figures and tables in Appendix 17 show that the pooled effect size varies according to type of intervention for studies that have examined education and employment outcomes.

However, with regard to other outcome indicators, we do not find any systematic difference in effect size that is explained by sub-group analysis based on type of intervention. The income effect of MF (SMD = 0.34; CI, 0.19, 0.49) is higher than that of micro-credit (SMD = -0.55; CI -0.7, -0.22)[13]. However, in the context of assets, we found that micro-credit reports an effect size of 0.25 (CI = -0.03, 0.53), while MF reports an overall effect size of 0.13 (CI = 0.07, 0.2). With regard to consumption, we found that micro-credit reports an overall higher effect size

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[13] Negative SMD could be an indication that the control group was superior to the experimental group.

of 1.57 (CI = 1.09, 2.05) compared to that of MF, which is 0.09 (CI = 0.03, 0.14). In the context of education, micro-credit alone yielded significant small effect sizes (SMD = 0.07; CI = 0.03, 0.11). However, in empowerment as an outcome indicator, we do not find a very high difference across MF and micro-credit in terms of effect sizes, as the former yields an effect size of 0.03 (CI = 0, 0.06) and the latter 0.02 (CI = -0.03, 0.07). The employment effect of MF seems to be much higher than that of micro-credit, as the former had an overall effect of 0.26 (CI = 0.14, 0.39), compared to -0.07 (CI = -0.01, -0.04) for the latter[14].

4.5   CONCLUDING REMARKS ON THE META-ANALYSIS

Our analysis reveals that the evidence on the impact of MF on the set of outcome indicators examined is mixed. Meta-analysis results indicate that there is an overall positive effect on income; however, the effect seems to be small and not statistically significant. The findings from the meta-analysis on assets suggest that the overall effect size is positive and statistically significant. It can also be noted that the magnitude of the effect size is higher than that of income, indicating a positive impact on asset creation for participants. With regard to consumption/expenditure, we find there to be a large positive effect on participants' consumption. Further consumption smoothing also adds to the positive impact of MF interventions on consumption levels. However, the positive effect size is substantially smaller when the outliers are removed. With regard to education, we find that the pooled effect size is small, but positive and significant, implying benefits of MF participation in terms of more years of schooling, which is the key indicator in measuring the outcome on education. The outcome on education is more pronounced in the context of girls' education. In terms of women's empowerment, measured by the decision-making power of females in the household, we find a small, but positive and significant, effect size. However, it should be noted that there exist multiple indicators for measuring women's empowerment. The effect on employment is marginal and not statistically significant, implying no effects of interventions on employment. However, seasonality in farm employment is affected by MF initiatives, as non-farm-employment opportunities increase for the beneficiaries.

In terms of effect sizes, according to risk-of-bias assessment, our sensitivity analysis reveals that studies with low risk of bias have a smaller effect size compared to the studies with medium and high risk of bias. Furthermore, in terms of location, we find that studies in the context of Bangladesh yielded a smaller effect size compared to the rest of the region, as these studies predominantly had low risk of bias, with only one study having medium risk of bias. In terms of types of intervention, we find that MF initiatives had more impact on income than did micro-credit initiatives, while the reverse was the case with regard to assets. The effect on consumption is substantially higher for micro-credit than for MF. We do not find any difference in terms of the impact of women's empowerment across MF and micro-credit

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[14] As noted in the previous footnote, this could be due to superiority of the control group over the experimental group.

interventions. However, MF initiatives had a larger effect size on employment than did micro-credit initiatives, which suggests a need for more credit-plus programmes.

4.6   NARRATIVE SYNTHESIS OF INCLUDED STUDIES

The mixed findings from the meta-analysis and heterogeneity in terms of effects across studies included in the review require closer scrutiny. One of the most important mechanisms for accounting for this heterogeneity is the multiplicity of outcomes. Hence, a starting point to explain the heterogeneity of outcomes would be the development of taxonomy of outcomes. These outcomes, analysed in conjuction with the type of intervention, would open up the causal pathways on the effect of intervention.

We categorised the studies for narrative synthesis by outcome variables, which are identified from the major recurrent themes in the studies included in this review. These outcome variables also aligned with the outcome variables used for meta-analysis. These variables, individually or in an interactive way, are expected to reduce poverty. The variables are:

- Income
- Asset accumulation
- Level of consumption expenditure, especially food consumption and smoothing of consumption
- Other non-financial outcomes, such as education, employment and empowerment
- Poverty

The narrative synthesis includes 64 studies, out of which 43 studies are exclusively used for narrative synthesis and 21 studies overlap with the meta-analysis. Of the 64 studies, nine were repetition studies (using the same dataset), and the remaining 55 studies used different datasets or outcome measurement. Of the 55 studies, 41 were identified to be in the low-risk-of-bias category, four in the medium-risk-of-bias category, and 10 in the high-risk-of-bias category. The majority of the studies have discussed micro-credit (32 studies) and/or MF (36 studies). We first summarise the directions of effect, as reported in the primary studies (that is, positive and negative impacts), specifically in relation to participants' incomes, savings, consumption/expenditure and accumulation of assets, as well as other wealth indicators measured in the included studies. We then report a synthesis of the impact of micro-credit and MF on individuals, households and business-level income.

INCOME (N = 12)

Of the 64 studies that were shortlisted for narrative synthesis, only 12 studies focused on income as an outcome variable. Out of the 12 studies, six were in the low-risk category, with one in the medium-risk category and two in the high-risk category (three were replication studies, hence risk of bias is not assessed). The studies categorised in terms of intervention, outcome and direction of impact, are presented in table 4.2.

Table 4.2 Overview of directions on effect of micro-credit and micro-savings on income

Studies/ Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
Berg (2010)	Micro-savings	Per-capita household income	Positive	An increase of almost 2% every year
Chemin (2008)	Microfinance	Both business and household income	Positive	Helps in income-smoothing effect.
Chen and Snodgrass (1999)	Microfinance	Household income	Positive	SEWA; participation in micro-enterprises leads to increased household income.
Chen and Snodgrass (2001)	Microfinance	Household income	Positive	Mean household incomes highest for borrowers and lowest for non-members, with savers in between. Income advantage enjoyed by savers over non-members not significant statistically.
Czura (2010)	Microfinance	Household income	Positive	Income is generated from the operation of micro-enterprises. The most common kinds of micro-enterprise are retail shops, petty trading and tailoring.
Hussain and Nargis (2008)	Micro-credit	Household income	Positive	Three categories: regular, occasional and non-participants. Regular participants experienced the lowest gain and non-participants gained the most. No difference in labour productivity across the three groups.
Islam (2011)	Microfinance	Self-employment income	Positive	Self-employment income increased by 14.7 taka (USD 0.19) by borrowing 100 taka (USD 1.28).
Khandker et al. (1998)	Micro-credit	Household income	Positive	Increase in rural wages due to growth in self-employment.
Pati and Lyngdoh (2010)	Microfinance	Household income	Positive	Has percolated through to transformation of the family and society as a whole, with changes in education, health status, capacity building and access to social amenities.

Studies/ Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
Setboonsarng and Parpiev (2008)	Microfinance	Household income	Positive	Impact on education, health and female empowerment of limited significance; impacts on other MDGs are yet to be realised.
Woutersen and Khandker (2014)	Micro-credit	Household Income	Positive	The analysis rejects the hypothesis that micro-credit programmes are a poverty trap.
Zeller et al. (2001)	Microfinance	Household income	Positive	100-taka (USD 1,=.28) credit limit leads to 37-taka (USD 0.47) increase in annual household income.

As illustrated in table 4.2, the available evidence suggests that micro-credit/MF invariably have positive impacts on the household incomes of poor people (Berg 2010, Chemin 2008, Hussain and Nargis 2008, and Woutersen and Khandker 2014). The bulk of the studies assessed the impact of MF or micro-credit on the individual incomes of poor people, while there are some differences in the sources of the increases in incomes. Two broad channels have contributed to income increases: additional incomes generated through self-employment (Zeller et al. 2001 and Islam 2011) and enhanced business incomes (Chen and Snodgrass 1999 and Pati and Lyngdoh 2010). Both of these point to the entrepreneurial route. A related theme has been the effect on seasonal variations in income (Chemin 2008). Participation in MF programmes has led to the dampening of such seasonal variations, especially in the context of agricultural incomes and labour incomes from agriculture (Chemin 2008). The debate has covered three issues: (a) the quantum of increases in incomes from borrowings (Zeller et al. 2001); (b) the relation between the duration and frequency of participation and income generation (Hussain and Nargis 2008); and (c) the possibility of default on repayment and being pushed into a 'debt trap' (Woutersen and Khandker 2014). The evidence on the increased income via productivity garners little support (Hussain and Nargis 2008).

CONSUMPTION EXPENDITURE AND ASSET ACCUMULATION (N = 17)

Seventeen studies explore the impact of MF and/or micro-credit on broader aspects of wealth, savings and expenditure. Of the 17 studies, 11 were in the low-risk-of-bias category, followed by three in the high-risk-of-bias category (three were replication studies, hence risk of bias was not assessed). The impacts are summarised in table 4.3. The available evidence suggests that both MF and micro-credit, on average, have positive impacts on the level of household consumption of poor people. Morduch (1998) suggests that there is no impact of MF participation on consumption, and possibly even a negative effect in the Bangladeshi context.

There is some evidence that MF for women has an impact on their individual expenditure

(Chemin 2008). Using a propensity score, matching methodology to a high-quality RCT in Bangladesh found that the effect of MF on household-consumption expenditure is substantial and the difference is statistically significant between the participants and non-participants in the programme. It finds that participants were able to spend 3% more than a comparable individual in a control village.

Six other studies that were in the low-risk-of-bias category further explored the association between micro-credit and expenditure in Bangladesh (Pitt and Khandker 1998, 2002, Islam 2011, Rahman 2010, Zeller et al. 2001, and Pitt and Khandker 1998), and found a significantly positive association between women's loans and households' per-capita expenditure. Annual household consumption increases 18 taka (USD 0.23[15]) for every 100 additional taka (USD 1.28) borrowed by women, and by 11 taka (USD 0.14[14]) if it is borrowed by men. Although there is a positive impact on overall expenditure, in terms of food consumption there is no significant difference between participants and non-participants (Islam 2008, Khandker and Samad 2013, Montgomery 2005). This is partly because only the poorest of the poor tend to benefit from participation (Islam 2008) and the impacts are pronounced only for very poor participants, as their consumption levels are low (there is no study that compares the poorest of the poor population in terms of participants and non-participants).

This suggests that the effect of MF varies across different groups of poor households. The poorest of the poor are more likely to benefit from the participation than other poor groups. Also, there was an inverse relationship between MF-programme participation and land ownership (Islam 2008).

Berg (2010) is the only study that considers the impact of micro-savings on poor people's expenditure, rather than MF or micro-credit. It shows a positive impact on household food consumption for new savers.

Further, the evidences also suggests a positive impact (n = 11) on the accumulation of assets (studies that have specified a positive effect on 'total' household consumption are included), due to participation in or access to MF and/or micro-credit.

Table 4.3: Overview of directions on effect of micro-credit and micro-savings on consumption /expenditure

Studies/Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
Berg (2010)	Micro-savings	Increase in household food consumption for new savers	Positive	SEWA bank participation produces spillover effects due to collective bargaining.

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[15]Converted as of 22/03/16's conversion rate

Studies/Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
Chemin (2008)	Microfinance	Consumption at individual level	Positive	Participants were able to spend 3% more than a comparable individual in a control village.
Chen and Snodgrass (1999)	Microfinance	Household assets; household consumption	Positive	SEWA; member households consumed slightly larger quantities of fish and meat than non-members.
Chen and Snodgrass (2001)	Microfinance	Food expenditure increase;	Positive impact on food expenditure and no impact on fixed assets	Younger respondents (below 30 years of age) and respondents from larger households tended to spend less on food per household member.
Czura (2010)	Microfinance	Livestock purchase	Positive	No statistically significant difference in consumption between control group of incoming clients and the treatment group of recent clients. More female clients (53%) use their loans for investment purposes in new or existing household businesses than do male borrowers (39%).
Islam (2011)	Microfinance	Increased food consumption at household level, as well as non-food consumption and asset growth	Positive	Food consumption increased by 1.9%, non-food consumption by 3%. Assets increased by 4.85%. Participation over eight years shows that food consumption increased by 6.6% and non-food consumption by 12.4%.
Islam and Maitra (2008)	Micro-credit	Household consumption	Positive	Micro-credit has insurance role to play.
Menon (2006)	Microfinance	Increase in food consumption	Positive	Returns do not accrue indefinitely in a linear function. Maximum effect of participation is two years; after four years there were reduced mitigation effects on seasonal shocks.
Morduch (1998)	Microfinance	Total household consumption	No Impact	No impact of difference in consumption levels between participants and non-participants. Proved by superior econometric technique, consumption

Studies/Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
				smoothing is driven by income smoothing, not by borrowing and lending.
Pati and Lyngdoh (2010)	Microfinance	Increase in household consumption	Positive	Increase in income has contributed to a proportional increase in expenditure and savings.
Pitt (1999)	Microfinance	Total household consumption	Positive	The paper addresses the criticisms raised by Morduch and is of the view that Morduch's criticisms are not valid.
Pitt and Khandker (1998)	Micro-credit	Increase in household consumption	Positive	Annual household consumption increases 18 taka f(USD 0.23) or every 100 additional taka (USD 1.28) borrowed by women, and by 11 taka if it is borrowed by men. There is also an increase in non-land assets held by women.
Pitt and Khandker (2002)	Micro-credit	Increase in per-capita total household consumption	Positive	Credit-programme participation helps to smooth seasonal consumption by creating income flows.
Rahman (2010)	Microfinance	Per-capita monthly expenditure increase	Positive	Borrowers are better off in terms of consumption.
Swain and Varghese (2009)	Microfinance	Asset creation	Positive	All assets, including land, livestock, etc. Longer training positively impacts asset creation.
Woutersen and Khandker (2014)	Micro-credit	Net worth	Positive	Utilisation of micro-credit has a significant impact on household income and household net worth.
Zeller et al. (2001)	Microfinance	Household food and calorie consumption	Positive	On average, every additional 100 taka of credit raises monthly per-capita food expenditure by 0.67–0.69 taka.

While the studies of MF and micro-credit have traditionally focused on its impact on financial outcomes, including impact on income and poverty reduction, recently, there has been growing attention on other, non-financial outcomes, such as education and social capital. Of the five studies reporting on educational outcomes, four were in the low-risk-of-bias category and one was a replication study.

The findings of the impact of MF and micro-credit on education are mixed, with three studies reporting a positive impact of the interventions, and two studies suggesting no intervention impact (see Table 4.4). In fact, as pointed out by Islam (2011), there might be a negative impact of MF on education of participants' children, as MF interventions could increase levels of child labour and reduce school enrolment.

Table 4.4: Overview of directions on effect of micro-credit and micro-savings on education

Studies/Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
Banerjee et al. (2009)	Microfinance	Education	No Impact	The majority of children are enrolled in school in treatment areas. School expenditure varies widely across households. Treatment households do not spend more on schooling.
Chemin (2008)	Microfinance	Education	Positive	Increases in both male and female school enrolment.
Chen and Snodgrass (1999)	Microfinance	Primary and secondary schools for both boys and girls	Positive	Net enrolment rate higher among participants of SEWA bank. Statistically significant gender differences at secondary level.
Islam (2011)	Micro-credit	School enrolment	No Impact	Increased child labour and reduced school enrolment.
Pitt and Khandker (1998)	Micro-credit	Increased schooling for both boys and girls	Positive	One percent increase in Grameen Bank credit provided to women is predicted to increase the probability of girl's school enrolment by 1.86%.

Pitt and Khandker (1998) find that girls' schooling is positively affected when women borrow from Grameen Bank, but not so when they borrow from other micro-credit programmes. The reason for girls schooling's being positively affected is attributed to the Grameen Bank's specific emphasis on educating girls as part of its social-development programme. Islam (2011) examines the impact of access to micro-credit on children's education and child labour

using a large dataset from rural Bangladesh. The results overwhelmingly indicate that household participation in micro-credit programmes has adverse effects on children's schooling, which are especially pronounced for girls.

Banerjee et al. (2009) find that the households who participated in MF programmes are not more likely to have children in school, and they do not spend more on tuition, school fees or uniforms.

EMPLOYMENT (N = 6)

Six studies focus on employment as an outcome. Of these six studies, four were in the low-risk category, and two were repetition studies. The impact on employment generation is mixed, with studies having focused on the labour-market implications in terms of wages and labour supply.

Table 4.5 Overview of directions on effect of micro-credit and micro-savings on employment

Studies/ Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
Chen and Snodgrass (1999)	Microfinance	Employment generation	No Impact	SEWA participants are employed in own account work in trade (49%) and services (43%).
Chen and Snodgrass (2001)	Microfinance	Employment generation	Small positive impact	Most households have multiple sources of income and take advantage of seasonal peaks, leading to less diversification of employment.
Khandker et al. (1998)	Micro-credit	Increase in self-employment	Positive	Positive impact on labour-force participation and total hours worked. Overall village employment has increased.
Pitt (2000)	Micro-credit	Male self-employment	Positive	Programmes alter the mix of agriculture contracts. Increases own cultivation, increases male hours in field crops, reduces male hours in wage labour, diversifies income, smoothing consumption; female credit effects larger than male credit effects.
Pitt and Khandker (1998)	Micro-credit	Self-employment and wage labour	Positive impact on self-employment and no impact	Statistically significant effect on women's labour supply among participants of Grameen Bank initiatives.

			on labour supply	
Pitt and Khandker (2002)	Micro-credit	Women labour supply	No Impact	Effect of credit on women's labour supply does not indicate any positive outcome, as the total time allocation of women for market activities is less.

In terms of employment generation, there exists little evidence of a quantum increase in employment in the villages (Khandker et al. 1998). Gender-differentiated impact analysis reveals that female employment has grown (Pitt and Khandker 2002). The increase in female employment has been largely in non-farm employment. If we are to assess macro-level changes in employment generation, then we find that the increase in female employment is often coupled by the withdrawal of male workers (Pitt 2000). Access to credit helps male workers to organise the initial seed capital for enterprises, which results in their withdrawal from agricultural labour. Consequently, village-level employment trends depend on the magnitude of the changes in relation to males and females. Such aggregate analysis often mask the trends at disaggregate level. One study has reported increases in male wages (Pitt 2000). This is because, as males start up their own enterprises, they withdraw from the labour market, leading to a shortage of workers and thereby increases in wages. It should also be noted that the seasonal variations in employment and the implications of MF in mitigating seasonality has also been documented extensively by Chen and Snodgrass (1999 and 2001), Khandker et al. (1988), Pitt (2000) and Pitt and Khandker (1998, 2002).

WOMEN EMPOWERMENT (N = 9)

Nine studies assessed the impact on women's empowerment, of which six studies are in the low-risk-of-bias category, one in the medium category and two in the high-risk-of-bias category.

Empowerment through MF is identified and measured in various dimensions: impact on decision-making, on the self-confidence of women, on their status at home, on family relationships and the incidence of domestic violence, on their involvement in the community, and on their political empowerment and rights. Although it is difficult to measure the exact impact of access to micro-credit/MF on different dimensions, studies have shown mixed effects/experiences for each of these different dimensions of women's empowerment.

Table 4.6: Overview of directions on effect of micro-credit on women's empowerment

Studies/ Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
Banerjee et al. (2010)	Micro-credit	Financial Empowerment	No impact	Women's decision making over issues of household spending, investment, savings and education.
Garikipati (2012)	Micro-credit	Women's Empowerment	No impact	Women's loans are mainly used to improve households' productive assets, which are mainly owned by men.
Czura (2010)	Microfinance	Women's empowerment	Positive	Increased participation in household decision making.
Nilakantan et al. (2013)	Micro-credit	Financial Empowerment	No Impact	Greater access to microfinance, measured by longer duration of treatment, is associated with decreased likelihood of borrowers' managing the enterprise.
Pitt et al. (2006)	Micro-credit	Women's Empowerment	Positive	Autonomy in purchasing decisions, women's access to financial and economic resources, the size of women's social networks, greater mobility for women, and greater likelihood that the woman initiates discussion with her husband about family planning.
Rahman et al. (2009)	Micro-credit	Women's Empowerment	No Impact	Greater age of females has negative effect on empowerment and younger females are better empowered. Education of females affects empowerment positively.

Studies/ Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remarks
Swain and Wallentin (2009)	Micro-credit	Women's Empowerment	Positive	Differences in the pace of empowerment exist and are likely to be the result of household and village characteristics, behavioural differences and types of training and awareness programmes.
Weber and Ahmed (2014)	Micro-credit	Women's empowerment (financial and social)	Positive	Women in higher loan cycles are at a higher level of employment.
Zaman (1999)	Micro-credit	Women's Empowerment (financial and social)	Positive	Greater amounts borrowed enhances women's control and decision-making power over their assets.

Some studies (for example, Banerjee et al. 2010) postulate that MF is expected to make women economically independent by giving access to financial resources and putting capital in their hands. Economic independence obtained through ownership and rises in income affects intra-household decision making in households and communities, and subsequently results in increased prestige and self-esteem.

Studies indicate that SHGs mediated by micro-credit have helped women gain control over assets and subsequently acquire self-esteem, knowledge and power (Zaman 1999, Pitt et al. 2006, Swain and Verghese 2009 and Chowdhury 2009). For example, Swain and Wallentin (2009) conducted one of the few studies that used a QE approach to test whether MF had an impact on the empowerment of women. Their results suggest that women who were members of an MF programme experienced a significant increase in empowerment compared to non-members.

We identify two studies that demonstrate that women borrowers relinquish the use of their loans, in part or in whole, to their spouses, and are unlikely to experience an increase in bargaining power within the household (Garikipati 2008 and Kabeer 1998). At the same time, there are evidences that show that inclusion of men in the entrepreneurial activities of women may be positive in terms of both women's empowerment and their incomes, because it does not create conflicts between wives and husbands (Khan and Noreen 2012 and Kabeer 1998). For instance, in her study of the Small Enterprise Development Project (SEDP) in Bangladesh, Kabeer (1998) notes that women's contributions to the household helped bring about a

reduction in abuse and a strengthening of their relative position within an interdependent relationship with their husbands.

One question that is commonly raised is how women's borrowing impacts household consumption. Providing women with access to credit, it is argued, strengthens their bargaining position within the household, and women are more likely than men to spend resources in ways that benefit the entire household. For example, using data from Bangladesh, Pitt and Khandker (2006) estimate how participation in a credit programme impacts household consumption, depending on the participant's gender. They conclude that household consumption increases more if a woman takes a loan, rather than a man. Individual loans were used mainly to meet households' productive and consumption requirements and, in some cases, to finance self-managed enterprises (Garikipati 2008). Therefore, micro-credit can be a powerful vehicle for enhancing incomes and protecting households from the risk of crisis (Garikipati 2008).

It is mentioned that improvements to women's access to resources and decision-making power as a result of participation in MF programmes lead to a reduction in fertility and an increase in the adoption/usage of contraceptives (Latif 1994, Pitt et al. 2006 and Pitt 1999), while studies such as Kuchler (2012) find no significant effect on fertility from participation in or access to any of the MF programmes.

Although empowerment is measured on different levels, such as individual, household and community levels, most of the studies focus on the household level. This was primarily due to methodological problems and the databases that were used for the analysis.

POVERTY[16] (N = 12)

The impact in terms of poverty reduction has been one of the most debated issues in terms of the outcome of MF interventions. Of the 18 studies that addressed poverty, 12 studies had low risk of bias, with one study having medium risk of bias and three having high risk of bias (two studies were replication studies). Evidence from Bangladesh shows mixed results. Studies such as Hoque (2004), Islam (2008) and Roodman and Morduch (2014) show that MF has minimal impact in terms of reduction of poverty. This view has been contested by Khandker (2005) and others. Khandker (Ibid.) shows that access to MF contributes to poverty reduction, especially for female participants. It is also interesting to note that this study provides evidence of an overall reduction in poverty at village level.

Montgomery (2006), in contrast, shows that the impact on poverty should first be assessed by classifying the poor, as the poor do not constitute a homogeneous category. Montgomery (2006) shows that the impacts are more pronounced on the very poor participants, which

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[16] While some studies have used uni-dimensional measures to examine poverty, others have used a multiple set of indicators to examine impacts on poverty. The rationale for using multiple indicators is to capture possible interaction effects that could result in the alleviation of poverty. Further studies have also examined different strata, based on national/regional definitions of poverty lines.

supports Halder (2003). It should be noted that different sets of studies have used different methods to assess the impact on poverty, but a general observation is that consumption expenditure has been the most widely used indicator to assess impacts on poverty. Some studies (for example, Islam 2008), have also tried to examine the benefits of participation, linking them to the level of participation.

We find that the benefits in terms of poverty reduction accrue in the early stages of participation, but diminish over time. However, this has been contradicted by studies that show that participants who have left the programme also tend to reap some benefits, as membership duration in programmes positively impacts asset creation, and training provided as part of these programmes helps members in creating assets. This asset accumulation leads to income diversification (Swain and Varghese 2009). A related theme has been the impact in terms of reduction in vulnerability, especially arising out of seasonality of employment. Swain and Floro (2012) report evidence of declining vulnerability for members who have been in the programme for more than a year.

Three issues emerge from the evidence: (a) issues relating to measurement of poverty reduction, as there exist a set of confounding factors that could influence outcomes; (b) the fact that the poor themselves are not a homogeneous category, warranting further classification of this demographic as the effects could be more pronounced on the poorest; and (c) tracking the impact on vulnerability, especially across gender, as the incomes of the poor are subject to seasonal fluctuations. Perhaps assessing impact in relation to the levels of participation and attaching a timeframe to the accrual of benefits can be regarded as a welcome step in untangling the impacts on poverty reduction.

Table 4.7 Overview of directions on the effect of micro-credit and microfinance on poverty

Studies/ Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remark
Banerjee et al. (2009)	Micro-credit	Effect on poverty through profits, investment and consumption	Positive	15 to 18 months after the programme, no effect on monthly expenditure per-capita, but durable expenditure increased.
Chen and Snodgrass (2001)	Microfinance	Household consumption	Positive	Improves clients' ability to cope with financial crisis, but evidence is not statistically robust.
Duvendack (2010)	Microfinance	Per-capita expenditure	Positive	Gender of the borrower matters, all estimates of impact are highly vulnerable to the measures used to capture unobservable variables.

Studies/ Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remark
Czura (2010)	Microfinance	Household consumption	Positive	Thirty-seven percent of beneficiaries noted an increase in profits, 10% a substantial increase in profits and 52% reported profits remaining the same after receiving the MF loan.
Halder (2003)	Microfinance	Helps poorest of the poor	Positive	Poor are not homogeneous. Programme led to a decline in the poverty level, at an annual rate of 1.75%.
Hoque (2004)	Micro-credit	Household consumption	No Impact	Conclusion is that micro-credit had minimal impact on poverty.
Imai and Azam (2012)	Microfinance	Increased income, increased food consumption	Positive	Evidence supports poverty-reducing effects of MF.
Imai et al. (2010)	Microfinance	Multi-dimensional welfare indicator	Positive	Loans for productive purposes were more important for poverty reduction in rural than in urban areas.
Islam (2008)	Microfinance	Household consumption	No Impact	The poorest of the poor seem to benefit; effect on participation is stronger for male borrowers.
Khandker (2005)	Microfinance	Total expenditure	Positive	Access to MF contributes to poverty reduction, especially for female participants, and to overall poverty reduction at village level.
Khandaker and Samad (2013)	Micro-credit	Higher income and higher food consumption	Positive	Reduction of poverty can be as high as 9% of total poverty reduction over the last decade.
Khandker and Samad (2013)	Micro-credit	Poverty reduction by earning income, more consumption and assets.	Positive	Rates of poverty reduction higher for participants.
Khandker and Samad (2014)	Micro-credit	Household welfare	Positive	Beneficial effects are higher for female than for male borrowers.
Montgomery (2006)	Microfinance	Economic and social indicators of welfare and income-generation activity	Positive	The impacts are pronounced for the very poor participants in the programme; no impact on consumption, but increases

Studies/ Papers (Authors and Year)	Interventions (Micro-credit/ Micro-savings/ Microfinance)	Outcome	Direction of Impact	Remark
				in expenditure on children's education.
Roodman and Morduch (2014)	Micro-credit	Multiple indicators	No Impact	Original results on poverty reduction do not hold good after dropping outliers, or when using robust linear estimator.
Shirazi and Khan (2009)	Micro-credit	Reduction in poverty by improving income	Positive	Micro-credit provision has reduced poverty by 3.05%.
Swain and Floro (2012)	Microfinance	Reduction in vulnerability, increase in food consumption	Positive	Vulnerability declines significantly for those that have been SHG members for more than one year.
Zaman (1999)	Micro-credit	Household consumption	Positive	Reduction in poverty can occur if credit is used for income-generating activity.

4.7 EMERGING CAUSAL LINKS ON IMPACT OF MICRO-CREDIT AND MICRO-SAVINGS ON THE POOR

Having reviewed the evidence of effectiveness of MF, micro-credit and micro-savings in South Asia, we integrated the synthesis with the aim of answering the following questions:

A. Which types of intervention or their components could affect the well-being of the poor on particular outcomes; for example, income, consumption, savings, investment, profits, accumulation of assets, health, education and women's empowerment?

B. What are the direct and indirect, positive and negative, intended and unintended effects on the participants and non-participants?

C. How are the effects distributed across target segments and outcome variables?

D. Do they affect individuals, households, small businesses and communities differently?

E. What are the critical success factors or enabling conditions at meso, macro and micro level for achieving greater positive benefits?

F. Does the context, or under what circumstances these interventions succeed or fail, matter?

The findings and conclusions regarding the effects of MF on outcomes are based on meta-analysis and narrative synthesis of the quantitative impact evaluations addressing the review questions. Based on the findings from the synthesis, we attempt to explain heterogeneity in

findings using causal chain analysis (White 2009). Using the evidences, we discerned a more complex pathway, in order to understand better how micro-credit and micro-savings might impact on clients (see figure 4.15). We have represented the various interventions in brown, the change in behaviour in blue, the outputs in black and the outcomes in green.

We have identified two ways in which people spend the money borrowed from MFIs. They either undertake investment for the future or/and use it for immediate consumption. Their investments can include spending on business, or accumulation of other productive assets, such as farming equipment or livestock, or they can involve investing in education, health, nutrition or housing. Consumption spending can also include spending on nutrition, housing or other assets. These investments have direct impacts on clients' well-being, their ability to absorb shocks and contribute to productivity, and in terms of rises in income. Greater business and productive assets, greater training or education, and less risk of adverse events, can all contribute to increased income.

For micro-savings clients, this increased income can enable them to spend more and to spend in different ways, and, of course, to save more. Crucially for micro-credit clients, this increased income is necessary for them to repay their original loans, and the often extremely high interest on those loans. Once those loans are repaid, micro-credit clients are also able to save more and to spend more and spend differently. The causal links are presented pictorially in figure 4.15.

Given this background, the belief is that MF/micro-credit will increase access to stress-free finance, which would be used for undertaking productive investment, creating new business or generating self-employment. In either case, the productive investment would increase income, savings and women's empowerment (in the case of women members), which, in turn, would levels of poverty and also change the expenditure pattern and well-being of the individuals/households that benefit from the scheme.

MF interventions are complex, with different modes of delivery in a range of different contexts. Given this, the possibility of multiple outcomes from a particular mode of delivery also exists. In this review, we have analysed both micro and macro outcomes. Micro outcomes could be broadly in term of the economic benefits of intervention, either at the level of individuals or households. Macro outcomes are more social in scope, affecting the community and/or a geographical region. Apart from this, interventions also yield benefits for particular sections/groups, predominantly women. Hence, we also analyse the effects on women's empowerment due to such interventions.

Economic outcomes: Within economic outcomes, impact on income, asset creation, consumption and expenditure, education and employment have been analysed.

Impact on Income: The meta-analysis suggests a small, but positive, impact of MF interventions on incomes. This is further corroborated by the studies that have been used in the narrative synthesis. The increase in income did not turn out to be significant, as indicated by the results of the meta-analysis. The evidence from narrative synthesis also indicates a positive impact on income, but the increase varied across studies. Berg (2010) reports an increase of 2% every year, while Islam (2011) shows that self-employment income increased by 14.7 taka (USD 0.19) for every 100 taka (USD 1.28) borrowed, which is much less than that of Zeller et al. (2001), which reported an additional 37-taka increase in annual household incomes. The evidence in terms of the quantum of increase in income, while positive overall, was not statistically significant.

Impact on asset creation: The meta-analysis results suggest effect size is positive and statistically significant, indicating that MF/micro-credit interventions had a positive impact on asset creation for the participants. Asset creation has been mainly in terms of land and livestock (Swain and Varghese 2009). It is also found that longer duration of training also leads to positive impact on asset creation (Swain and Varghese 2009). Viewed from a different perspective, Woutersen and Khandker (2014) show evidence of positive impact on the net worth of participating households.

Impact on consumption and expenditure: The meta-analysis results indicate that the effects of interventions are positive and statistically significant, but, when the outliers were excluded, the effect size was reduced considerably. The effect of micro-savings for women also report significant impact on expenditure (Chemin 2008). A significant association between women's loans and households' per-capita expenditure has also been reported (Pitt and Khandker 1998). A positive impact on food consumption of households who are new savers was also found (Berg 2010). It was also found that the poorest of the poor were more likely to benefit

from participation than the other poor groups (Berg 2010). However, in contrast, Morduch (1998) reports that the effect on consumption of the participating households is insignificant in Bangladesh. Further, the study points out that the most important potential impacts are associated with the reduction of vulnerability, not of poverty per se, and consumption-smoothing is driven by income smoothing and not by borrowing and lending.

Impact on employment: The effect of interventions on employment is marginal, based on the meta-analysis. This has been further corroborated in the narrative synthesis, where labour-market implications have been analysed through implications for wages and labour supply. Pitt (2000) shows a positive impact on employment through the alteration of the mix of agricultural contracts, which leads to increases in own cultivation and, therefore, an increase in male hours of employment. Chen and Snodgrass (2001) also present evidence of a small, but significant positive impact on employment generation. Khandker (1998) presents macro evidence; that is, an increase in employment at village level. A significant result is that of Pitt and Khandker (2002), which shows no positive outcome on women's labour supply, as the time allocation for market activities in total time is less for women.

Social outcomes: Within social outcomes, impacts on **education and health** were attempted for analysis. However, given the lesser number of studies assessing the impact on health outcomes, it was not considered for quantitative synthesis. With regard to education, we find positive impact via increased male and female school enrolment (Chemin 2008), which was corroborated by the results of the meta-analysis, which indicated small, but significant positive effects on education, due to interventions. Pitt and Khandker (1998) also report increased schooling for both boys and girls, indicating positive impact, which is supported by Chen and Snodgrass (1999). Banerjee et al. (2009) present no evidence of spending more on education. Islam (2011) presents contradictory evidence on school enrolment, as interventions increased child labour and reduced school enrolment.

The studies indicating effects on health were few and far between, which did not pass the inclusion/exclusion and quality criteria. Among the studies that were chosen for synthesis, none of the studies analysed gave benefits on health as an independent or single most important outcome. However, studies have analysed impacts on decisions regarding family planning and reproductive health as part of the larger analysis of women's empowerment (Pitt et al. 2006), and have shown that participation in MF programmes leads to increased awareness of reproductive health, leading, in turn, to the initiation of discussions about family planning. Furthermore, Latif (1994) and Pitt et al. (2006) show that participation in MF led to a reduction in fertility via increased adoption of contraceptives.

Women's empowerment: The effect of interventions is small, but positive and significant for women's empowerment, based on meta-analysis. Although empowerment is identified and measured in various dimensions across studies, the studies are largely homogeneous in terms of outcome measured: females' participation in household decision making regarding expenditure. A major causal link identified in terms of enhancing empowerment is the fact that micro-credit delivered through SHGs helped women gain control over assets and acquire self-esteem (Pitt et al. 2006 and Chowdhry 2009). Another link is through the possible

relinquishing of the loan, either in part or in whole, to their spouses by the women borrowers (Garikipati 2008). Pitt et al. (2006) indicate higher autonomy in purchasing decisions and an increase in the size of women's social networks, indicating a positive influence on empowerment. However, Banerjee et al. (2010), using women's decision making concerning issues of household spending and investment as an indicator of empowerment, indicate no significant impact. Protecting households from the risk of crisis by participating in MF interventions has been another indicator used for assessing empowerment, which reports positive outcomes (Garikipati 2008). Moreover, it was observed that micro-credit (Pitt et al. 2006, Swain and Wallentin 2009) has a higher impact on women's empowerment and employment than do MF interventions. However, MF has a stronger influence on savings (Pati and Lyngdoh 2010), consumption enhancement (Islam 2011), education (Chemin 2008) and income (Chen and Snodgrass 1999) than do micro-credit interventions.

The synthesised evidence on the impact of MF in terms of varied outcomes provides mixed evidence. The results of meta-analysis provide evidence that the interventions have yielded positive outcomes. The magnitude of such outcomes, as discussed in the narrative synthesis, is small. It should also be noted that the majority of these findings are in the context of Bangladesh, where these programmes started earlier, resulting in a longer time span to assess the impacts. The evidence in the context of Bangladesh does not hold good in other countries. For example, with regard to the impact on employment, Khandker et al. (1998) report positive impact in the context of Bangladesh, while Chen and Snodgrass (1999) report no significant effect in the context of India. Similar trends in results were observed with regard to women's empowerment, as Pitt et al. (2006) report positive impacts on women's empowerment in the context of Bangladesh, while Nilakantan et al. (2013) report no impact in the context of India. Narrative synthesis suggests, therefore, that the characteristics of intervention and contextual factors may be the key determinants of the success of interventions.

5   SUMMARY AND CONCLUDING REMARKS

The outcome of MF interventions has been a matter of debate, both for academics and policy-makers, while there exists an evidence base in relation only to some countries in South Asia. With regard to the other countries, substantial evidence is yet to be produced. An important dimension of the outcome of MF is its impact on poverty and the well-being of the poor. This review focuses on the impact of MF interventions in South Asia and their implications for poverty and well-being. It contributes, therefore, to an existing number of systematic reviews on the effects of MF within a specific regional context. This review attempts to synthesise evidence relating to the following sub-questions:

A. Which type of interventions or their components could affect the well-being of the poor on particular outcomes?

B. What are the direct and indirect, positive and negative effects on the participants and non-participants?

C. How are the effects distributed across target segments and outcome variables?

D. Do they affect individuals, households, small businesses and communities differently?

E. What are the critical success factors or enabling conditions at meso, macro and micro level for achieving greater positive benefits?

F. Does the context, or under which circumstances these interventions succeed or fail, matter?

We have attempted to unravel the complicated causal chain of interactions among variables. In doing so, we have been constrained by the availability of quality studies for answering some of the abovementioned questions, more specifically on the varied effects on individuals, households and communities (sub-question D) and critical success factors (sub-question E). In such an exercise, the quality of available evidence plays a crucial role. Our approach has been guided by the theoretical mechanisms that could make such interventions work, providing us with the basis for searching the causal mechanisms in the empirical studies selected for in-depth reviewing.

We identified 48,961 studies. Based on the title screening of all the identified studies, 3,061 studies qualified for abstract screening. After the abstract screening, we had 1,202 studies shortlisted for stage one of full-paper screening. In stage one, 969 studies not conforming to the study question were eliminated. This resulted in 233 studies qualifying for stage two of full-text screening. At the end of the second stage of full-text screening, 39 studies qualified for the scoping exercise. At this stage, we added 30 more studies, which we obtained from web searches and key-author searches, which met the inclusion criteria. We therefore shortlisted 69 studies for the review synthesis, of which nine were replication studies based on the same dataset. Out of the 69 studies, 26 studies met the requirement criteria for conducting a meta-analysis and 64 studies qualified for qualitative synthesis. There were 21

overlapping studies between quantitative and qualitative review and seven studies exclusively included for meta-analysis.

We performed an assessment of the quality of the included studies in terms of methodological approach, including research design and methods used for data analysis. In line with some of the earlier reviews, we found this to be an area of weakness. Of the 60 studies (excluding nine replication studies), we found that 45 studies were in the low-risk of-bias category, with three in the medium-risk-of-bias category and 12 in the high-risk-of-bias category.

5.1   SUMMARY OF THE FINDINGS FROM THE META-ANALYSIS

The meta-analysis results indicate that there is, overall, positive evidence on increases in income; however, the effect seems to be small and not statistically significant. With regard to asset creation, the results indicate positive and statistically significant effects. Consumption/expenditure, an outcome variable that is widely used in impact-assessment studies of MF, have had large positive effects on participants' consumption; however, when the outliers were removed, the effect sizes were reduced considerably. Further consumption smoothing renders a positive impact of MF interventions, pointing to reductions in vulnerability. Another significant impact is noticed in terms of education outcomes, with higher school-enrolment rates, which is more pronounced for girls' education. Even though there exist multiple indicators for measuring women's empowerment, empowerment measured using the decision-making power of females indicates a small, but positive and significant effect. The effects on employment is marginal, indicating low or no effects of interventions on increasing employment.

The quality and methodological sophistication of studies was assessed in terms of their risk of bias, as related to the outcome results reported. The studies with low risk of bias have low overall effect sizes compared to studies with medium and high risk of bias across outcome indicators. This indicates that there exists the possibility of exaggerated effects arising out of low-quality impact evaluation. The studies in the context of Bangladesh yielded lower effect sizes compared to the rest of the regions, as these studies also had a low risk of bias. MF interventions have had a greater effect on income than micro-credit initiatives, while the reverse is the case with regard to assets. The consumption effects of micro-credit are substantially higher than are those for MF; however, there is no significant difference across types of interventions for women's empowerment. The effects on employment were more pronounced for MF than for micro-credit, essentially suggesting a greater need for a credit-plus programme.

5.2   SUMMARY OF THE FINDINGS FROM NARRATIVE SYNTHESIS

The findings from narrative synthesis suggest that micro-credit/MF has invariably positive impacts on the household incomes of poor people, although there have been some differences regarding the sources of the increase in incomes. Two broad channels have contributed to income increases; they are, additional incomes generated through self-employment and enhanced business incomes. Participation in MF has led to the dampening

of seasonal variations in income in the context of agricultural incomes. Evidence of increased income via productivity is scant.

The next important outcome variable is increased consumption, which is found to be a positive for participants, due to asset creation. Micro-savings for women may have an impact on their individual expenditure in the context of Bangladesh. It was also found that participants were able to spend 3% more than a comparable individual in a control village. A significantly positive association between women's loans and household per-capita expenditure was also found. Although there is a positive impact on overall expenditure, in terms of food consumption there is no significant difference between participants and non-participants. Micro-savings shows a positive impact on food consumption of new-saver households. The poorest of the poor were more likely to benefit from participation than other poor groups, which essentially addresses the sub-question on target segments.

Evidence on the impact on education, employment and women's empowerment is mixed. Despite studies showing a positive effect on education, there exists a negative impact of MF on education of participants' children, as MF interventions could increase child labour and reduce school enrolment. On the other hand, girls' schooling is positively affected when women borrow from Grameen Bank, but not so when they borrow from other micro-credit programmes.

In terms of employment generation, there exists little evidence of a quantum increase in employment in the villages. Gender-differentiated impact analysis reveals that female employment has grown largely because of increases in non-farm employment. Access to credit helps male workers to organise the initial seed capital for enterprises, which results in their withdrawal from agricultural labour. It should also be noted that the seasonal variations in employment and the implications of MF in mitigating seasonality have also been documented extensively in the studies included for this review.

Studies indicate that the SHGs mediated by micro-credit have helped women gain control over assets and subsequently acquire self-esteem, knowledge and power. Their results suggest that women who were members of an MF programme experienced a significant increase in empowerment compared to non-members. It is documented that household consumption increases more if a woman takes a loan, rather than a man. Individual loans were mainly used to meet households' productive and consumption requirements and, in some cases, to finance self-managed enterprises. Although empowerment is measured on different levels, such as individual, household, and community levels, most of the studies focus on the household level. This is primarily due to methodological problems and the database that was used for the analysis.

The impact in terms of poverty reduction has been one of the most debated issues in relation to the outcome of MF interventions. Evidence from Bangladesh and India shows results ranging from minimal impact on poverty to significant impact, especially for female participants. Another view suggests that the impact on poverty needs to be assessed firstly by classifying the poor, as the poor itself is not a homogeneous category. We find that the

benefits in terms of poverty reduction accrue in the early stages of participation, but diminish over time. However, studies have also shown that participants who have left the programme tend to reap some benefits, as membership duration in programmes positively impacts asset creation, and training provided as part of these programmes helps members in creating assets.

As discussed earlier, a multiplicity of factors and outcomes have to be taken into account in assessing our results. This is more pronounced, as poverty itself is a multi-dimensional concept, which makes measurement of its reduction complicated. Furthermore, the ingredients for poverty reduction produce results over a longer period of time, underscoring the importance of the time dimension in empirical analysis. The evidence from the literature could be interpreted as supporting the fact that MF is a necessity, but not, in itself, a sufficient condition to ensure poverty alleviation, as it depends upon a large number of other factors.

5.3   CONCLUSION

It emerges from the meta-analysis, as well as from the narrative synthesis, that there is mixed evidence on the impact of MF interventions on alleviating poverty in the south Asian context. Meta-analysis results suggest that, although, across the outcome variables examined, there might be a positive impact of MF, the magnitude of the impact is small and depends closely on the risk-of-bias of studies. The positive effects are prevalent across Bangladesh, India and Pakistan, countries for which impact-evaluation studies have been included in the analysis. In the context of Sri Lanka, Nepal, Bhutan, Afghanistan and Maldives, we did not find studies providing enough evidence to be included in the meta-analysis. However, there were studies from Sri Lanka that were included in the narrative synthesis.

The results from meta-analysis are further corroborated by the evidence from narrative synthesis. The overall evidence suggests the positive influence of MF interventions on income, asset accumulation and consumption. With regard to women's empowerment, outcomes are sensitive to the definitional parameters used. The findings from the narrative synthesis also indicate that MF could influence education and employment outcomes. However, girls' education has to be seen in light of some of the contradictory evidence. We find that programmes emphasising specifics like girls' education have higher beneficial impacts, as noted by the studies on the impact of Grameen Bank. In terms of type of interventions, a credit-plus programme is generating more positive impact than standalone lending programmes. It should be noted that these programmes also yield benefits for erstwhile participants.

On the question of employment and its seasonal variations, MF interventions are portrayed as effective mitigation mechanisms. The overarching evidence points to the positive impacts of female participation in MF initiatives. In terms of context, we find that MF programmes generate spillover effects, which, in synergy with other interventions, have the potential to yield higher benefits for the participants.

It can be observed that benefits derived from MF interventions are skewed in terms of positive impacts on a set of outcomes (differential outcomes), and without significantly impacting the

others. This skewedness could be, firstly, due to the nature of intervention, and, secondly, due to the implementation method, whether it is delivered through an MFI or an SHG-linked organisation. This is because the focus of MFIs is predominantly credit disbursements, where poverty reduction is an indirect outcome, whereas, if the MFI is SHG-linked, the focus is on poverty reduction, with credit being an enabler. Although SHG-linked schemes focus on poverty reduction, they have fallen short of creating a sustained income-generating activity. The focus should shift towards skill development, which could enable participants to obtain more regular employment, or to creating income-yielding assets or micro-enterprises, rather than encouraging their engagement in petty labour.

5.4   DEPARTURE FROM EXISTING SYSTEMATIC REVIEWS

Even though we follow some of the broad methods adopted in the existing systematic reviews, we depart from some of them on MF, including Stewart et al. (2012), Vassen et al. (2014) and Duvendack et al. (2011), on the following aspects:

- Vassen et al. (2014) examined the impact of MF on a single indicator; that is, women's empowerment and the circumstances under which empowerment occurs in developing countries. In the present review, we focus on a set of outcome variables ranging from Income generation to women's empowerment in the South Asian context.
- Stewart et al. (2012) examine the impact of micro-credit, micro-savings and micro-leasing in enabling poor people (especially women) to engage in meaningful opportunities in low- and middle-income countries (LMICs). In this review, we focus on MF, micro-credit and micro-savings in the South Asian context, with specific reference to quantitative studies and using meta-analysis.

- Duvendack et al. (2011) examine the impact of MF on the well-being of poor people in developing countries. Our focus, as stated above, is exclusively on the South Asian region, with the intention of capturing more recent evidence.

5.5 LIMITATIONS

The outcome-evaluation problems stated in Duvendack et al. (2011) still persist in terms of randomised and non-randomised approaches, unbiased control groups, and econometric techniques. Studies that have focused on RCTs or the before/after method in terms of comparison and control groups fail to provide adequate evidence that they control sufficiently for selection bias. Although the majority of the studies fall into the category of low risk of bias, there were studies that had either medium or high risk of bias. There are quite a good number of studies by Pitt and Khandker, especially in the context of Bangladesh, that continue to claim superior positive and also spillover effects due to MF/micro-credit, based on a longitudinal, multi-stage sample. It was even more surprising that most of the longitudinal studies, especially those reporting significant positive impact, are from a single South Asian country (that is, Bangladesh) and are based on a common dataset provided by BARC. On the contrary, Morduch (1998) argues that the impact evaluation is largely dependent on the robustness of econometric technique used for analysing the data, which is weak in most of the studies reporting significant positive impact. Morduch (1998) generates a debate and questions the claims of Pitt and Khandker (1998) of positive impact of MF by providing evidence of no or only a very minimal impact, using superior econometric technique. The evaluations indicating positive impact are heavily dependent on the quality of underlying data, which, unless it is strictly controlled for, could lead to spurious results.

Our own field experience in MF interventions in rural villages in India also lends support to the questioning of measurement and quality and authenticity of data (Gopalaswamy et al. 2015). The level of errors in the field data from MF participants is expected to be high compared to other qualitative research based on case-study approaches. One of the significant problems of field-level data collection is that most of the responses are based on memory recall or self-reported data, and it therefore becomes difficult to establish authenticity. The second major issue in these forms of data is the respondent and his or her role in the decisions of the family. It is observed that, in most cases, the members of an MF group or SHG are women, and most of them are not decision makers, especially regarding the finances of the household. It is observed that, although the women borrow from the SHG, the male members of the household make the spending decisions. The women members act more as a facility for the male members of the family to raise finances through MF for the household or family business. This is supported by Pitt (2000), who uses econometric analysis to suggest that participation in credit programmes alters the mix of agricultural contracts. It also induces own cultivation through sharecropping, the increase in male hours in field-crop self-employment, and a reduction in male hours in the agricultural wage-labour market.

Therefore, non-availability of rich, high-quality data due to poor design poses serious problems in terms of arriving at any meaningful conclusions (Caliendo and Hujer 2008). In line with Duvendack et al. (2011), we second the statement that those who are to analyse the data, or who properly understand the analytical techniques and their data dependence, should be involved in the design of the impact evaluation early on to ensure the collection of

rich data. Ethnographic or other qualitative tools could be used to improve the data-collection procedures and the overall design and evaluation.

Some caveats need to be added while interpreting our synthesis of evidence. We found mixed evidence in support of MF and its robustness. Studies have also indicated that credit-plus programmes have greater effect than standalone MF programmes. The literature provides skewed results, as it is characterised by high dependence on a single country and common dataset outcome, followed by high heterogeneity among studies. The studies also lack consistency and precision in assessing the interventions and outcomes, and there is a high diversity of contexts, in evaluation designs, leading to inconclusive findings in terms of impact of MF. A future standalone study could focus on Bangladesh or India, as the effects or outcomes and the institutional mechanisms in interventions differ across other South Asian countries. There is little uniformity in interventions across the region, or in terms of measurement of outcomes, or, especially, in terms of social outcomes. The most popular social outcomes, such as educational enrolment, have varied definitions, depending on the level of enrolment. In India, enrolment in general, with or without the programme, is set to be high, with the government's emphasis on inclusive education or primary education. In addition, the government has initiated specific schemes, such as Sarva Shiksha Abhiyan, to augment inclusive education. Therefore, the presentation of any significant effect on education based on interventions in India might be biased. Although most of the studies have used numerous outcome variables, we have attempted in this report to produce standardised tables of estimated impacts and their variability, and have conducted statistical meta-analysis.

Notwithstanding the above limitations, the strength of the present review lies in the longer time span used for identifying and collating the evidence. The present synthesis provides evidence from more than 25 years, as the study collects and reviews published/unpublished works in this area since 1990. Furthermore, it can also be noted that a possible weakness turns out to be a strength of the review; that is, while there is a bias of evidence in terms of Bangladesh, which pioneered this programme in the South Asian context, the use of a variety of outcome indicators, rather than relying on narrowly defined single outcomes, lends credence to the synthesis of evidence.

5.6 IMPLICATIONS

This review provides pointers for further directions of research and policy. MF interventions have created an impact on the plight of the poor; however, the assessment of the quantum of such impacts and the timeframe for accrual of benefits needs refinement. This review shows that such refinements need to be along the following lines for impact assessment.

KEY CONCLUSIONS

1. MF programmes emphasising microenterprise-linked initiatives should be the focus of interventions leading to sustained income generation and diversification. Benefit accrued in terms of savings in interest cost due to MF borrowing does not necessarily lead to sustained benefits.

2. MF interventions, which are standalone lending models, have to be re-oriented incorporating credit-plus programmes, which would have components of training, exposure and mentoring, in addition to micro-savings and/or microcredit, leading either to employment or group enterprise, or asset creation for sustained benefits.

3. As a vulnerable mitigation strategy, income- and consumption-smoothing initiatives need to be built into the interventions by an appropriate mix of activities, to be undertaken by the participants, in conjunction with discouraging consumption of temptation goods.

4. Gender-based targeting in terms of credit disbursement may be a useful vehicle for enhancing the bargaining position of women within the household, especially regarding decisions on expenditure on education.

5. A high-quality database with descriptions of the contextual settings of intervention methods employed for collecting data and reporting impacts would help in producing higher-quality evidence on impacts.

IMPLICATIONS FOR PRACTICE AND POLICY

For designing MF interventions, the following possible directives could lead to greater accrual of benefits:

➢ Interventions should target sustained income generation through asset creation, specifically non-livestock. The benefit accrued in terms of savings in interest cost due to MF borrowing does not necessarily lead to a sustained benefit.

➢ Programmes should help in diversification of income by non-farm employment, as it is an effective vulnerability-mitigation strategy.

➢ Consumption-smoothing benefits need to be built into the initiatives. However, credit-induced consumption needs to be discouraged by the programme.

➢ A more realistic approach incorporating the possibility of not generating child labour could be effective in enhancing the school-education benefits, especially for girls.

➢ Micro-enterprise-linked initiatives could resolve some of the issues regarding asset creation, income generation and consumption smoothing.

➢ A model incorporating credit-plus programmes needs to be designed for sustained income generation, which could replace the stand-alone lending model.

➢ Finally, training and exposure are key components that need to be built into the initiatives. They are vital to income generation, women's empowerment and employment creation.

IMPLICATIONS FOR RESEARCH

➢ There exists the need for a high quality of databases for assessing the impacts. A thicker description of the data and methods employed for collecting data would be useful while reporting the impacts. This would help in formulating more meaningful policies, as well as producing higher-quality evidence on the impacts.

➢ Conceptual mapping of the benefits needs to be conducted before venturing into any analysis of the impacts.

➢ There exists a need to recognise the heterogeneity among target groups, be it across poor or gender categories.

➢ Comparisons across beneficiaries and non-beneficiaries need further refinement in terms of proper identification.

➢ From a methodological perspective, the challenge of ensuring randomisation needs to be addressed.

➢ A richer description of the contextual setting of interventions would help in terms of more meaningful interpretation of evidence.

➢ Inclusion of more situational and behavioural variables in assessing impacts would be useful in shedding more light on the benefits accrued.

5.7   DEVIATIONS FROM PROTOCOL

The following deviations from protocol were made:
- Sub-questions D and E were not addressed specifically due to the lack of availability of quality studies, although a passing reference has been made to sub-question D.
- The risk-of-bias assessment tool and the specifics on the research design were not explicitly detailed in the protocol.
- Analysis after removing outliers, by location, by risk of bias, and by intervention type, were included, even though they were not stated in protocol.

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7   APPENDIX

APPENDIX 1: AUTHORSHIP OF THIS REPORT

Authors

Professor Arun Kumar Gopalaswamy, Department of Management Studies, IIT Madras, India

Dr M Suresh Babu, Department of Humanities and Social Sciences, IIT Madras, India

Professor Umakant Dash, Department of Humanities and Social Sciences, IIT Madras, India

Advisory group

Malcolm Harper, Emeritus Professor, Cranfield School of Management, UK

Dr N Jeyaseelan, CEO, Hand in Hand, India

Ms Ragini Chaudhary, DFID India

Ms Shahnila Azher, DFID Bangladesh

Professor MS Sriram, Indian Institute of Management, Bangalore, India

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Contact details

Department of Management Studies,

Indian Institute of Technology Madras,

Chennai -600036 INDIA

garun@iitm.ac.in

Phone: +91 9884014405; +91 44 22574563 Fax:+91 442257 4552

Conflicts of interests

None of the authors has any financial interests in this review topic, nor have been involved in the development of relevant interventions, primary research or prior published reviews on the topic.

Criteria	Inclusion	Exclusion
Country context and participant type	• Afghanistan • Bangladesh • Bhutan • India • Maldives • Nepal • Pakistan • Sri Lanka • Individual/ household/ micro-enterprise	• Any other low- or middle-income country studies
Intervention	• Microfinance • Micro-credit • Micro-insurance (provided it is linked to MF) • Bank lending to the poor without collateral • Micro-savings • Micro-enterprise (provided the enterprise is started based on MF) • Group-based pooled savings • Pooled group initiative-driven farming, backed by micro-savings or microfinancing schemes • Group lending, group savings • Term lending by MFIs or banks to the poor • Government scheme-based lending by banks to the poor	• Studies on unorganised borrowing • Studies on organised, strongly collateral-based borrowing, for example, crop funding • Studies on individual-based savings • Studies on agriculture-driven growth (for example, a corporate body gives seeds to farmers for a crop with a buy-back option, thereby yielding more revenue to the poor) • Studies on co-operatives without MF or micro-lending schemes • Studies on individual direct lending by banks • Purely financial studies considering the impact of financing costs for banks or MFIs

Criteria	Inclusion	Exclusion
	• SHG-based self-financing schemes • SHG-linked enterprise or schemes provided by MFIs	• Studies forecasting future trends • The current state of MF without any impact on the poor (status reports) • Studies dealing with other interventions, whether financial (financial inclusion scheme, such as banking for all, etc.), technical (development driven by telemedicine initiatives, etc.) or social (benefits driven by cooperative farming, etc.)
Methodologies and study design	Impact-evaluation studies using the following study designs: • RCT • Quantitative-sample survey studies • Before/after impact studies • Experimental studies • Review reports/studies • Perception-based studies backed by quantitative data • Regional/sectoral studies on microfinance initiatives • Studies with control groups defined by location	• Non-impact-evaluation studies • Studies not backed by quantitative data, such as viewpoint/perception-based studies or future forecast studies • Without a comparison group
Outcomes	• Poverty levels • Women's empowerment • Financial protection • Social-capital formation	• Studies on MF that do not identify the impact on the poor (for example, studies focused on financing costs for banks due to micro-lending)

Criteria	Inclusion	Exclusion
	• Enhanced access to education, health or sanitation • Improved access to finance • Better living conditions and employment	
Type of publication	• Published research studies • PhD theses • Organisation reports	• Editorials • Theoretical/conceptual papers • Comment pieces • Newspapers • Conference proceedings
Year	• Research published in or after 1990*	• Research published before 1990
Language	• Published in English	• Not published in English

* Prior to 1990, impact studies are very few and scarce (based on our search). One of the first models of MF, the Grameen Bank, was started in 1983, and this was followed by other interventions across South Asia. During the 1980s, different models of MF interventions were attempted, and quantitatively measurable impact studies, only started a few years after the interventions, were initiated. Hence, the start date for inclusion in this review is 1990.

Table A-3.1: Exclusion criteria

Exclusion Criteria	Description
Studies in context of non-South Asian countries	Studies that were not based in the South Asian context and not clearly focused focused on South Asia among the LMIC context were excluded for the analysis.
Studies that were not focused on group-based organised intervention	Studies focusing on individual credit, unorganised credit, collateral and cooperative-driven credit were excluded from the review, as they do not strictly fall under the definition of MF.
Studies that did not discuss outcome clearly	Studies that do not measure any definitive outcomes were excluded from this review, as impact measurement would be difficult.
Studies not based on research	Status reports, comments and trend reports not backed by quantitative research were excluded, as the focus of this review is on quantitative synthesis.
Studies published before 1990	The euphoria on the positive aspects of MF started only post-1990s and there were no significant studies showing the effects of MF, as either interventions were very small, or the time period to study the effects was inadequate. In addition, our familiarity with the literature also indicated that most of the studies on this topic focused on developing economies were published post-1990. Hence, we have chosen studies published post-1990. Secondly, more recent evidence will be more compelling for policy-makers.
Intervention	Studies dealing with other financial (financial-inclusion schemes, such as banking for all, etc.)/technical (development-driven by telemedicine initiatives, etc.)/social (benefits driven by cooperative farming, etc.) interventions other than MF (as indicated above) have been excluded.
Studies not published in English	The constraints on time and language of the research team forced us to focus only on studies that were published in or translated into English. Since most of the research publications are in the English language, we believe that the studies chosen are representative.

Table A3.2: Inclusion criteria

Inclusion Criteria	Description
Study context	Only studies pertaining to South Asia, as classified by the World Bank, were considered. The review covers studies on Afghanistan, Pakistan, Bangladesh, Nepal, Maldives, Bhutan, Sri Lanka and India. The studies focusing on either MF, micro-credit, micro-savings or MF-based micro-enterprise are covered.
Outcome	The chosen studies focus on one of the three broad measures of outcome: economic outcome, social outcome and women's empowerment. Studies that did not address these outcomes were excluded from the review.
Intervention	We included only MF interventions, defined as including micro-savings and/or micro-credit services and micro-insurance linked to MF. While group-based pooled savings, group lending and group savings are included for the analysis, studies on individual-based savings are excluded. Studies dealing with other interventions, whether financial (financial-inclusion schemes, such as banking for all, etc.), technical (development-driven telemedicine initiatives, etc.) or social (benefits driven by cooperative farming, etc.) are not included in the review process.
Year of publication	One of the first models of MF, the Grameen Bank, was started in 1983, and was followed by other interventions across South Asia. The 1980s were the period where different models of MF interventions (BASIX — India) were attempted and any quantitatively measurable impact studies started only after a few years of intervention. Hence, the start date for inclusion in this review is from 1990.
Participant type	Studies that focus on individuals, households or micro-enterprise were included in this review. Studies that were at macro level in terms of village or block level were excluded from the review.
Type of publication	Only published research reports, organisational reports, monographs and PhD theses are included in the review.
Comparison groups	We included only those studies that set out to measure the outcomes, results or effects of receiving MF compared to not receiving MF. This may be a historic control (before/after comparison) or a concurrent control group, where MF has not yet been introduced (by the assessed institution). Studies that had no such comparison group were eliminated from the analysis. Studies drawing on both quantitative and qualitative data were included.

APPENDIX 4   SEARCH STRATEGY FOR ELECTRONIC DATABASES

Sources

1. Electronic search of bibliographic databases was carried out in Springer link, Science direct, EBSCO, Emerald, Wiley online library, ProQuest, JSTOR, SSRN, Taylor and Francis, Web of Science and PubMed.

2. Systematic review databases, such as the Campbell Collaboration Library of systematic reviews and The Cochrane Library.

3. Existing systematic reviews, including Duvendack et al. (2011) and Stewart et al. (2012) to ensure that all the studies included in the earlier systematic reviews in a similar domain are included in this review.

4. Key websites:

    o PhD thesis abstracts (http://www.sasnet.lu.se/sasnet/sasnet-nordic-dissertations; http://www.library.illinois.edu/asx/southasiancollection/sa_dissertations)

    o NGO/Funder websites: http://www.hihindia.org/; http://www.dhan.org/; http://www.ifmrlead.org/cmf/; http://icfn.in/FFC/janodaya-trust/

    o CGAP: http://www.cgap.org/

    o Microfinance Gateway: http://www.microfinancegateway.org/

    o DFID

    o World Bank

    o Asian Development Bank

    o National Bank for Agriculture and Rural Development (NABARD): https://www.nabard.org/english/home.aspx

    o Small Industries Development Bank of India (SIDBI): http://www.sidbi.in/

    o Association for Asian Studies (AAS)

    o British Association for South Asian Studies (BASAS)

    o South Asia Archive and Library Group (SAALG)

    o WHO Index Medicus for South-East Asia Region (IMSEAR)

    o Asian Journals Online

    o Nepal Journals Online

    o Bangladesh Journals Online

    o Vietnam Journals Online

    o Philippines Journal Online

- Sri Lanka Journals Online

- Indonesia Journals Online

- Indian Citation Index

- South East Asia Index

In addition, we have searched policy pointers such as:

- UNESDOC: http://www.unesco.org/new/en/unesco/resources/online-materials/publications/unesdoc-database/

- UNESCO Social and Human Science Publications: http://www.unesco.org/new/en/social-and-human-sciences/resources/online-materials/publications/unesdoc-shs/

- IFAD: http://www.ifad.org/

- Labordoc: http://labordoc.ilo.org/

- IMF eLibrary: http://elibrary-data.imf.org/DataExplorer.aspx

- South Asian Network for Development and Environmental Economics: http://www.sandeeonline.org/

- IDRC digital library: http://idl-bnc.idrc.ca/dspace/

- USAID: http://www.usaid.gov/

The search engines that were used are Google and Google Scholar.

We have carried out hand searching of key journals; for those available in print form only, we have hand searched by reading the contents page of each journal issue. We have searched for relevant PhD theses published online, and those available in print form in reputed universities and research institutes in India were hand searched.

S. No	Database	Search Criteria	Search phrase used	Subject/publications	Fields search	Hits
1	Springer Link	Advanced search	Only search phrase	• Social Science • Economics • Business & Management	All fields	272
2	Science Direct	Expert search	Only search phrase	• Business Management and Accounting • Economics, Econometrics and Finance • Social Sciences	All fields	1,844
3	EBSCO	Advanced search	Only search phrase	• All covered in the data base	Subject terms	206
4	Emerald	Advanced search	Only search phrase	• All covered in the data base	Abstract	541
5	Wiley Online Library	Advanced search	Only search phrase	• All covered in the data base	Article Titles	93
6	ProQuest	Advanced search	Only search phrase	• All covered in the data base	Abstract	1304
7	JStor	Advanced search	Title or open search	• Social science • Development studies • Education • Business • Economics • Business and Economics	Abstract	779

S. No	Database	Search Criteria	Search phrase used	Subject/publications	Fields search	Hits
8	SSRN	General search	Title or open search	• All covered in the data base	Title, abstract, abstract ID and keywords	82
9	Taylor & Francis	Advanced search	Only search phrase	• Social science • Development studies • Education • Health and Social Care • Economics, Finance, Business and Industry	Abstract/ keywords	136
10	Web of Science	Advanced search	Only search phrase	• Business and Economics • Social science and other topics	Title	376
11	PubMed	Advanced search	Only search phrase	• All covered in the database	Title/abstract	556
Total search hits obtained						**6,189**

List of hand-searched journals

S.No	List of Journals	Publishers	Years	Hits
1	Development Policy Review	Wiley	1990–2014	628
2	Journal of International Development	Wiley	1990–2015	1,843
3	Journal of Developmental Entrepreneurship	World Scientific	2005–14	272
4	Oxford Development Studies	Taylor & Francis Group	1990–2014	497
5	The Journal of Development Studies	Taylor & Francis Group	1990–2014	1,492
6	World Development	Elsevier	1990–2014	3,613
7	Quarterly Journal of Economics	Oxford	1990-2014	1,027
8	Journal of Development Economics	Elsevier	1990–2015	1,923
9	World Bank Economic Review	Oxford	1990–2014	501
10	Economic and Political Weekly	EPW Research Foundation	1990–2009	16,977
11	World Bank Research Observer	Oxford	1990–2014	271
12	Asia Pacific Business Review	Taylor & Francis Group	1994–2014	602
13	Journal of Asia Business Studies	Emerald	2006–14	125
14	Asian Economic Policy Review	Wiley	2006–14	317
15	Asian Case Research Journal	World Scientific	2001–2014	166
16	Singapore Economic Review	World Scientific	2001–14	370
17	Applied Economic Perspectives and Policy	Oxford	1990–14	852
18	Asian Economic Papers	MIT Press	2002–14	212

19	Contemporary Economic Policy	Wiley	1990–2014	1,103
20	International Economic Review	Wiley	1999–2014	803
21	Journal of Financial Economics	Elsevier	1990–2014	1,795
22	Small Business Economics	Springer link	1990–2014	1,295
23	Socio Economic Review	Oxford	2003–14	210
24	Journal of Small Business Enterprise Development	Emerald	1994–2014	724
25	The Review of Financial Studies	Oxford	1990–2014	1,370
26	Health Promotion International	Oxford	1990–2014	670
27	Journal of Contemporary Asia	Taylor & Francis Group	1990–2014	653
28	The Review of Economics and Statistics	MIT Press	1997–2014	1,201
29	Journal of Emerging Markets	Emerald	2006–14	201
30	Journal of Development Effectiveness	Taylor & Francis Group	2009–14	166
31	International Review of Applied Economics	Taylor & Francis Group	1990–2014	641
32	Journal of Asia Pacific Business	Taylor & Francis Group	1994–2014	252
	Total search hits obtained			**42,772**

Search terms

#1 Topic = (LMIC as listed in the 2012 Cochrane filter, http://epocoslo.cochrane.org/lmic-filters

A. (Africa or Asia or Caribbean or "West Indies" or "South America" or "Latin America" or "Central America"): **ti,ab,kw**

B. (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 Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brasil or Brazil or Bulgaria 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 Croatia or Cuba or Cyprus or Czechoslovakia or "Czech Republic" or Slovakia or "Slovak Republic"): **ti,ab,kw**

C. (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 Estonia or Ethiopia or Fiji or Gabon or "Gabonese Republic" or Gambia or Gaza or Georgia or Georgian or Ghana or "Gold Coast" or Greece or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or Hungary or India or Maldives or Indonesia or Iran or Iraq or "Isle of Man" 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 Latvia or Lebanon or Lesotho or Basutoland or Liberia or Libya or Lithuania): **ti,ab,kw**

D. (Macedonia or Madagascar or "Malagasy Republic" or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or Malta 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 Morocco or Ifni or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or "Netherlands Antilles" or "New Caledonia" or Nicaragua or Niger or Nigeria or "Northern 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 Poland or Portugal or "Puerto Rico"): **ti,ab,kw**

E. (Romania or Rumania or Roumania or Russia or Russian or Rwanda or Ruanda or "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 Serbia or

Montenegro or Seychelles or "Sierra Leone" or Slovenia or "Sri Lanka" or Ceylon 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 USSR or "Soviet Union" or "Union of Soviet Socialist Republics" or Uzbekistan or Uzbek or Vanuatu or "New Hebrides" or Venezuela or Vietnam or "Viet Nam" or "West Bank" or Yemen or Yugoslavia or Zambia or Zimbabwe or Rhodesia): **ti,ab,kw**

F. (developing or less* NEXT developed or "under developed" or underdeveloped or "middle income" or low* NEXT income or underserved or "under served" or deprived or poor*) NEXT (countr* or nation* or population* or world): **ti,ab,kw**

G. (developing or less* NEXT developed or "under developed" or underdeveloped or "middle income" or low* NEXT income) NEXT (economy or economies): **ti,ab,kw**

H. low* NEXT (gdp or gnp or "gross domestic" or "gross national"): **ti,ab,kw**

I. (low NEAR/3 middle NEAR/3 countr*): **ti,ab,kw**

J. (lmic or lmics or "third world" or "lami country" or "lami countries"): **ti,ab,kw**

K. ("transitional country" or "transitional countries"): **ti,ab,kw**

L. (#A OR #B OR #C OR #D OR #E OR #F OR #G OR #H OR #I OR #J OR #K)

#2 Topic = (evaluat* OR impact* OR benefit* OR poverty* OR empower* OR income* OR profit* OR revenue* OR employ* OR "labour supply" OR job* OR expenditure* OR consume OR consumes OR consumed OR consumption OR asset* OR housing OR education* OR health* OR nutrition*) OR Title = (evaluat* OR impact* OR benefit* OR poverty* OR empower* OR income* OR profit* OR revenue* OR employ* OR "labour supply" OR job* OR expenditure* OR consume OR consumes OR consumed OR consumption OR asset* OR housing OR education* OR health* OR nutrition*)

#3 Topic = (microfinance* OR microcredit* OR micro-credit* OR micro-loans* OR microlending* OR financial empowerment* OR access to credit* OR credit programs* OR small loans* OR micro-savings* OR micro-finance* OR Micro-enterprise* OR micro-enterprise* OR microenterprise* OR 'group lending') OR Title = (micro-enterprise* OR "group lending")

#1 AND #2 AND #3

S. No.	Website	Search phrase used	Subject /Publication/Search limits	Hits obtained	Relevant studies included
1	**Research for Development (R4D)** (http://r4d.dfid.gov.uk/)	Original search phrase used*	<u>**Advanced search**</u> • Search R4D site (83) • Search other sites (8)	91	Nil
2	**Department of International Development (DFID)** (https://www.gov.uk)	Original search phrase used*	• All covered in the data base	130	Nil
3	**International Initiative for impact evaluation (3ie)** (http://www.3ieimpact.org/en/)	microfinance and impact (212) microcredit and impact (14) micro lending and impact (5) group lending and impact (23) micro-enterprise and impact (25) micro-finance and impact (4) micro-credit and impact (14) micro+finance and impact (34) micro-loan and impact (3) micro-lending and impact (5) micro saving and impact (18)	• All covered in the data base	357	1
4	**Microfinance GATEWAY** (http://www.microfinancegateway.org/)	impact, evaluat*, consumption, income, expenditure	• All covered in the data base	798	6

S. No.	Website	Search phrase used	Subject /Publication/Search limits	Hits obtained	Relevant studies included
			• **Search limits** • South Asia • Publications		
5	**World Bank** (http://www.worldbank.org/)	microfinance and impact (14) microcredit and impact (0) micro lending and impact (0) group lending and impact (0) microenterprise and impact (0) micro-finance and impact (0) micro-credit and impact (0) micro+finance and impact (0) micro-loan and impact (0) micro saving and impact (0)	• Advance search • Language: English • Adobe Acrobat PDF	14	2
6	**The Consultative Group to Assist the Poor (CGAP)** (http://www.cgap.org/)	microfinance and impact (45) microcredit and impact (10) micro lending and impact (6) group lending and impact (5) microenterprise and impact (0) micro-finance and impact (1) micro-credit and impact (2) micro+finance and impact (1) micro-loan and impact (0) micro saving and impact (0)	• **Search limits** • South Asian countries	70	Nil

S. No.	Website	Search phrase used	Subject /Publication/Search limits	Hits obtained	Relevant studies included
7	**United States Agency for International Development** (**USAID**) (http://www.usaid.gov/)	microfinance and impact (11) microcredit and impact (10) micro lending and impact (6) group lending and impact (5) microenterprise and impact (0) micro-finance and impact (1) micro-credit and impact (2) micro+finance and impact (1) micro-loan and impact (1) micro saving and impact (9)	• All covered in the data base	46	Nil
8	**Microfinance Institutions Network (MFIN)** (http://mfinindia.org/)	microfinance/microcredit/ impact and evaluation	• MFIN Publications • Research reports and white papers	72	Nil
9	**Micro Banking Bulletin** (http://www.themix.org/ publications/microbanking-bulletin)	microfinance and impact (3) microcredit and impact (3) micro lending and impact (3) group lending and impact (1) microenterprise and impact (0) micro-finance and impact (0) micro-credit and impact (0) micro+finance and impact (3) micro-loan and impact (0) micro saving and impact (0)	**• Search limits** • South Asian countries • English language	13	Nil

S. No.	Website	Search phrase used	Subject /Publication/Search limits	Hits obtained	Relevant studies included
10	**The Abdul Latif Jameel Poverty Action Lab (J-PAL)** (http://www.povertyactionlab.org/)	microfinance and impact (48) microcredit and impact (20) micro lending and impact (21) group lending and impact (20) microenterprise and impact (5) micro-finance and impact (15) micro-credit and impact (14) micro+finance and impact (14) micro-loan and impact (15) micro saving and impact (17)	• **Publications** • **Type** • Academic publications • **Theme** • Finance and microfinance • Agriculture • Education • Health • **Region** • South Asian countries	189	Nil
11	**The International Food Policy Research Institute (IFPRI)** (http://www.ifpri.org/about-ifpri)	microfinance and impact (26) microcredit and impact (6) micro lending and impact (0) group lending and impact (0) microenterprise and impact (2) micro-finance and impact (3) micro-credit and impact (1) micro+finance and impact (3) micro-loan and impact (0) micro saving and impact (2)	• **Publications** • Journal article • Discussion paper • Book chapter • Book • Working paper • Conference paper • Supplementary material • **Search Limits** • Poverty, health, nutrition and agriculture • South Asian countries	43	1

S. No.	Website	Search phrase used	Subject /Publication/Search limits	Hits obtained	Relevant studies included
12	**Inter-American Development Bank (IADB)** (http://www.iadb.org)	microfinance and impact (143) microcredit and impact (2) micro lending and impact (1) group lending and impact (0) microenterprise and impact (4) micro-finance and impact (0) micro-credit and impact (0) micro+finance and impact (0) micro-loan and impact (0) micro saving and impact (1)	**Publication** English language **Subject Type** • All covered in the data base	151	Nil
13	**Asian Development Bank (ADB)** (http://www.adb.org/)	microfinance and impact (41) microcredit and impact (10) micro lending and impact (3) group lending and impact (10) microenterprise and impact (4) micro-finance and impact (3) micro-credit and impact (3) micro+finance and impact (3) micro-loan and impact (1) micro saving and impact (5)	**Publication** • All covered in the data base **Search limits** • Books, reports and research papers • English language • South Asian countries	83	2

S. No.	Website	Search phrase used	Subject /Publication/Search limits	Hits obtained	Relevant studies included
14	**JOLIS**	(microfinanc* OR microcredit OR micro-credit OR micro-financ* OR microenterprise OR micro-enterprise OR 'group lending') AND (evaluat* OR impact OR income OR expenditure OR consumption)" search found *87* titles		87	2
15	**Google Scholar**	(microfinanc* OR microcredit OR micro-credit OR micro-financ* OR microenterprise OR micro-enterprise OR 'group lending') AND (evaluat* OR impact OR income OR expenditure OR consumption)" "impact of microfinance" (1063)		1,063	2
16	**Google**	"impact of microfinance"		265	2
	Total			**3,475**	**18**

* (microfinance* OR microcredit* OR micro-credit* OR micro-loans* OR microlending* OR financial empowerment* OR access to credit* OR credit programs* OR small loans* OR micro-savings* OR micro-finance* OR Micro-enterprise* OR micro-enterprise* OR microenterprise* OR 'group lending')

APPENDIX 9: DESCRIPTION OF INCLUDED STUDIES

Detailed descriptive information on study design, method of analysis, sample size, duration and outcome

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
1	Alam S 2013 Bangladesh	GB/BRAC/BRDB-RD-12 implemented the micro-credit programme at village level in Bangladesh	A multi-purpose quasi-experimental (QE) household survey was conducted in 87 villages in rural Bangladesh 1991–92. A follow-up survey was conducted in 1998–1999. Data were collected from 1,798 households in 87 villages in Bangladesh. 1,263 were target households and 598 non-target households.	Programme had been operated for three years.	Multivariate analysis of regression, Ordinary Least Square (OLS), estimation Instrument Variable (IV), village level. Fixed effects (FE). QE and panel dataset was used.	**Economic outcome** o Impact on business revenue/profit
2	Amin R, Pierre MST, Ahmed A, Haq R 2001 Bangladesh	NGO implemented the micro-credit programme and Essential Service Package (ESP) project for maternal, child health and contraceptive use for rural poor in Bangladesh.	The household survey was conducted during 1992 and 1997. Data were collected from ESP project area. First survey in 1992 covered 65 women between the age group of 15 to 50 from the experimental area. In 1997 representative sample of 2,105 women and 1,721 women between the ages of 15 to 50 was collected from the experimental area and control area, respectively.	Two phases of survey conducted in 1992–1997 and 1998. Programme duration unclear.	Logistic regression. Cross-sectional (CS) dataset.	**Social outcomes** o Impact on health o Impact on social capital

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
3	Augsburg B 2006 India	SEWA Bank implemented the micro-credit programme in India.	The first-round survey consisted of 300 borrowers, 300 savers and 300 non-members. It was followed by the second survey of 2,000 women, of which 264 were borrowers, 260 savers, and 262 non-members.	Two rounds of panel data used in 1998-2000, but programme duration unclear.	Multivariate analysis Average Treatment Effects (ATE), Difference-in-Differences (DID) analysis, and before/after, CS design used.	**Economic outcome** o Impact on income
4	Banerjee E, Duflo E, Glennerster R, Kinnan C 2009 India	Spandana implemented the MF programme in 104 slums in Hyderabad, India	15 to 18 months after introduction of MF in each area, a comprehensive household survey was conducted at an average of 65 households per slum. A total of 6,850 households were covered, of which 3,425 treated were control groups.	Households who had resided in the area for at least three years and contained at least one woman aged 18 to 55.	Multivariate analysis, randomised controlled trial (RCT) research design were used.	**Economic outcomes** o Impact on business profile o Impact on business revenue/profit o Impact on employment o Improved access to borrowing o Impact on consumption/ expenditure **Social outcomes** o Impact on health o Impact on education **Empowerment**
5	Bashar T, Rashid S 2012 Bangladesh	Microfinance institution (MFI) to provide MF to urban poor in Bangladesh.	A comprehensive field survey in 13 districts across the country was undertaken for this study in 2,500	Not stated	Multivariate analysis, CS dataset used.	**Economic outcomes** o Impact on consumption/

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
			treatment households and 1,000 control group households.			expenditure o Impact on income
6	Berg G 2010 India	SEWA Bank implemented the micro-savings programme in India.	First round of baseline survey conducted in 1997/98, followed by the second round in 1999/2000. SEWA Bank baseline survey covered 900 women borrowers, 300 savers and 300 control households.	Two rounds of survey conducted in 1997/98 and 1999/2000. Programme duration unclear.	Multivariate analysis of Regression, OLS and FE model, before-after dataset.	**Economic outcomes** o Impact on income o Impact on consumption/ expenditure
7	Chandakumaramang alam S, Vetrivel SC 2012 India	Self-help-group (SHG)-based MF to rural households in Salem district of India.	A QE design was used, where the target and control groups were randomly sampled. A total of 100 households for target and 100 households of the control group were covered. Data collected from July 2009 to December 2010.	Not stated	Multivariate analysis of regression, OLS estimation, logistic regression and Probit regression; QE design was used.	**Economic outcomes** o Impact on income o Impact on consumption/ expenditure o Impact on assets o Impact on savings o Impact on employment **Social outcomes** o Impact on health o Impact on education o Impact on social capital
8	Chemin M 2008 Bangladesh	BRAC implemented the MF programme in rural Bangladesh.	Using BIDS and World Bank 1991/92 survey data. Counterfactual analysis of 631	Programme operated for three years.	Multivariate analysis of Propensity Score Matching (PSM), Stratification, Kernel	**Economic outcome** o Impact on consumption/

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
			treatment 441 control-group households covered.		matching; QE design was used.	expenditure o Impact on asset **Social outcomes** o Impact on education
9	Czura K 2010 Sri Lanka	WDF/Sanasa/BARC/TCCS/RDB NGOs implemented the MF programme in rural Sri Lanka.	Data collected by using pipeline approach of old members, new members and existing members. 507 households were treatment groups and 271 households in control group.	Not stated	Multivariate analysis of regression, Probit estimation, pipeline approach and CS dataset.	**Economic outcome** o Impact on consumption/ Expenditure o Impact on income o Impact on business profile o Impact on business revenue/profit **Social outcomes** o Impact on social capital
10	Deininger K, Liu Y 2013 India	Indira Kranthi Patham (IKP) programme in Andhra Pradesh, along with the projects such as District Poverty Initiatives Projects (DPIP), Rural Poverty Reduction Projects (RPRP) and SHG-implemented	Sample covered eight districts in Andhra Pradesh: three from DPIP areas and five from RPRP areas in 2004. Households were randomly selected for stratified procedure using a questionnaire. Sample was collected from 1,964 households from DPIP villages, 3,789 households from RPRP villages and	The first phase of the DPIP programme was launched in the state for the six poorest districts, in October 2000. The second phase of expanded RPRP	PSM, Kernel-matching, used for pipeline approach.	**Economic outcome** o Impact on consumption/ expenditure o Impact on assets **Social outcomes** o Impact on social

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
		micro-credit programme for poor households.	1,239 households from SHG member in DPIP area. Of these, 2,698 were in treatment groups and 3,046 in control groups.	coverage to the remaining 16 districts starting from 2004. (programme duration unclear).		capital **Empowerment**
11	Deininger K, Liu Y 2012 India	SHG-based MF in India.	Two rounds of surveys conducted at both SHG and household levels in 2004 and 2006. The original sample comprised 2,639 households in 256 villages, 1,926 were in treatment. 519 in control group.	Two rounds of survey conducted, duration of the programme not stated.	Multivariate analysis of PSM, Intention-to-Treat estimation, CS, before/after.	**Economic outcome** o Impact on consumption/ expenditure o Impact on assets **Social outcomes** o Impact on social capital
12	Desai RM, Joshi S 2013 India	SEWA implemented the MF programme in India.	Randomly selected 32 of 80 villages in one of the poorest districts in rural India. Baseline and follow-up survey were conducted in late-2007 and in the same months of 2009. The sample of treated women includes 1,410 women residing in SEWA villages and 1,795 women who did not reside in SEWA villages as a control group.	Panel data of two-year period 2007 and 2009, programme duration unclear.	Multivariate analysis, using post- and pre-intervention data.	**Economic outcome** o Improved access and borrowing o Impact on savings o Impact on income o Impact on employment **Empowerment**
13	Duvendack M 2010 India	SEWA Bank implemented MF programme in India.	Two longitudinal survey of SEWA bank for MF evaluation in 1997 and 2000. Total of 900 women covered, of which 600 were SEWA bank	Two surveys were conducted. Duration of the	Multivariate analysis of logit regression, PSM, Kernel Matching (KM),	**Economic outcome** o Impact on consumption/

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
			clients, constituting borrowers and savers, and 300 non-clients.	programme unclear.	and used for panel dataset.	expenditure o Impact on income o Impact on business revenue/profit o Impact on business profile **Social outcomes** o Impact on education
14	Field E, Pande R, Papp J, Park YJ 2012 India	SHG-based MF in India.	Study sample of 2,500 participant households and 2,500 non-participant households or control groups.	Unclear	Multivariate analysis and RCT.	**Economic outcome** o Impact on income o Impact on business revenue/profit o Impact on income o Impact on consumption/ expenditure
15	Garikipati S 2012 India	SHG programme provided micro-credit to rural households in Andhra Pradesh, India.	Fieldwork was carried out in villages of Mahabubnagar in Andhra Pradesh. Data were collected between 2001 and 2003, of which 117 were treatment households and 174 control-group households.	2001 and 2003; two rounds of survey carried out, programme duration unclear.	Multivariate analysis and panel data.	**Economic outcomes** o Impact on business profile o Impact on employment o Impact on consumption/ expenditure

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
16	Hadi A 2002 Bangladesh	BRAC implemented MF programme in rural Bangladesh.	Household survey of 1,238 treatment groups and 958 control groups.	Not stated	Simple statistical method used, cross-sectional.	**Social outcomes** o Impact on health
17	Halder SR 2003 Bangladesh	BRAC implemented microfinance programme in rural Bangladesh.	Two rounds of survey conducted in 1996 and 2001. Used panel dataset of 419 BRAC households and 81 non-members.	Two rounds of survey, conducted in 1996 and 2003; programme duration is unclear.	Multivariate regression, Before/after and panel data.	**Economic outcomes** o Impact on poverty status
18	Hoque S 2004 Bangladesh	BRAC implemented micro-credit programme in rural Bangladesh.	This study compared 108 BRAC member households and 108 non-BRAC households.	Not stated	Regression analysis, OLS estimation, CS dataset.	**Economic outcome** o Impact on consumption/ expenditure
19	Hussain AKAMG, Nargis N 2008 Bangladesh	Micro-credit programme in Bangladesh (programme name and financial-institution name unclear).	Total of 2,700 households in Bangladesh covered in a longitudinal survey from 1998 to 2004. The four waves of the QE survey covered 3,896 treatment groups and 1,516 control groups.	Not stated	Multivariate analysis of simple statistical model and growth before and after technique. Panel dataset used.	**Economic outcome** o Impact on income o Impact on employment
20	Imai KS, Arun T, Annim SK 2010 India	MF programme in India. Small Industrial Bank of India (SIDBI) provided finance to MFIs.	This study covered a sample of 20 SIDBI's partner MFIs; 5,260 households in different regions of India, of which 2,269 MFI clients and 1,669 non-clients households were surveyed.	Not stated	PSM, cross-sectional research design.	**Economic outcome** o Impact on poverty status o Improved access and borrowing
21	Imai KS, Azam S 2012 Bangladesh	MFI provided micro-credit in rural Bangladesh.	Four rounds of panel survey carried out by BIDS, PKSF and World Bank; all four rounds of survey were	Four surveys covered in this	Multivariate analysis of regression, PSM, DID	**Economic outcome** o Impact on income

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
			collected during December–February in 1997–98, 1998-99, 1999-2000 and 2004-2005. 715 households in treatment groups and 3,601 control groups covered.	study, programme duration unclear.	analysis, FE, CS, panel dataset.	o Impact on consumption/ expenditure
22	Islam A 2009 Bangladesh	MFI provided MF in Bangladesh.	Study used large and unique household-level dataset collected from 1997–98, spanning about 8 years. In this survey, 1,740 treatment households and 1,286 control groups were covered.	Not stated	Multivariate analysis of instrumental variable, two stage least square estimation, double and triple difference estimation, and PSM and panel dataset.	**Economic outcome** o Impact on consumption/ expenditure
23	Islam A 2011 Bangladesh	Palli Karma-Sahayak Foundation (PKSF) implemented MF programme in Bangladesh.	A total of 3,026 households were drawn from programme and control villages, including 1,740 participants. Of the 1,286 non-participants, 277 were from control villages and 1,009 were from programme villages. Of the total number of borrowers, 207 were men.	Not stated	Multivariate analysis, DID analysis, IV, PSM, panel data.	**Economic outcome** o Impact on consumption/ expenditure o Impact on assets o Impact on income o Impact on employment
24	Islam A, Choe C 2001 India	PKSF implemented micro-credit programme in India.	Households survey of 1,241 treatment groups and 793 control groups.	Not stated	Econometric method, Instrumental analysis and 2SLS, CS.	**Economic outcome** o Impact on employment

Social outcomes o Impact on education |

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
25	Islam A, Maitra P 2008 Bangladesh	MFI provided micro-credit programme in rural Bangladesh.	This study used four rounds of household-level panel data from Bangladesh. The four rounds of the survey were conducted in 1997–98, 1998–99, 1999–2000 and 2004–05, covering a total of 8,082 households. The analysis used only three rounds of the survey.	Four surveys covered in this study, programme duration unclear.	Multivariate analysis of regression, IV, 2SLS, OLS FE estimation and panel dataset used.	**Economic outcome** o Impact on consumption/expenditure o Impact on assets
26	Khandker SR 2000 Bangladesh	GB/BRAC/RD-12 implemented the micro-credit programme in rural Bangladesh.	The stratified random sampling technique used in the programme village. 1,798 households covered, of which 1,538 were participants and 260 non-programme-participants.	Programme operated for 3 years.	Econometric method of regression, Maximum likelihood (ML) estimation, Tobit regression, FE, QE research design was used.	**Economic outcome** o Improved access and borrowing o Impact on savings
27	Khandker SR 2005 Bangladesh	GB/BRAC/RD-12 implemented the MF programme in rural Bangladesh.	The BIDS and World Bank 1991–92 survey covered 1,798 households drawn from 87 villages. A follow-up survey conducted in 1998–99 had a sample size of 2,599.	Programme operated for 3 years.	Multivariate analysis of regression and village-level fixed effect. QE design and panel dataset used.	**Economic outcome** o Impact on consumption/ expenditure o Impact on poverty status
28	Khandker SR, Latif MA 1996 Bangladesh	GB/BRAC/RD-12 implemented the micro-credit programme in rural Bangladesh.	Participants and non-participants, both men and women. In total, 4,818 men and 4,579 women participants.	Not stated	Multivariate analysis of regression, Probit, Maximum Likelihood method, OLS method estimation.	**Social outcomes** o Impact on health o Impact on social capital
29	Khandker SR, Samad HA	GB/BRAC/BRDB implemented the micro-	The survey data used in this study were derived from a long panel survey over 20 years. There were	Programme operated for 3 years.	Regression analysis, OLS, FE model. Before-after comparison of 3-year	**Economic outcome** o Impact on income o Impact on

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
	2013 Bangladesh	credit programme at village level in Bangladesh.	three years of survey, in 1991–92, 1998–99 and 2010–11. A total of 4,574 households were covered, of which 3,337 were participants and 1,237 were non-participants in the micro-credit programme.		survey panel data was used.	consumption/expenditure o Impact on poverty status o Impact on assets o Impact on savings **Social outcomes** o Impact on education
30	Khandker SR, Samad HA, Khan ZH 1998 Bangladesh	GB/BARC/BRDB-RD-12 implemented the micro-credit programme at village level in Bangladesh.	Total of 1,798 households covered, of which 1,538 were target and 206 were non-target households. Among the target-household programme areas, 905 were programme participants. Non-random selection of samples.	Programme operated for 3 years.	Econometric method, Regression, OLS method. Used QE research design, CS data.	**Economic outcome** o Impact on business profile o Impact on income o Impact on employment o Impact on business profile
31	Kuchler A 2012 Bangladesh	GB/BRAC/BRDB RD-12 implemented micro-credit programme in rural Bangladesh.	Data covered total of 1,798 households randomly drawn from 87 selected villages in rural Bangladesh. In 1998–99 follow-up survey was carried out.	Programme operated for 3 years.	Multivariate analysis of Logit regression, FE, DID analysis, CS and before-after.	**Economic outcome** o Improved access and borrowing o Impact on income **Social outcomes** o Impact on social capital **Empowerment**

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
32	Latif MA 1994 Bangladesh	GB/BRAC/BRDB RD-12 implemented group-based micro-credit programme in rural Bangladesh.	A multi-stage stratified random technique was used. 1,160 participant households and 638 non-programme participants covered.	Programme operated for 3 years.	Bivariate, CS.	**Social outcomes** o Impact on health
33	Latif MA 2001 Bangladesh	GB/BRAC/BRDB RD-12 implemented micro-credit programme in rural Bangladesh.	A multi-stage stratified random technique was used. 1,798 households, varying from 20–28 villages were selected for the first-phase survey. In the second phase of the survey, the sample extended to 9 more villages, and covered 2,623 households in total. 2,599 households participated in the programme.	Not stated	Regression analysis, OLS estimation, CS survey.	**Economic outcome** o Impact on income o Impact on savings
34	Mahmud S 2003 Bangladesh	BIDS/PKSF implemented the micro-credit programme in rural Bangladesh.	Longitudinal survey of two rounds of a household survey in Bangladesh, in 2,331 treatment 310 control group households.	Not stated	Multivariate analysis, CS dataset.	**Empowerment**
35	McKernan SM 2002 Bangladesh	GB/BARC/BRDB RD-12 implemented the micro-credit programme in rural Bangladesh.	A survey of 1,798 households conducted in 87 villages in rural Bangladesh during 1991–92. 1,283 households were treatment groups and 444 households were control groups.	Not stated	Econometric method, Weighted exogenous sampling maximum likelihood-Limited information maximum likelihood-fixed effect (WESML-LIML-FE), Tobit estimation. Study used QE research design.	**Economic outcome** o Impact on business revenue/profit o Impact on business profile

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
36	Menon N 2006 Bangladesh	Grameen Bank implemented the MF programme in rural Bangladesh.	Data were collected from rural Bangladesh during 1991–92 in three rounds. Total of 891 programme participants; 546 control group.	Programme operated for 3 years.	Multivariate analysis of regression, village-level FE, Cohort Effect (CE), and Gender-Stratified (GS) technique. Used QE research design.	**Economic outcome** o Impact on consumption/ expenditure
37	Montgomery H 2006 Pakistan	Khushhali Bank implemented the MF programme in rural Pakistan.	Used primary data from 2,881 rural and urban households in Pakistan. A stratified random sample of 1,454 Khushhali Bank clients and 1,427 non-clients households.	Not stated	Multivariate regression, OLS estimation, Logit estimation, CS data design.	**Economic outcome** o Impact on consumption/ expenditure o Impact on business revenue/profit **Social outcomes** o Impact on health o Impact on education
38	Mukhopadhyay JP 2014 India	Spandana implemented the MF programme in Andhra Pradesh, India.	Household survey conducted in Andhra Pradesh; 2,718 in treatment group and 2,559 in control group in two rounds of surveys.	Not stated	Multivariate analysis, used for RCT.	**Economic outcome** o Impact on consumption/expenditure
39	Mula G, Sarker SC 2013 India	SHG provided the MF programme in rural district of West Bengal, India.	This study covered households in six districts of rural West Bengal, India. Members of SHG and Swarna Jayanti Gram Swarojgar Yojana (SGSY) subsidy-based programme for below-poverty-line (BPL)	Not stated	Multivariate regression analysis, CS and before-after research design set-up.	**Economic outcome** o Impact on income o Impact on employment o Impact on business profile

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
			participants covered during September 2001 to March 2012.			o Impact on consumption/ expenditure o Impact on savings o Impact on assets **Empowerment**
40	Nanda P 1999 Bangladesh	GB/BRAC/BRDB RD-12 implemented micro-credit programme in rural Bangladesh.	Used data from a sample of 1,798 households in rural Bangladesh. Survey conducted in 1991–92 through repeated random sampling of 87 district covered by GB/BRAC/BRDB RD-12. 899 treatment households and comparison group of 899 covered.	Programme operated for 3 years.	Multivariate analysis Probit estimation, IV, FE, QE research design used.	**Social outcomes** o Impact on health
41	Nilakantan R, Datta SC, Sinha P, Datta SK 2013 India	Bandhan MFI implemented the programme in India.	Data were collected from five clusters in West Bengal during the period September–December 2010. The pipeline approach to impact evaluation was used. New members were used as controls for existing member. Sample of 927 households; 116 households were in the first loan-cycle control group, and 811 households were in the second and higher loan cycle, considered to be a treatment group.	Not stated	Multivariate Probit estimation, Longitudinal approaches, such as DID, were used.	**Empowerment**

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
42	Pati AP, Lyngdoh BF 2010 India	SHG implemented the MF programme in seven districts in Meghalaya, India.	Primary data collected from 15 women MF clients and 75 women non-MF clients from seven district in Meghalaya, India.	Growth measure of pre- and post-MF situation spread over the period of five years (programme duration unclear).	PSM, DID analysis, CS dataset.	**Economic outcome** o Impact on income o Impact on consumption/ expenditure o Impact on savings
43	Pitt MM 2000 Bangladesh	GB/BRAC/BRDB-RD-12 implemented group-based micro-credit programme in rural Bangladesh.	A multi-purpose QE household survey was conducted in 87 villages in rural Bangladesh during the period 1991–92. Of the 1,798 households sampled, 1,538 were target households and 260 non-target households.	Programme operated for 3 years.	Econometric method, WESML-LIML-FE method. Study used QE research design.	**Economic outcome** o Impact on income o Impact on employment
44	Pitt MM, Khandker SR 1998 Bangladesh	GB/BRAC/BRDB-RD 12 implemented the group-based micro-credit programme at village level in Bangladesh.	A multi-purpose QE household survey was conducted in 87 villages in rural Bangladesh during the period 1991–92. Of the 1,798 households sampled, 1,538 were target households and 260 non-target households. Among the target households, 905 households were credit-programme participants.	Programme operated for 3 years.	Econometric method, WESML-LIML-FE, Probit. Study used QE research design.	**Economic outcome** o Impact on consumption/ expenditure o Impact on assets o Impact on employment **Social outcomes** o Impact on education
45	Pitt MM, Khandker SR 2002 Bangladesh	GB/BRAC/BRDB-RD 12 implemented the micro-credit programme at village level in rural Bangladesh.	A multi-purpose QE household survey was conducted in 87 villages in rural Bangladesh during the period 1991–92 and follow-up	Programme operated for 3 years.	Econometric method, WESML-LIML-FE. Study used QE research design.	**Economic outcome** o Impact on consumption/ Expenditure

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
			survey in 1998–99. Of the 1,798 households covered, 1,538 were target households and 260 non-target households. Among the target households, 905 households were credit-programme participants.			o Impact on employment
46	Pitt MM, Khandker SR, Cartwright J 2006 Bangladesh	GB/BRAC/BRDB-RD 12 implemented the MF programme at village level in rural Bangladesh.	A multi-purpose QE household survey was conducted in 87 villages in rural Bangladesh during the period 1991–92 and follow-up survey in 1998–99. Of the 1,798 households sampled 1,538 were target households and 260 non-target households. Among the target households, 905 households were credit-programme participants.	Programme operated for 3 years.	Multivariate analysis of Instrumental variable, OLS, FE, CS dataset.	**Empowerment**
47	Pitt MM, Khandker SR, McKernan SM, Latif MA 1999 Bangladesh	GB/BRAC/BRDB-RD 12 implemented the group based micro-credit programme at village level in rural Bangladesh.	Sample collected from 87 villages in rural Bangladesh during 1991–92. 1,798 were target households and 260 non-target households. Among the target households, 905 households were credit-programme participants.	Programme operated for 3 years.	Econometric method, WESML-LIML-FE, Probit. Study used QE research design.	**Social outcomes** o Impact on health
48	Rahman S 2010 Bangladesh	GB/BRAC implemented the group-based micro-credit programme at village level in rural Bangladesh.	Household survey was collected from three districts. From all three districts together, 387 borrowers	Not stated	Regression analysis, OLS estimation, CS dataset.	**Economic outcome** o Impact on consumption/ Expenditure

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
			and 184 non-borrowers were interviewed.			**Social outcomes** o Impact on social capital o Impact on health
49	Rahman S, Junankar PN, Mallik G 2009 Bangladesh	GB/BRAC implemented the micro-credit programme at village level in rural Bangladesh.	Household survey collected from 3 districts from Bangladesh. From all 3 districts, 387 borrowers and 184 non-borrowers were interviewed.	Not stated	Multivariate analysis of regression, Probit estimation, Empowerment Index and QE research design used.	**Empowerment**
50	Raza WA, Das NC, Misha FA 2012 Bangladesh	BRAC implemented the MF programme in rural Bangladesh.	The CFPR programme was launched in 2002 in the three poorest district of Bangladesh. The baseline survey was carried out during June–August 2002. Baseline survey covered 5,626 households, of which 2,633 were SUP and were NSUP households. Second-round survey in 2005 covered 2,474 SUP and NSUP households. Third-round survey was conducted in 2008, again covering SUP and NSUP households.	Not stated	Multivariate analysis of PSM, DID analysis, Average Treatment Effect, panel dataset used.	**Economic outcome** o Impact on consumption/ expenditure o Impact on assets **Social outcomes** o Impact on social capital
51	Saha S 2014 India	Microfinance SHG	Data collected from Karnataka and Gujarat in India. Survey covered 312 interventions communities and 312 comparison communities.	Not stated	Multivariate analysis of regression, Probit estimation, Empowerment Index and QE research design used.	**Economic outcomes** o Impact on savings o Improved access and borrowing o Impact on

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
						business profile **Social outcomes** o Impact on health
52	Setboonsarng S, Parpiev Z 2008 Pakistan	Khushhali Bank provided MF to rural and urban households in Pakistan. Based on the Millennium Development Goals (MDGs) and poverty-targeting programme.	Study covered sample of 2,881 households, of which 1,416 were Khushhali Bank borrowers and 1,416 non-borrowers.	Not stated	PSM, OLS and Logit estimation. CA dataset used.	**Economic outcome** o Impact on consumption/ Expenditure o Impact on business profile o Impact on assets o Impact on savings o Impact on income o Impact on employment **Social outcomes** o Impact on education **Empowerment**
53	Shirazi NS, Khan, AU 2009 Pakistan	Pakistan Poverty Alleviation Fund (PPAF) implemented the micro-credit programme for poverty alleviation.	Sample of 3,000 households, of which 1,500 were borrower and 1,500 households were non-borrower. Two-round survey conducted during July 2001 and June 2003.	Two-round survey conducted in 2001 and 2003. Programme duration unclear.	Simple statistical method used for analysis in differences in percentage, before/after, with-without approach.	**Economic outcomes** o Impact on poverty status

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
54	Shoji M 2009 Bangladesh	Microfinance MFI	The unique dataset collected from 326 Bangladeshi households, including both MFI members and non-members. The second survey conducted one year after the 2004 flood, the first flood in which most MFIs allowed members to reschedule. In total, 277 MFI members and 460 non-MFI members.	Two-round survey conducted in 2003 and 2004; programme duration unclear.	Multivariate analysis of regression; Recursive Bivariate Probit model, CS and before/after.	**Economic outcome** o Impact on consumption/ expenditure o Impact on income o Impact on assets **Social outcomes** o Impact on social capital
55	Swain RB, Flora M 2012 India	SHG provided MF to rural district of India.	The sample survey conducted in two represented districts of Tamil Nadu, Andhra Pradesh, Orissa, Uttar Pradesh and Maharashtra. 798 households for SHG members and 51 for non-SHG members covered.	Not stated	Multivariate analysis of PSM, Average Treatment on Treated (ATT), Nearest Neighbour Matching (NNM), Local linear regression algorithm, CS household survey.	**Economic outcome** o Impact on vulnerability to shocks o Impact on consumption/ expenditure
56	Swain RB, Varghese A 2009 India	SHG-based MF programme in India.	Pipeline approach of 604 respondents from old SHGs, 186 from new SHGs and 52 non-members. Of these, 790 are in the treatment groups and 52 in the control group.	Not stated	Multivariate analysis of regression, Tobit estimation, pipeline and QE research designs.	**Economic outcome** o Impact on assets o Impact on savings o Impact on income
57	Swain RB, Wallentin FY 2009 India	SHG-based bank linked MF programme in India.	QE households sample data collected from five states in India from 2000 and 2003 in two rounds of survey. 961 households covered, of which 805 were SHG member;	Two surveys in 2000 and 2003, programme duration not stated.	Multivariate analysis of Robust maximum likelihood (RML), Maximum Likelihood estimator (MLE),	**Empowerment**

S. No	Study/ Year/ Country of study	Description of intervention	Study aims and sample size	Programme time period	Research design/Analysis technique	Outcome
			156 households were in the control group.		Multivariate normal distribution, QE research design used.	
58	Weber O, Ahmad, A 2014 Bangladesh	Kashf Foundation implemented the MF programme in rural Bangladesh.	The treatment group consisted of 60 participants equally distributed across the three locations, who were borrowers for at least five years and the second of a higher loan cycle. The control group comprised 30 participants n the first loan cycle. In total, the study had 90 participants.	Programme participants or borrowers had been members for five years.	Multivariate analysis of Logistic regression, PSM, Probit, coefficient and CS dataset.	**Empowerment**
59	Zaman, H 1999 Bangladesh	BRAC implemented the micro-credit programme in rural Bangladesh.	A household questionnaire administered to 547 BRAC members and control group in ten villages where BRAC operated, Matlab district, Bangladesh.	Not stated	Multivariate analysis, logit regression, CS.	**Empowerment**
60	Zeller M, Sharma M, Ahmed AU, Rashid, S 2001 Bangladesh	Micro-credit BRAC/ASA/RDRS	Household survey of members and non-members of BRAC/ASA/RDRS. 918 households in treatment group, 817 households in control group.	Three rounds of surveys carried out, but duration of the programme not stated.	Multivariate analysis of regression, Probit estimation, panel approach and CS dataset.	**Economic outcome** o Impact on consumption/ expenditure o Impact on business revenue/profit **Social outcomes** o Impact on social capital

APPENDIX 10:DESCRIPTION OF STUDIES USED FOR META-ANALYSIS

S.No	Study author/Year	Estimation	Variance	Other statistics/Description	Effect-size calculation based on EPPI-4 reviewer meta-synthesis classification	Evidences from study
1	Augsburg B 2006	ATT	t-value	Comparison between two group (new borrowers and non-borrowers) N, Mean and Standard Deviation (SD) are reported.	Continuous: N, Mean and SD	2
2	Bashar T, Rashid S 2012	Logit	t-value	Comparison between two groups (members and non-members) N, Mean, SD and t-value also reported.	Continuous: N, Mean and SD	1
3	Banerjee E, Duflo E, Glennerster R, Kinnan C 2009	Regression	Mean differences	Treatment and control groups - Total N control Mean and SD are reported. (Total N, control mean and SD only reported, effect size calculated under assumptions).	Continuous: N, Mean and SD	27
4	Chandakumarmangalam S, Vetrivel SC 2012	Logit	t-value	Comparison between two groups (Target group- Control group) - N, Mean, SD and t-value also reported.	Continuous: N, Mean and SD	12
5	Deininger K, Liu,Y 2013	DID	t-value	Comparison between two groups (participants and non-participants) N and p-value are reported.	Continuous: N, Mean and SD	9
6	Desai, RM, Joshi, S 2013	DID	p-value	Comparison between two groups (pre- and post-intervention). N and p-value are reported.	Continuous: N, Mean and SD	9

S.No	Study author/Year	Estimation	Variance	Other statistics/Description	Effect-size calculation based on EPPI-4 reviewer meta-synthesis classification	Evidences from study
7	Field E, Pande R, Papp J, Park YJ 2012	Regression	p-value	Treatment and control group-N, Standard Error (SE) AND p-value are reported.	Continuous: N, Mean and SD	5
8	Garikipati S 2012	Logit	t-value	Comparison between two group (SHG- and non-SHG members), N, Mean, SD and t-values also reported.	Continuous: N, Mean and SD	6
9	Hussain AKAMG, Nargis N 2008	Simple statistical method	Mean differences	Comparison between two group (participants – non-participants) N and SE are reported.	Continuous: N, Mean and SD	4
10	Imai KS, Azam S 2012	DID/PSM	t-value	Comparison between two group (with access and without access to MFI loan) N and t-value are reported.	Continuous: N, Mean and SD	10
11	Imai KS, Arun T, Annim SK 2010	PSM	t-value	Comparison between two group (households with and households without MFI loans) N, and t-value are reported.	Continuous: N, Mean and SD	1
12	Khandker SR, Samad HA 2013	Regression	t-value	Comparison between two group (participants and non-participants) N and t-value are reported.	Continuous: N, Mean and SD	54
13	Kuchler A 2012	Logit/DID	p-value	Comparison between two groups (Eligible for MFP village households and non-eligible for MFP village households) N and p-value are reported.	Continuous: N, Mean and SD	1

S.No	Study author/Year	Estimation	Variance	Other statistics/Description	Effect-size calculation based on EPPI-4 reviewer meta-synthesis classification	Evidences from study
14	Mahmud S 2003	Simple statistical method	Mean differences	Comparison between two group (participants and non-participants), N, Mean and SD are reported.	Continuous: N, Mean and SD	1
15	McKernan SM 2002	Regression	t-value	Comparison between two groups (participants and non-participants), N and t-value are reported.	Continuous: N, Mean and SD	6
16	Mula G, Sarker SC 2013	Regression	t-value	Comparison between two groups (before and after), N and t-value are reported.	Continuous: N, Mean and SD	18
17	Nanda P 1999	Probit	t-value	Treatment and control group (Women and Adult) - N, SE and p-value are reported.	Continuous: N, Mean and SD	1
18	Nilakantan R, Datta SC, Sinha P, Datta SK 2013	Probit	P-value	Comparison between two groups (Loan cycle- 1 and Loan cycle >1), N and p-value are reported.	Continuous: N, Mean and SD	12
19	Pati AP, Lyngdoh BF 2010	DID	t-value	Comparison between two group (MF clients and non-MF clients), N and t-value are reported.	Continuous: N, Mean and SD	8
20	Pitt MM, Khandker SR 2002	Regression	t-value	Comparison between two groups (households with participants and households without participants), N and t-value are reported.	Continuous: N, Mean and SD	25

S.No	Study author/Year	Estimation	Variance	Other statistics/Description	Effect-size calculation based on EPPI-4 reviewer meta-synthesis classification	Evidences from study
21	Pitt MM, Khandker SR, McKernan SM, Latif MA 1999	Regression	t-value	Comparison between two groups (participants and non-participants), N and t-value are reported.	Continuous: N, Mean and SD	6
22	Pitt M, Khandker SR 1998	Regression	t-value	Comparison between two groups (participants and non-participants), N and t-value are reported.	Continuous: N, Mean and SD	36
23	Raza WA, Das NC, Misha FA 2012	PSM	p-value	Comparison between two groups (2005 over 2002 and 2008 over 2002), N and p-value are reported.	Continuous: N, Mean and SD	1
24	Setboonsarng S, Parpiev Z 2008	ATT	t-value	Comparison between two groups (KB members and non-members/poor and non-members), N and t-value are reported.	Continuous: N, Mean and SD	84
25	Shoji M 2010	Probit	Mean differences	Comparison between two groups (rescheduled and non-rescheduled) N, Mean and SD are reported.	Continuous: N, Mean and SD	1
26	Swain RB, Flora M 2012	PSM	t-value	Comparison between two groups (SHG and non-SHG members) N, and t-value are reported.	Continuous: N, Mean and SD	1

Coding and data-extraction tool for studies that are shortlisted after screening, based on inclusion and exclusion criteria.

Section I: *How can the study be identified?*

S.No	Assessing tool	Tick Relevant	Details
1	Which search strategy was used to identify this study?	□ Electronic database □ Website search □ Cross references □ Author correspondence □ Others (specify)	
2	Language of report	□ English □ Other (specify)	
3	Status of report	□ Published □ In press □ Unpublished	
4	Year of report	□ before 1995 □ 1996–2000 □ 2001–05 □ 2006–10 □ 2011 and later	
5	Abstract/summary of key findings	□ Included □ Not Included	
6	What type of study is this report?	□ Process evaluation □ Outcome evaluation □ Retrospective study □ Prospective study	
7	Keywords	□ Not included □ Included (write in)	

Section II: *Description of the study sample*

S.No	Assessing tool	Tick relevant	Details
8	Age group (*Record age range and numbers/proportion of the population in each age group, if specified. Age definitions: children (0–10 years); young people (11–21 years); adults (22–54 years); and older people (55+ years).*	□ Children □ Young people □ Adults □ Older people □ General population/mixed □ Not stated	
9	Sampling and recruitment procedures	□ Explicitly stated □ Implicit □ Not stated/unclear	

Section III: *Description of the intervention*

S.No	Assessing tool	Tick Relevant	Details
10	Topic area of the intervention *(Circle as many as appropriate. To ensure optimal search and retrieval of information from the database, it is important to circle ALL those topic areas covered by the intervention in the reviewer's judgement.)*	□ Microfinance □ Micro-credit □ Micro-savings □ Micro-insurance (provided it is linked to microfinance) □ Micro-enterprise (based on microfinance) □ Self-Help Group (SHG) □ Group-lending □ Micro-lending □ NGO □ MFI Bank	
11	Country in which intervention was implemented *(Only studies of South Asian countries included.)*	□ Afghanistan □ Bangladesh □ Bhutan □ India □ Maldives □ Nepal □ Pakistan □ Sri Lanka	
12	Aim(s) of the intervention	□ Stated (write in) □ Not explicitly stated □ Not stated	
13	Year intervention started	□ 1981–85 □ 1986–90 □ 1991–95 □ 1996–2000 □ 2001–05 □ 2006–10 □ 2011 + □ Not stated/unclear	
14	Intervention site *(Mark as many as appropriate)*	□ Individual □ Households □ Group □ Groups and individuals □ Small business □ Rural population □ Urban population □ Semi-urban population □ Others (specify)	
15	Length of the intervention *(Choose the relevant category and write in the exact intervention length if specified in the report. If the intervention is ongoing, tick 'other' and*	□ Not stated □ Not applicable □ Unclear □ Up to 3 months □ Between 3 months to 6 months	

S.No	Assessing tool	Tick Relevant	Details
	indicate the length of the intervention as the length of the outcome-assessment period.)	□ Between 6 months to 1 year □ Between 1 year to 2 years □ Between 2 years to 3 years □ Between 3 years to 5 years □ More than 5 years □ Other (please specify)	
16	Medium of intervention *(Tick as many as appropriate)*	□ Not stated □ Unclear □ Individual (as opposed to group) □ Single product (as opposed to multiple financial services) □ Non-financial services (financial literacy, skills training, etc.) □ Others (specify)	
17	Person(s) providing the intervention *(Tick as many as appropriate)*	□ Not stated □ Unclear □ Not relevant □ MFI Bank □ NGO □ Commercial bank □ CBO □ MFI □ SHG	
18	Theoretical model (as stated by the authors) *(Indicate ALL the models that authors state they have used in the design of the intervention)*	□ Stated □ Not stated □ Unclear	

Section IV: *Quality of the outcome evaluation*

S. No	Assessing tool	Tick Relevant	Details
19	What was the design of the evaluation? *(In the reviewer's judgment, using the definitions.)*	□ RCT □ Quasi-Experimental □ Experimental □ Observational □ Post-test only □ Pre- and post-test only □ Other (specify)	
20	What were the aims of the evaluation?	□ To compare different interventions □ To evaluate a single intervention □ To compare different intensities/levels of intervention	

S. No	Assessing tool	Tick Relevant	Details
		□ To evaluate the generalisability of an intervention □ Other (specify)	
21	Number of participants recruited to intervention and control/comparison groups, if applicable. *(On the basis of those from whom baseline data were collected, or number in study population as a whole, if only one group.)*	□ Not stated □ Unclear (please specify) □ Reported (please write in)	
22	How participants were allocated to intervention and control/comparison groups?	□ Not relevant (study not a trial) □ Not stated □ Unclear □ Non-random (write in) □ Random, no information given □ Random, information given (write in)	
23	Was the allocation to intervention and control/comparison groups done blind?	□ Not relevant (study not a trial) □ Not stated □ Unclear (please specify) □ Yes □ No	
24	Was outcome measurement done blind? *(that is, were those assessing the outcomes aware whether the participant had been in a control/comparison group or intervention group?)*	□ Not relevant (study not a trial) □ Not stated □ Unclear □ Yes □ No	
25	What outcome measures were included? *(that is, as described in the aim of the evaluation. Tick as many as appropriate and specify, where possible.)*	□ **Economic outcomes** □ Business profits □ Business revenues □ Sales □ Income per capita □ Consumption/expenditure □ Assets □ Employments □ Savings □ Debts □ Poverty index/status □ Improved access to finance	

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S. No	Assessing tool	Tick Relevant	Details
		□ Income-generating activity □ Non-income-generating activity □ Investment □ **Social outcomes** □ Children's school enrolment □ School attendance □ Contraceptive use □ Health □ Nutritional status □ Vulnerability to shocks □ Social capital □ **Women's empowerment** □ Empowerment	
26	What was the attrition or participation rate? *On the basis of those from whom baseline data were collected. (Make it clear whether it is attrition or participation that is reported.)*	□ Reported for study population as a whole □ Reported for one/some group(s) □ Reported for all groups (or for study population as a whole, if only one group.) □ Unclear □ Not stated □ Not relevant	
27	Was any information provided on those who dropped out of the study?	□ Unclear □ Not relevant □ Yes, reported (write in) □ No	
28	What sort of measurement tool(s) is/are used to collect outcome data?	□ Interview □ Observation □ Practical test □ Other (specify) □ Unclear □ Not stated	
29	Number of outcome-assessment periods. *(That is, how many times were data on outcome variables collected after the intervention?)*	□ One □ Two □ Three □ Unclear □ Not stated □ Less than 6 months □ 6 month and more □ Four or more (specify)	
30	Impact of the intervention *(outcomes intended to measure)*	□ Reported for all outcomes □ Reported for some outcomes only (specify) □ Not stated □ Unclear (please specify)	

S. No	Assessing tool	Tick Relevant	Details
31	Is the study sound? *(The outcome evaluation is sound, if it has an equivalent control or comparison group, not necessarily randomised – It reports pre-intervention data for all individuals/groups. An exception is made for studies using Four Group design, in which intervention and control/ comparison groups are further randomised to receive pre-intervention surveys or not (that is, pre-intervention data are not available for half the subjects in the intervention and control/ comparison groups). It reports post-intervention data for all individuals/groups. It reports on all outcome measures, as described in the aims of the study.*	□ Sound □ Not sound □ Reviewer judges study sound, despite discrepancy with quality criteria (clarify)	
32	Outcome classification: (Data-collection tool)	□ Observation □ Questionnaire □ Interview schedule □ Focus-group discussion □ Check list □ Case study	

Section V: *Outcome/effectiveness data*

S.No	Assessing tool	Tick Relevant	Details
33	Intervention	□ Microfinance □ Micro-credit □ Micro-savings □ Micro-insurance (linked to microfinance) □ Micro-enterprise (based on micro finance) □ Self-Help Group (SHG) □ Group-lending □ Micro-lending □ NGO □ MFI Bank	
34	Outcome • *Economic outcomes* • *Social outcomes*	□ **Economic outcomes** □ Impact on assets □ Impact on income □ Impact on business profile	

S.No	Assessing tool	Tick Relevant	Details
	• *Women's empowerment*	□ Impact on consumption/expenditure □ Impact revenue and profits □ Impact on savings □ Impact on poverty index/status □ Impact on employment □ Improved access and borrowing finance □ **Social outcomes** □ Impact on education □ Impact on health □ Impact on nutritional status □ Impact on vulnerability to shocks □ Impact on social capital □ **Women's empowerment** □ Empowerment	
35	Comparison	□ New-member □ Untreated group □ No participants □ Non-beneficiaries □ Without access □ Non-poor □ Urban □ Non-eligible □ Non-MFI □ No intervention □ Pre-intervention □ Post-intervention □ Non-borrower □ Non-member □ Male □ Female □ Non-target □ New member	

Section VI: *Method of data analysis and outcome capture*

S.No	Assessing tool	Tick Relevant	Details
36	Data-analysis method	□ Simple percentage analysis (tabulation) □ Statistical method □ Econometric method □ PSM □ DD □ Others (Specify)	

S.No	Assessing tool	Tick Relevant	Details
37	Nature of study outcome measured and analysed in which dataset format?	□ Dichotomous data □ Continuous data □ Other (specify)	
38	Outcomes captured *(Tick and give details where relevant)*	□ Mean □ Standard deviation □ Standardised mean differences □ Confidence of interval □ Chi-square test □ Z- value □ t-value □ p-value ***Match-based studies*** □ ITT □ ATT □ Kernal matching □ NN matching □ Radius matching □ Stratification matching □ DD □ Other (specify)	

Section VII: *Contextual information - Actual sample*

S.No	Assessing tool	Tick Relevant	Details
39	What was the total number of participants in the study (the actual sample)? *(If more than one group is being compared, please give numbers for each group.)*	□ Not applicable (for example, study of policies, documents, etc.) □ Explicitly stated (please specify) □ Implicit (please specify) □ Not stated/unclear (please specify)	
40	Which country/countries are the individuals in the actual sample from? *(If from different countries, please give numbers for each. If more than one group is being compared, please describe for each group.)*	□ Not applicable (for example, study of policies, documents, etc.) □ Explicitly stated (please specify) □ Implicit (please specify) □ Not stated/unclear (please specify)	
41	If the individuals in the actual sample are involved with an MFI, which type of institution is it?	□ Not applicable (for example, study of policies, documents, etc.) □ Community centre □ MFI Banks □ NGO □ Commercial bank □ CBO	

S.No	Assessing tool	Tick Relevant	Details
		□ MFI □ SHG □ Others (specify)	
42	What is the socio-economic status of the individuals within the actual sample?	□ Not applicable (for example, study of policies, documents, etc-) □ Explicitly stated (please specify) □ Implicit (please specify) □ Not stated/unclear (please specify)	
43	What is known about the special financial /credit/training needs of individuals within the actual sample? *(for example, lack of credit or finance/training for entrepreneurs/ repayment, etc., difficulties.)*	□ Not applicable (for example, study of policies, documents, etc.) □ Explicitly stated (please specify) □ Implicit (please specify) □ Not stated/unclear (please specify)	
44	What is the proportion of those selected for the study who actually participated in the study? *(Please specify numbers and percentages, if possible.)*	□ Not applicable (for example, review) □ Explicitly stated (please specify) □ Implicit (please specify) □ Not stated/unclear (please specify)	
45	Is there any other useful information about the study participants?	□ Not applicable □ Explicitly stated □ Implicit □ Not stated	

Risk of bias

1 Selection bias:

Flaws in the design, conduct, analysis and reporting of RCTs can cause an intervention to be underestimated or overestimated. The Cochrane collaboration's tool for assessing risk of bias aims to make the process clearer and more accurate.

1.1   Random-sequence generation;

Describe the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups.

- Low-risk
- High-risk
- Unclear

1.2   Allocation concealment

Describe the method used to conceal the allocation sequence in sufficient detail to determine whether intervention allocations could have been foreseen before or during enrolment

- Low-risk
- High-risk
- Unclear

2 Performance bias:

2.1   Blinding of participants and personnel*

Describe all measures used, if any, to blind trial participants and researchers in terms of knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective.

*Assessments should be made for each main outcome or class of outcomes.

- Low-risk
- High-risk
- Unclear

3 Detection bias:

3.1   *Blinding of outcome assessment**

Describe all measures used, if any, to blind outcome assessment in terms of knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective.

*Assessments should be made for each main outcome or class of outcomes.

- Low-risk
- High-risk
- Unclear

4 Attrition bias:

4.1   Incomplete outcome data*

Describe the completeness of outcome data for each main outcome, including attrition and exclusions from the analysis. State whether attrition and exclusions were reported, the numbers in each intervention group (compared with total randomised participants), reasons for which attrition or exclusions where reported, and any re-inclusions in analyses for the review.

*Assessments should be made for each main outcome or class of outcomes.

- Low-risk
- High-risk
- Unclear

5 Reporting bias:

5.1   *Selective reporting*

State how selective outcome reporting was examined and what was found

- Low-risk
- High-risk
- Unclear

6 **Other bias:**

6.1   *Anything else, ideally pre-specified*

State any important concerns about bias not covered in the other domains in the tool

- Low-risk
- High-risk
- Unclear

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Study descriptive information

S.No	Study	Intervention/ Research design	Evidence	Study findings	Risk of Bias
1	Alam (2013)	Micro-credit Quasi-Experimental	Cross-sectional	Very significant impact on business revenue/profit	Low risk
2	Amin, Pierre, Ahmed, Haq (2001)	Micro-credit Pre- and post-test	Before/after	Significant positive impact on health and creation of social capital	High risk
3	Augsburg (2006)	Micro-credit Pre- and post-test	Before/after	Positive impact on income	Low risk
4	Banerjee, Duflo, Glennerster, Kinnan (2009)	Microfinance RCT	Cross-sectional	Mixed evidence on income, employment. Very significant impact on improved access to borrowing	Low risk
5	Bashar and Rashid (2012)	Microfinance Observational	Cross-sectional	Positive impact on income consumption/expenditure.	Low risk
6	Berg (2010)	Micro-saving Pre- and post-test	Before/after	Significantly positive impact on income and consumption/expenditure	High risk
7	Chandrakumarmangalam and Vetrive (2012)	Microfinance Quasi-Experimental	Cross-sectional	Significant positive impact on health and employment, followed by positive impact on consumption/ expenditure/education/asset creation/additional income and creation of social capital	Low risk
8	Chemin (2008)	Microfinance Quasi-Experimental	Cross-sectional	Positive impact on education and employment	Low risk
9	Chen and Snodgrass (1999)	Replication Study	-	-	-
10	Chen and Snodgrass (2001)	Replication Study	-	-	-
11	Czura (2010)	Microfinance Observational	Micro-credit Cross-sectional	Negative impact on consumption, income, expenditure and social capital	Low risk
12	Deininger and Liu (2012)	Microfinance Pre- and post-test	Microfinance before/after	Not statistically significant impact on consumption, expenditure and social capital	Low risk

S.No	Study	Intervention/ Research design	Evidence	Study findings	Risk of Bias
13	Deininger and Liu (2013)	Micro-credit Observational	Microfinance Cross-sectional	Very significant impact on women's empowerment and social-capital creation	Low risk
14	Desai and Joshi (2013)	Microfinance Observational	Microfinance Before/after	Positive impact on income empowerment, access to borrowing and savings	Low risk
15	Duvendack and Jones (2012)	Replication Study	-	-	
16	Duvendack (2010)	Microfinance Pre- and post-test	Microfinance Before/after	Very significant impact on consumption, expenditure and income	Low risk
17	Field, Pande, Papp, Park (2012)	Microfinance RCT	Micro-credit Cross-sectional	Positive impact on income, consumption and expenditure	Low risk
18	Garikipati (2012)	Micro-credit Pre- and post-test	Before/after	Significant negative impact on employment. Positive impact on business profile	Low risk
19	Hadi (2002)	Micro-credit Observational	Cross-sectional	Statistically significant positive impact on health	Low risk
20	Halder (2003)	Microfinance Pre- and post-test	Before/after	Moderately positive impact on poverty	Medium risk
21	Hoque (2004)	Micro-credit Observational	Cross-sectional	Not statistically significant impact on consumption /expenditure	High risk
22	Hussain and Nargis (2008)	Micro-credit Pre- and post-test	Before/after	Positive impact on income and employment	Medium risk
23	Imai and Azam (2012)	Micro-credit Pre- and post-test	Before/after	Impact on income, consumption and expenditure	Low risk
24	Imai, Arun, Annim (2010)	Microfinance Observational	Cross-sectional	Very significant impact on poverty and access to borrowing	Low risk
25	Islam and Choe (2011)	Micro-credit Observational	Cross-sectional	Mixed evidence on employment and education	Low risk
26	Islam and Maitra (2008)	Micro-credit Pre- and post-test	Cross-sectional	Positive impact on consumption and expenditure	High risk
27	Islam (2009)	Microfinance Observational	Cross-sectional	Impact on consumption and expenditure	Low risk

S.No	Study	Intervention/ Research design	Evidence	Study findings	Risk of Bias
28	Islam (2011)	Microfinance Observational	Cross-sectional	Positive impact on assets	Low risk
29	Khandker and Samad (2013)	Replication Study	-	-	-
30	Khandker and Samad (2014)	Replication Study	-	-	-
31	Khandker and Samad (2013)	Micro-credit Pre- and post-test	Before/after	Positive impact on income, consumption, expenditure, asset creation, savings, employment	Low risk
32	Khandker and Latif (1996)	Micro-credit Observational	Cross-sectional	Impact on social capital	High risk
33	Khandker (2000)	Micro-credit Quasi-Experimental	Cross-sectional	Positive impact on savings and access to borrowing	Low risk
34	Khandker (2005)	Microfinance Quasi-Experimental	Before-after	Positive impact on consumption and expenditure and very significant impact on poverty	Low risk
35	Khandker, Samad, Khan (1998)	Micro-credit Quasi-Experimental	Cross-sectional	Positive impact on income, employment and business profile	Low risk
36	Kuchler (2012)	Microfinance Quasi-Experimental	Before-after	Positive impact on social capital	Low risk
37	Latif (1994)	Micro-credit Observational	Cross-sectional	Impact on health	Low risk
38	Latif (2001)	Micro-credit Observational	Cross-sectional	Not statistically significant impact on income and significant impact on savings	Low risk
39	Mahmud (2003)	Micro-credit Observational	Before-after	Not statistically significant impact on women's empowerment	Low risk
40	McKernan (2002)	Micro-credit Quasi-Experimental	Cross-sectional	Positive impact on business revenues/profits	Low risk
41	Menon (2006)	Microfinance Quasi-Experimental	Before-after	Positive impact on consumption/expenditure	Low risk
42	Montgomery (2006)	Microfinance Observational	Cross-sectional	Mixed evidence on consumption, education, health and business	Low risk
43	Morduch (1998)	Replication Study	-	-	-

S.No	Study	Intervention/ Research design	Evidence	Study findings	Risk of Bias
44	Mukhopadhyay (2014)	Microfinance RCT	Before-after	Impact on consumption and expenditure	High risk
45	Mula and Sarker (2013)	Microfinance Observational	Cross-sectional	Very significant impact on income, employment, consumption, expenditure and savings	High risk
46	Nanda (1999)	Micro-credit Quasi-Experimental	Cross-sectional	Positive Impact on health	Low risk
47	Nilakantan, Datta, Sinha, Datta (2013)	Microfinance Observational	Cross-sectional	Impact on women's empowerment	Low risk
48	Pati and Lyngdoh (2010)	Micro-credit Observational	Cross-sectional	Impact on women empowerment	Low risk
49	Pitt and Khandker (1998)	Micro-credit Quasi-Experimental	Cross-sectional	Very significant impact on consumption, expenditure and asset creation	Low risk
50	Pitt and Khandker (2002)	Micro-credit Quasi-Experimental	Cross-sectional	Positive impact on consumption/expenditure and negative impact on employment	Low risk
51	Pitt (1999)	Replication Study	-	-	-
52	Pitt (2000)	Micro-credit Quasi-Experimental	Cross-sectional	Not statistically significant impact on income and employment	Low risk
53	Pitt, Khandker, Cartwright (2006)	Microfinance Observational	Cross-sectional	Positive impact on women empowerment	High risk
54	Pitt, Khandker, McKernan, Latif (1999)	Micro-credit Quasi-Experimental	Cross-sectional	Impact on health	Low risk
55	Rahman (2010)	Micro-credit Observational	Cross-sectional	Mixed evidence on consumption/expenditure	Low risk
56	Rahman, Junankar, Mallik (2009)	Micro-credit Quasi-Experimental	Cross-sectional	Positive impact on women empowerment	Low risk
57	Raza, Das, Misha (2012)	Microfinance Pre- and post-test	Before/after	Significant positive impact on asset creation	Low risk
58	Roodman and Morduch (2014)	Replication Study	-	-	-
59	Saha (2014)	Microfinance Pre- and post-test	Before/after	Moderately positive impact on savings and access to borrowing and positive impact on health	Medium risk

S.No	Study	Intervention/ Research design	Evidence	Study findings	Risk of Bias
60	Setboonsarng and Parpiev (2008)	Microfinance Observational	Cross-sectional	Evidence on consumption, expenditure, asset creation, education health and women empowerment	Low risk
61	Shirazi and Khan (2009)	Micro-credit Pre- and post-test	Before/after	Moderate and mixed impact on poverty	Low risk
62	Shoji (2009)	Microfinance Pre- and post-test	Before/after	Statistically significant impact on income, consumption and expenditure	Low risk
63	Swain and Floro (2012)	Microfinance Observational	Cross-sectional	Not statistically significant impact on vulnerability to shocks	Low risk
64	Swain and Varghese (2009)	Microfinance Quasi-Experimental	Cross-sectional	Negative impact on asset creation	Low risk
65	Swain and Wallentin (2009)	Microfinance Quasi-Experimental	Before/after	Very significant positive impact on women's empowerment	High risk
66	Weber and Ahmad (2014)	Microfinance Observational	Cross-sectional	Positive impact on women's empowerment	Medium risk
67	Woutersen and Khandker (2014)	Replication Study	-	-	-
68	Zaman (1999)	Micro-credit Observational	Cross-sectional	Positive impact on women's empowerment	High risk
69	Zeller, Sharma, Ahmed,Rashid (2001)	Micro-credit Pre- and post-test	Before-after	Positive impact on consumption/expenditure and business revenue	High risk

Table A15.1: Impact on income microfinance — random effect model

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Augsburg (2006)	0.473	0.029	0.917	0.2
Augsburg (2006)	0.441	-0.002	0.884	0.2
Bashar et al. (2012)	0.08	0.005	0.155	7.4
Chandrakumarmangalam et.al. (2012)	0.369	0.089	0.648	0.5
Desai et al. (2014)	-0.016	-0.115	0.084	4.2
Field et al. (2012)	0.021	-0.035	0.076	13.6
Field et al. (2012)	0.028	-0.027	0.084	13.6
Hussain et al. (2008)	-9.576	-10.178	-8.973	0.1
Hussain et al. (2008)	-0.285	-0.375	-0.196	5.2
Hussain et al. (2008)	-0.117	-0.203	-0.032	5.7
Hussain et al. (2008)	-0.342	-0.415	-0.269	7.9
Imai et al. (2012)	0.147	-0.046	0.34	1.1
Imai et al. (2012)	0.026	-0.127	0.178	1.8
Imai et al. (2012)	-0.026	-0.138	0.086	3.3
Imai et al. (2012)	0.037	-0.132	0.206	1.5
Imai et al. (2012)	0.034	-0.142	0.21	1.3
Imai et al. (2012)	0.012	-0.152	0.175	1.6
Imai et al. (2012)	-0.064	-0.174	0.046	3.4
Khandker et al. (2013)	0.043	-0.071	0.157	3.2
Khandker et al. (2013)	-0.022	-0.14	0.097	3
Khandker et al. (2013)	-0.05	-0.164	0.064	3.2
Khandker et al. (2013)	0.145	0.026	0.263	3
Khandker et al. (2013)	0.119	0.005	0.233	3.2
Khandker et al. (2013)	0.035	-0.079	0.149	3.2
Mula et al. (2013)	4.736	4.051	5.42	0.1
Mula et al. (2013)	5.458	4.514	6.402	0
Mula et al. (2013)	7.894	6.328	9.459	0
Pati et al. (2010)	0.392	0.113	0.672	0.5
Setboonsarng et al. (2008)	-0.025	-0.12	0.07	4.6
Setboonsarng et al. (2008)	-0.014	-0.132	0.103	3
Total	**0.067**	**-0.093**	**0.226**	
Panel B				
Heterogeneity:	Q = 1.55E+03; df 29; p = 0			
I-squared	98.1%			
Tau-squared 0.0000	0.178			
Random effect model	0.0668 (-0.0927, 0.226)			

Table A15.2: Impact on assets in microfinance — random effect model

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Chandrakumarmangalam et al. (2012)	0.79	0.131	1.45	0.1
Chandrakumarmangalam et al. (2012)	0.347	0.141	0.553	0.6
Deininger et al. (2013)	5.2	5.067	5.333	1.4
Khandker et al. (2013)	-0.046	-0.164	0.072	1.7
Khandker et al. (2013)	0.082	-0.032	0.196	1.8
Khandker et al. (2013)	0.085	-0.029	0.198	1.8
Khandker et al. (2013)	-0.132	-0.246	0.018	1.8
Khandker et al. (2013)	0.525	0.409	0.64	1.8
Khandker et al. (2013)	0.039	-0.08	0.157	1.7
Khandker et al. (2013)	0.357	0.242	0.472	1.8
Khandker et al. (2013)	0.07	-0.048	0.188	1.7
Khandker et al. (2013)	0.361	0.246	0.475	1.8
Khandker et al. (2013)	-0.143	-0.257	0.029	1.8
Khandker et al. (2013)	-0.106	-0.219	0.008	1.8
Khandker et al. (2013)	0.131	0.013	0.249	1.7
Khandker et al. (2013)	0.048	-0.07	0.166	1.7
Khandker et al. (2013)	0.217	0.102	0.331	1.8
Khandker et al. (2013)	-0.129	-0.243	-0.015	1.8
Khandker et al. (2013)	0.361	0.246	0.475	1.8
Khandker et al. (2013)	0.603	0.487	0.719	1.8
Khandker et al. (2013)	-0.08	-0.193	0.034	1.8
Khandker et al. (2013)	0.035	-0.078	0.149	1.8
Khandker et al. (2013)	0.189	0.075	0.303	1.8
Khandker et al. (2013)	-0.19	-0.308	-0.072	1.7
Khandker et al. (2013)	0.216	0.102	0.33	1.8
Khandker et al. (2013)	0.027	-0.092	0.145	1.7
Khandker et al. (2013)	-0.035	-0.153	0.083	1.7
Mula et al. (2013)	1.724	1.155	2.293	0.1
Mula et al. (2013)	1.534	1.053	2.015	0.1
Mula et al. (2013)	1.341	0.927	1.755	0.1
Pitt et al. (1998)	0.063	-0.031	0.158	2.7
Pitt et al. (1998)	0.022	-0.072	0.117	2.7
Pitt et al. (1998)	0.05	-0.044	0.144	2.7
Pitt et al. (1998)	0.007	-0.087	0.101	2.7
Pitt et al. (1998)	0.017	-0.077	0.111	2.7
Pitt et al. (1998)	-0.01	-0.104	0.085	2.7
Setboonsarng et al. (2008)	0.133	0.038	0.227	2.7

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Setboonsarng et al. (2008)	0.107	0.012	0.202	2.7
Setboonsarng et al. (2008)	0.043	-0.052	0.137	2.7
Setboonsarng et al. (2008)	0.098	0.003	0.193	2.7
Setboonsarng et al. (2008)	0.034	-0.06	0.129	2.7
Setboonsarng et al. (2008)	0.165	0.047	0.283	1.7
Setboonsarng et al. (2008)	-0.014	-0.132	0.104	1.7
Setboonsarng et al. (2008)	0.01	-0.108	0.128	1.7
Setboonsarng et al. (2008)	0.104	-0.014	0.222	1.7
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.7
Setboonsarng et al. (2008)	0.013	-0.105	0.13	1.7
Setboonsarng et al. (2008)	0.029	-0.066	0.123	2.7
Setboonsarng et al. (2008)	0.033	-0.062	0.128	2.7
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	2.7
Setboonsarng et al. (2008)	0.028	-0.09	0.146	1.7
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.7
Setboonsarng et al. (2008)	0.026	-0.091	0.144	1.7
Setboonsarng et al. (2008)	0.136	0.018	0.254	1.7
Total	**0.258**	**0.092**	**0.425**	
Panel B				
Heterogeneity:	6.07E+0.3; df = 53; p = 0			
I-squared	0.991			
Tau-squared 0.0000	0.383			
Random effect model	0.258 (0.0916, 0.425)			

Table A15.3: Impact on consumption/expenditure in microfinance — random effect model

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.048	0.048	7
Banerjee et al. (2009)	0	-0.048	0.048	7
Banerjee et al. (2009)	0	-0.047	0.047	7
Chandrakumarmangalam et al. (2012)	0.213	-0.771	1.196	0
Chandrakumarmangalam et al. (2012)	0.299	-0.088	0.686	0.1
Chandrakumarmangalam et al. (2012)	0.183	-1.06	1.427	0
Deininger et al. (2013)	31.997	31.331	32.663	0
Deininger et al. (2013)	6.119	5.971	6.268	0.7
Deininger et al. (2013)	5.32	5.185	5.455	0.9

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Field et al. (2012)	0.024	-0.031	0.08	5.2
Garikipati (2012)	-0.054	-0.386	0.279	0.1
Garikipati (2012)	0.168	-0.182	0.518	0.1
Imai et al. (2012)	0.064	-0.047	0.175	1.3
Imai et al. (2012)	0.13	0.017	0.243	1.2
Imai et al. (2012)	0.103	-0.091	0.297	0.4
Khandker et al. (2013)	-0.103	-0.221	0.015	1.1
Khandker et al. (2013)	-0.067	-0.18	0.047	1.2
Khandker et al. (2013)	0.096	-0.022	0.214	1.1
Khandker et al. (2013)	0.071	-0.042	0.185	1.2
Khandker et al. (2013)	0.06	-0.053	0.174	1.2
Khandker et al. (2013)	0.01	-0.104	0.124	1.2
Mula et al. (2013)	1.031	0.595	1.468	0.1
Mula et al. (2013)	1.288	0.723	1.852	0
Mula et al. (2013)	0.848	0.496	1.2	0.1
Pati et al. (2010)	0.353	0.073	0.632	0.2
Pitt et al. (1998)	0.044	-0.01	0.098	5.4
Pitt et al. (1998)	0.105	0.051	0.159	5.4
Pitt et al. (1998)	0.117	0.063	0.172	5.4
Pitt et al. (1998)	0.054	-0.001	0.108	5.4
Pitt et al. (1998)	0.118	0.063	0.172	5.4
Pitt et al. (1998)	0.04	-0.015	0.094	5.4
Pitt et al. (2002)	0.202	0.108	0.296	1.8
Pitt et al. (2002)	0.076	-0.018	0.17	1.8
Pitt et al. (2002)	0.203	0.109	0.297	1.8
Pitt et al. (2002)	-0.005	-0.088	0.077	2.3
Pitt et al. (2002)	0.068	-0.025	0.162	1.8
Pitt et al. (2002)	0.092	-0.001	0.186	1.8
Pitt et al. (2002)	-0.061	-0.155	0.033	1.8
Pitt et al. (2002)	0.182	0.088	0.276	1.8
Pitt et al. (2002)	-0.823	-0.921	-0.725	1.6
Setboonsarng et al. (2008)	-0.051	-0.146	0.044	1.8
Setboonsarng et al. (2008)	-0.02	-0.115	0.075	1.8
Setboonsarng et al. (2008)	0.008	-0.087	0.103	1.8
Setboonsarng et al. (2008)	0.033	-0.085	0.151	1.1
Setboonsarng et al. (2008)	0.029	-0.066	0.124	1.8
Setboonsarng et al. (2008)	0.016	-0.102	0.134	1.1
Setboonsarng et al. (2008)	0.027	-0.091	0.145	1.1
Setboonsarng et al. (2008)	0.007	-0.111	0.124	1.1

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Shoji (2009)	0.508	0.357	0.66	0.7
Total	**0.942**	**0.67**	**1.213**	
Panel B				
Heterogeneity:	Q = 2.14E +04; df 48; p = 0			
I-squared	99.8%			
Tau-squared	0.919			
Random effect model	0.942 (0.67, 1.21)			

Table A15.4: Impact on education in microfinance — random effect model

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.053	0.053	13.2
Chandrakumarmangalam et al. (2012)	0.19	-1.421	1.8	0
Khandker et al. (2013)	0.281	0.163	0.398	2.7
Khandker et al. (2013)	0.178	0.019	0.337	1.5
Khandker et al. (2013)	0.198	0.076	0.32	2.5
Khandker et al. (2013)	-0.077	-0.163	0.009	5
Khandker et al. (2013)	0.168	0.033	0.304	2
Khandker et al. (2013)	-0.01	-0.169	0.15	1.5
Pitt et al. (1998)	0.085	-0.014	0.184	3.8
Pitt et al. (1998)	0.058	-0.041	0.157	3.8
Pitt et al. (1998)	-0.005	-0.104	0.093	3.8
Pitt et al. (1998)	-0.12	-0.115	0.091	3.5
Pitt et al. (1998)	0.124	0.021	0.227	3.5
Pitt et al. (1998)	0.047	-0.052	0.146	3.8
Pitt et al. (1998)	0.135	0.032	0.238	3.5
Pitt et al. (1998)	0.033	-0.065	0.132	3.8
Pitt et al. (1998)	0.018	-0.085	0.121	3.5
Pitt et al. (1998)	0.048	-0.055	0.151	3.5
Pitt et al. (1998)	-0.029	-0.132	0.074	3.5
Pitt et al. (1998)	0.065	-0.033	0.164	3.8
Setboonsarng et al. (2008)	0.002	-0.115	0.12	2.7
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	4.1
Setboonsarng et al. (2008)	-0.005	-0.1	0.089	4.2
Setboonsarng et al. (2008)	-0.016	-0.111	0.079	4.2
Setboonsarng et al. (2008)	0.022	-0.096	0.14	2.7
Setboonsarng et al. (2008)	0.007	-0.088	0.102	4.2
Setboonsarng et al. (2008)	0.01	-0.108	0.128	2.7

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Setboonsarng et al. (2008)	0.029	-0.089	0.147	2.7
Total	**0.044**	**0.015**	**0.072**	
Panel B				
Heterogeneity:	Q = 53.5; df = 27; p = 0.00177			
I-squared	0.495			
Tau-squared 0.0000	0.00271			
Random effect model	0.0437 (0.0155, 0.0719)			

Table A15.5: Impact on women's empowerment in microfinance — random effect model

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.055	0.055	11.2
Banerjee et al. (2009)	0	-0.047	0.047	14.9
Banerjee et al. (2009)	0	-0.047	0.047	14.9
Deininger et al. (2013)	0.03	-0.049	0.108	5.4
Deininger et al. (2013)	0.002	-0.076	0.081	5.4
Desai et al. (2014)	0.095	-0.004	0.195	3.4
Desai et al. (2014)	0.09	-0.009	0.19	3.4
Desai et al. (2014)	0.093	-0.007	0.192	3.4
Mahmud (2003)	0.041	-0.068	0.15	2.8
Nilakantan et al. (2013)	0.042	-0.152	0.237	0.9
Nilakantan et al. (2013)	0.13	-0.065	0.325	0.9
Nilakantan et al. (2013)	0.119	-0.076	0.314	0.9
Nilakantan et al. (2013)	-0.001	-0.196	0.193	0.9
Nilakantan et al. (2013)	0.095	-0.1	0.289	0.9
Nilakantan et al. (2013)	0.139	-0.055	0.334	0.9
Nilakantan et al. (2013)	0.204	0.009	0.399	0.9
Nilakantan et al. (2013)	0.085	-0.109	0.28	0.9
Nilakantan et al. (2013)	0.095	-0.1	0.289	0.9
Nilakantan et al. (2013)	0.087	-0.107	0.282	0.9
Nilakantan et al. (2013)	0.279	0.084	0.474	0.9
Nilakantan et al. (2013)	0.154	-0.04	0.349	0.9
Setboonsarng et al. (2008)	-0.047	-0.142	0.047	3.7
Setboonsarng et al. (2008)	-0.059	-0.154	0.035	3.7
Setboonsarng et al. (2008)	-0.086	-0.181	0.009	3.7
Setboonsarng et al. (2008)	-0.033	-0.151	0.085	2.4
Setboonsarng et al. (2008)	0.016	-0.102	0.134	2.4

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Setboonsarng et al. (2008)	-0.034	-0.151	0.084	2.4
Setboonsarng et al. (2008)	0.043	-0.075	0.161	2.4
Setboonsarng et al. (2008)	0.072	-0.023	0.167	3.7
Total	**0.028**	**0.005**	**0.052**	
Panel B				
Heterogeneity:	Q = 38.6; df = 28; p = 0.0877			
I-squared	27.%4			
Tau-squared	0.0009			
Random effect model	0.0283 (0.0046, 0.052)			

Table A15.6: Impact on employment in microfinance — random effect model

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Banerjee et al. (2009)	0	-0.081	0.081	1.6
Chandrakumarmangalam et al. (2012)	0.492	0.211	0.774	0.1
Desai et al. (2014)	0.098	-0.001	0.198	1.1
Garikipati (2012)	-0.303	-0.637	0.032	0.1
Garikipati (2012)	0.051	-0.298	0.401	0.1
Mula et al. (2013)	7.475	6.306	8.645	0
Mula et al. (2013)	5.28	4.482	6.078	0
Mula et al. (2013)	8.997	7.365	10.629	0
Pitt et al. (1998)	-0.003	-0.051	0.045	4.6
Pitt et al. (1998)	-0.013	-0.06	0.035	4.8
Pitt et al. (1998)	-0.016	-0.063	0.031	4.8
Pitt et al. (1998)	-0.174	-0.222	-0.126	4.6
Pitt et al. (1998)	-0.051	-0.098	-0.004	4.8
Pitt et al. (1998)	-0.166	-0.214	-0.118	4.6
Pitt et al. (1998)	-0.145	-0.193	-0.097	4.6
Pitt et al. (1998)	-0.052	-0.099	-0.005	4.8
Pitt et al. (1998)	-0.061	-0.108	-0.14	4.8
Pitt et al. (1998)	-0.003	-0.052	0.045	4.6
Pitt et al. (1998)	-0.004	-0.052	0.043	4.8
Pitt et al. (1998)	0.004	-0.044	0.052	4.6
Pitt et al. (2002)	-0.022	-0.105	0.061	1.6
Pitt et al. (2002)	-0.089	-0.17	-0.008	1.6
Pitt et al. (2002)	-0.008	-0.09	0.075	1.6
Pitt et al. (2002)	0.007	-0.176	0.09	1.6
Pitt et al. (2002)	-0.093	-0.176	-0.009	1.5

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Pitt et al. (2002)	-0.278	-0.359	-0.196	1.6
Pitt et al. (2002)	-0.029	-0.111	0.054	1.6
Pitt et al. (2002)	-0.104	-0.185	-0.023	1.6
Pitt et al. (2002)	-0.034	-0.116	0.048	1.6
Pitt et al. (2002)	0.066	-0.018	0.15	1.5
Pitt et al. (2002)	-0.088	-0.169	0.007	1.6
Pitt et al. (2002)	0.091	0.009	0.174	1.6
Pitt et al. (2002)	-0.243	-0.324	-0.162	1.6
Pitt et al. (2002)	-0.291	-0.373	-0.21	1.6
Pitt et al. (2002)	-0.006	-0.089	0.077	1.6
Pitt et al. (2002)	-0.034	-0.116	0.048	1.6
Setboonsarng et al. (2008)	0.061	-0.033	0.156	1.2
Setboonsarng et al. (2008)	0.083	-0.012	0.178	1.2
Setboonsarng et al. (2008)	-0.053	-0.171	0.065	0.8
Setboonsarng et al. (2008)	0.115	-0.002	0.233	0.8
Setboonsarng et al. (2008)	-0.121	-0.239	-0.003	0.8
Setboonsarng et al. (2008)	0.04	-0.078	0.158	0.8
Setboonsarng et al. (2008)	0.06	-0.035	0.155	1.2
Setboonsarng et al. (2008)	0.158	0.04	0.276	0.8
Setboonsarng et al. (2008)	0.131	0.036	0.226	1.2
Setboonsarng et al. (2008)	-0.073	-0.167	0.022	1.2
Setboonsarng et al. (2008)	0.066	-0.029	-0.161	1.2
Setboonsarng et al. (2008)	0.028	-0.09	0.145	0.8
Setboonsarng et al. (2008)	0.116	-0.002	0.234	0.8
Setboonsarng et al. (2008)	0.123	0.005	0.241	0.8
Setboonsarng et al. (2008)	0.025	-0.07	0.119	1.2
Setboonsarng et al. (2008)	-0.096	-0.191	-0.001	1.2
Total	**0.007**	**-0.035**	**0.049**	
Panel B				
Heterogeneity:	Q = 750; df 51; p = 0			
I-squared	93.2%			
Tau-squared 0.0000	0.02			
Random effect model	0.00673 (-0.0353, 0.0487)			

Figure A16.1: Forest plot of effects of microfinance on income, excluding outliers

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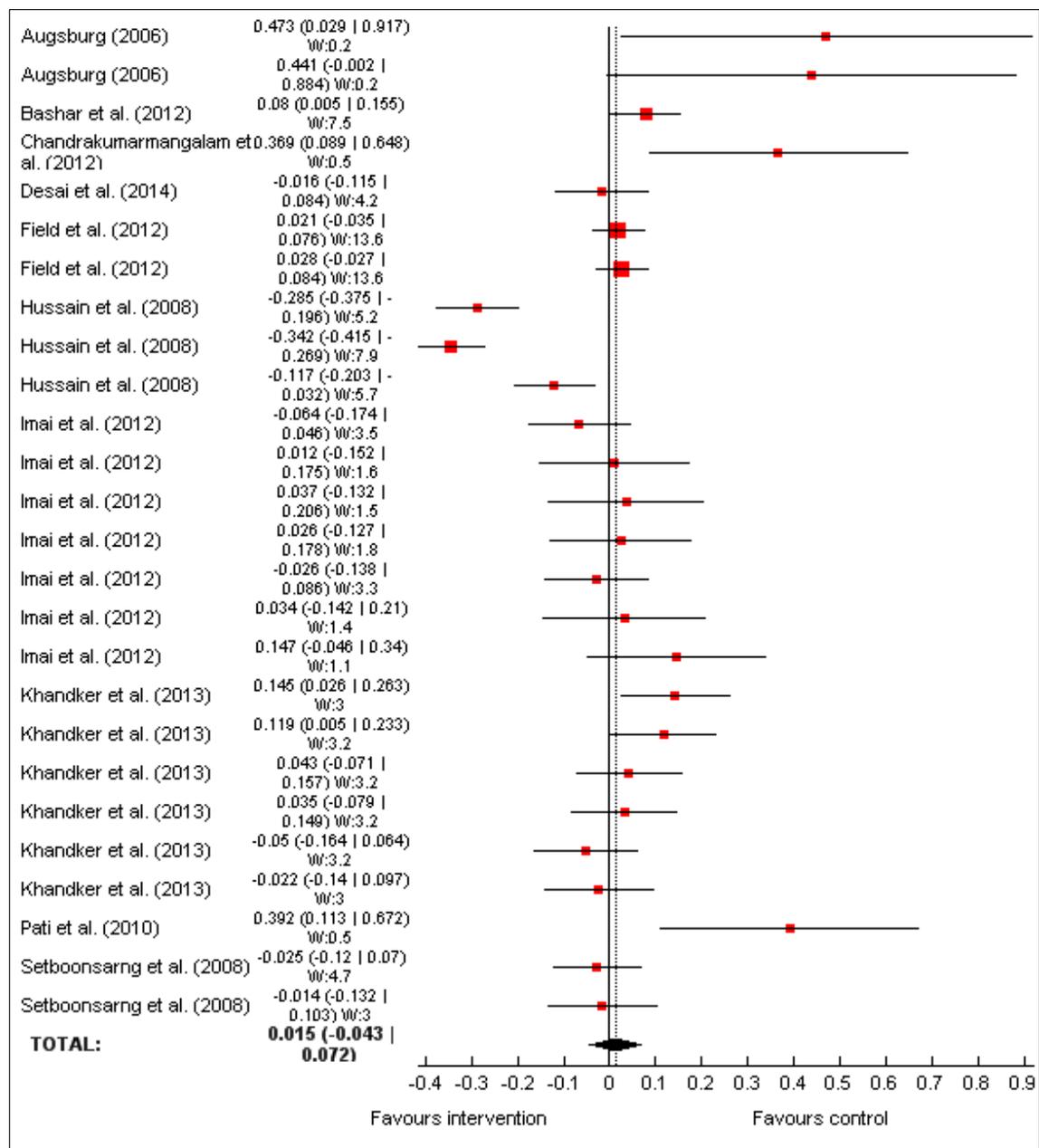
[17] It should be noted that, of the three studies that have been considered as outliers, one study belonged to the high-risk-of-bias category (Mula and Sarker 2013), one to the medium-risk-of-bias category (Hussain and Nargis 2008), and one to the low-risk of-bias category (Deininger and Liu 2013). A further two studies are in the Indian context and one in the context of Bangladesh.

Table A16.1: Microfinance impact on income, excluding outliers

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Augsburg (2006)	0.473	0.029	0.917	0.2
Augsburg (2006)	0.441	-0.002	0.884	0.2
Bashar et al. (2012)	0.08	0.005	0.155	7.5
Chandrakumarmangalam et al. (2012)	0.369	0.089	0.648	0.5
Desai et al. (2014)	-0.016	-0.115	0.084	4.2
Field (2012)	0.021	-0.035	0.076	13.6
Field (2012)	0.028	-0.027	0.084	13.6
Hussain et al. (2008)	-0.285	-0.375	-0.196	5.2
Hussain et al. (2008)	-0.342	-0.415	-0.269	7.9
Hussain et al. (2008)	-0.117	-0.203	-0.032	5.7
Imai et al. (2012)	-0.064	-0.174	0.046	3.5
Imai et al. (2012)	0.012	-0.152	0.175	1.6
Imai et al. (2012)	0.037	-0.132	0.206	1.5
Imai et al. (2012)	0.026	-0.127	0.178	1.8
Imai et al. (2012)	-0.026	-0.138	0.086	3.3
Imai et al. (2012)	0.034	-0.142	0.21	1.4
Imai et al. (2012)	0.147	-0.046	0.34	1.1
Khandker et al. (2013)	0.145	0.026	0.263	3
Khandker et al. (2013)	0.119	0.005	0.233	3.2
Khandker et al. (2013)	0.043	-0.071	0.157	3.2
Khandker et al. (2013)	0.035	-0.079	0.149	3.2
Khandker et al. (2013)	-0.05	-0.164	0.064	3.2
Khandker et al. (2013)	-0.022	-0.14	0.097	3
Pati et al. (2010)	0.392	0.113	0.672	0.5
Setboonsarng et al. (2008)	-0.025	-0.12	0.07	4.6
Setboonsarng et al. (2008)	-0.014	-0.132	0.103	3
Total	**0.015**	**-0.043**	**0.072**	
Panel B				
Heterogeneity:	Q = 170; df 25; p = 0			
I-squared	83.3%			
Tau-squared 0.0000	0.017			
Random effect model	0.0148 (-0.0429, 0.0724)			

Figure A16.2: Forest plot of effects of microfinance on consumption/expenditure, excluding outliers
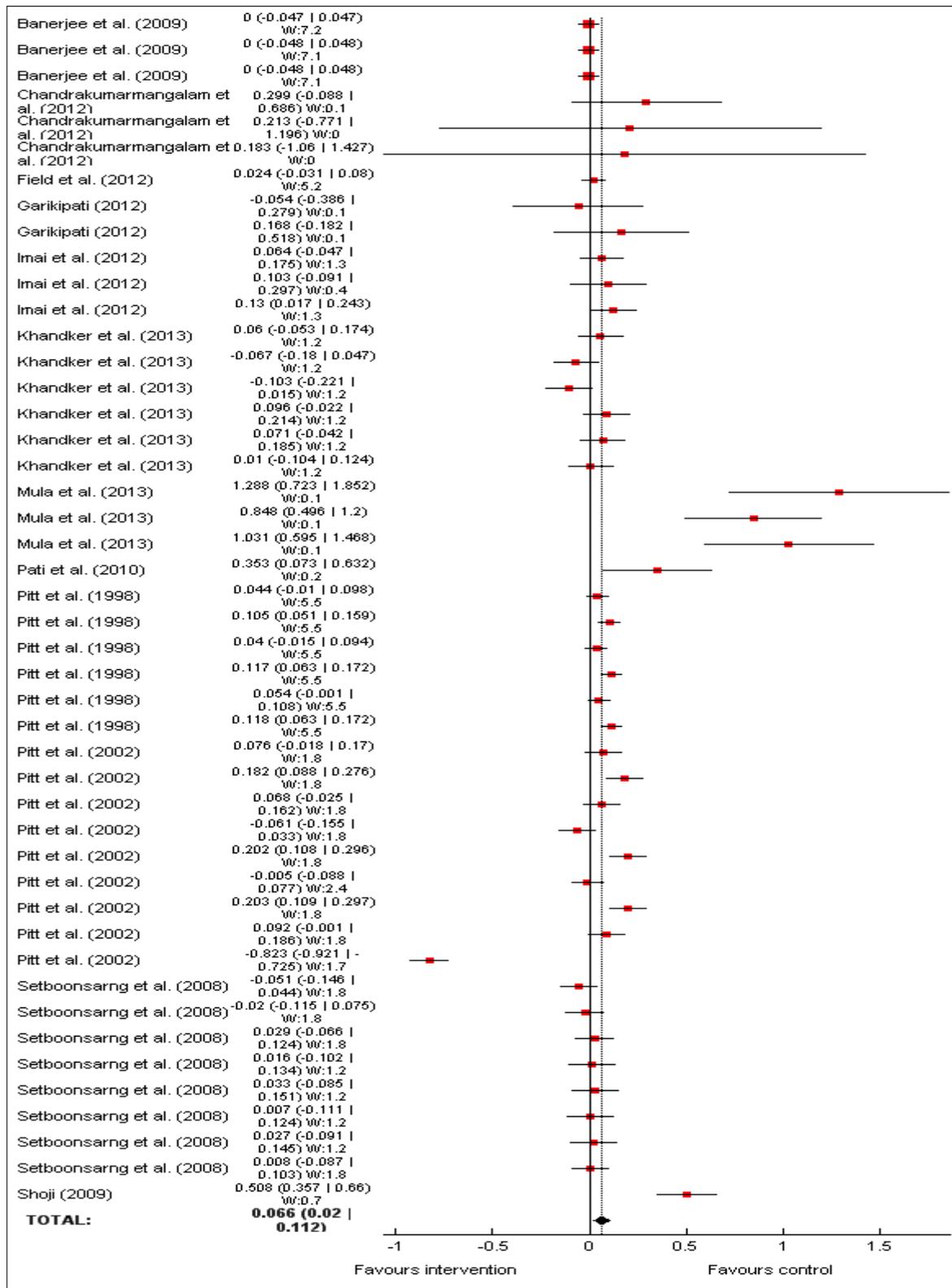
Table A16.2 Microfinance impact on consumption/expenditure, excluding outliers

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.047	0.047	7.2
Banerjee et al. (2009)	0	-0.048	0.048	7.1
Banerjee et al. (2009)	0	-0.048	0.048	7.1
Chandrakumarmangalam et al. (2012)	0.299	-0.088	0.686	0.1
Chandrakumarmangalam et al. (2012)	0.213	-0.771	1.196	0
Chandrakumarmangalam et al. (2012)	0.183	-1.06	1.427	0
Field et al. (2012)	0.024	-0.031	0.08	5.2
Garikipati (2012)	-0.054	-0.386	0.279	0.1
Garikipati (2012)	0.168	-0.182	0.518	0.1
Imai et al. (2012)	0.064	-0.047	0.175	1.3
Imai et al. (2012)	0.103	-0.091	0.297	0.4
Imai et al. (2012)	0.13	0.017	0.243	1.3
Khandker et al. (2013)	0.06	-0.053	0.174	1.2
Khandker et al. (2013)	-0.067	-0.18	0.047	1.2
Khandker et al. (2013)	-0.103	-0.221	0.015	1.2
Khandker et al. (2013)	0.096	-0.022	0.214	1.2
Khandker et al. (2013)	0.071	-0.042	0.185	1.2
Khandker et al. (2013)	0.01	-0.104	0.124	1.2
Mula et al. (2013)	1.288	0.723	1.852	0.1
Mula et al. (2013)	0.848	0.496	1.2	0.1
Mula et al. (2013)	1.031	0.595	1.468	0.1
Pati et al. (2010)	0.353	0.073	0.632	0.2
Pitt et al. (1998)	0.044	-0.01	0.098	5.5
Pitt et al. (1998)	0.105	0.051	0.159	5.5
Pitt et al. (1998)	0.04	-0.015	0.094	5.5
Pitt et al. (1998)	0.117	0.063	0.172	5.5
Pitt et al. (1998)	0.054	-0.001	0.108	5.5
Pitt et al. (1998)	0.118	0.063	0.172	5.5
Pitt et al. (2002)	0.076	-0.018	0.17	1.8
Pitt et al. (2002)	0.182	0.088	0.276	1.8
Pitt et al. (2002)	0.068	-0.025	0.162	1.8
Pitt et al. (2002)	-0.061	-0.155	0.033	1.8
Pitt et al. (2002)	0.202	0.108	0.296	1.8
Pitt et al. (2002)	-0.005	-0.88	0.077	2.4
Pitt et al. (2002)	0.203	0.109	0.297	1.8
Pitt et al. (2002)	0.092	-0.001	0.186	1.8
Pitt et al. (2002)	-0.823	-0.921	-0.725	1.7
Setboonsarng et al. (2008)	-0.051	-0.146	0.044	1.8

Setboonsarng et al. (2008)	-0.02	-0.115	0.075	1.8
Setboonsarng et al. (2008)	0.029	-0.066	0.124	1.8
Setboonsarng et al. (2008)	0.016	-0.102	0.134	1.2
Setboonsarng et al. (2008)	0.033	-0.085	0.151	1.2
Setboonsarng et al. (2008)	0.007	-0.111	0.124	1.2
Setboonsarng et al. (2008)	0.027	-0.091	0.145	1.2
Setboonsarng et al. (2008)	0.008	-0.087	0.103	1.8
Shoji (2009)	0.508	0.357	0.66	0.7
Total	**0.066**	**0.02**	**0.112**	
Panel B				
Heterogeneity:	Q = 488; df 45 p = 0			
I-squared	90.8%			
Tau-squared	0.0194			
Random effect model	0.0661 (0.0202, 1.112)			

Figure A16.3: Forest plot of effects of microfinance on employment, excluding outliers
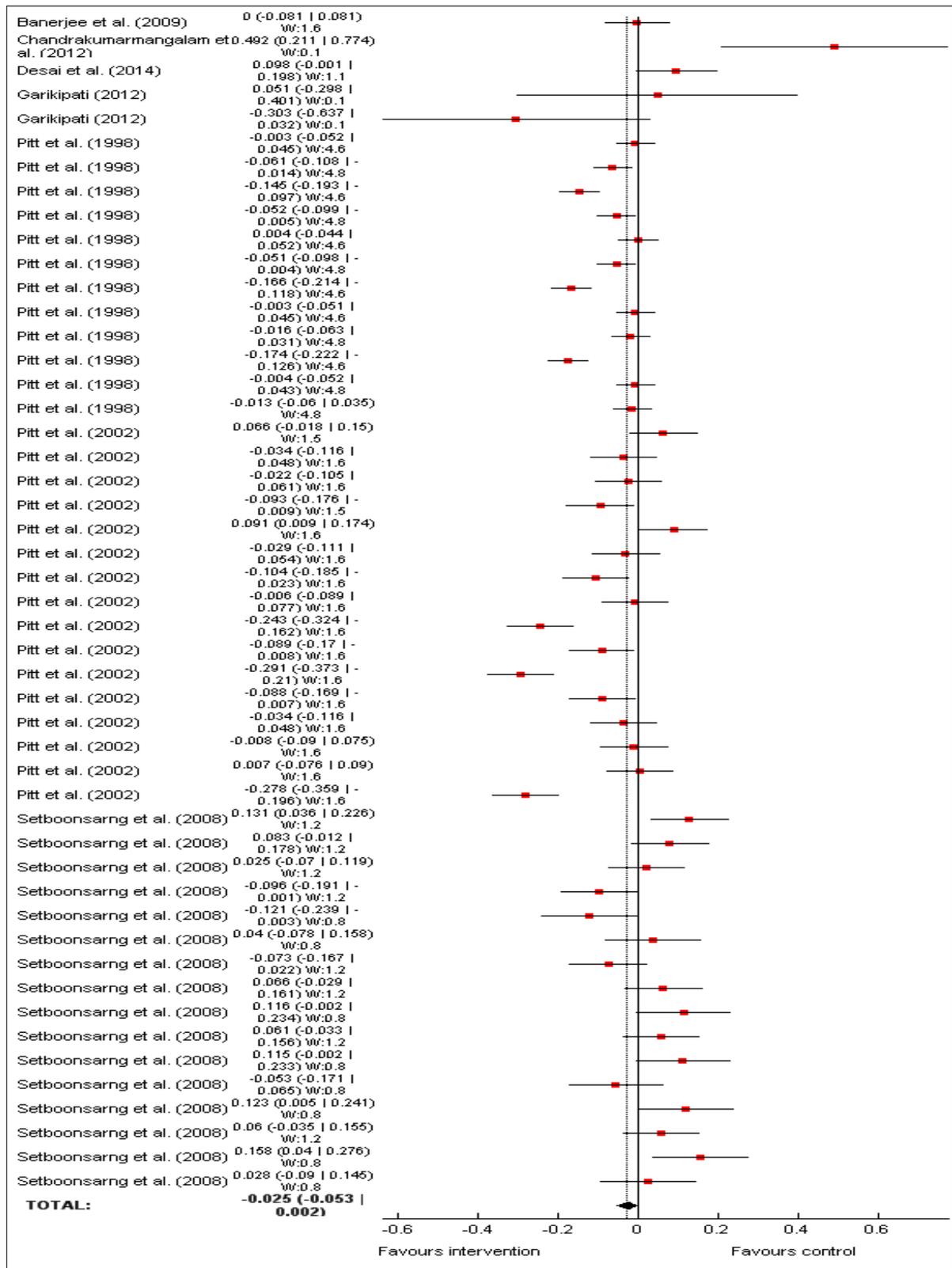
Table A16.3: Microfinance impact on employment, excluding outliers

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.081	0.081	1.6
Chandrakumarmangalam et al. (2012)	0.492	0.211	0.774	0.1
Desai et al. (2014)	0.098	-0.001	0.198	1.1
Garikipati (2012)	0.051	-0.298	0.401	0.1
Garikipati (2012)	-0.303	-0.637	0.032	0.1
Pitt et al. (1998)	-0.003	-0.052	0.045	4.6
Pitt et al. (1998)	-0.061	-0.108	-0.014	4.8
Pitt et al. (1998)	-0.145	-0.193	-0.097	4.6
Pitt et al. (1998)	-0.052	-0.099	-0.005	4.8
Pitt et al. (1998)	0.004	-0.044	0.052	4.6
Pitt et al. (1998)	-0.051	-0.098	-0.004	4.8
Pitt et al. (1998)	-0.166	-0.214	-0.118	4.6
Pitt et al. (1998)	-0.003	-0.051	0.045	4.6
Pitt et al. (1998)	-0.016	-0.063	0.031	4.8
Pitt et al. (1998)	-0.174	-0.222	-0.126	4.6
Pitt et al. (1998)	-0.004	-0.052	0.043	4.8
Pitt et al. (1998)	-0.013	-0.06	0.035	4.8
Pitt et al. (2002)	0.066	-0.018	0.15	1.5
Pitt et al. (2002)	-0.034	-0.116	0.048	1.6
Pitt et al. (2002)	-0.022	-0.105	0.061	1.6
Pitt et al. (2002)	-0.093	-0.176	-0.009	1.5
Pitt et al. (2002)	0.091	0.009	0.174	1.6
Pitt et al. (2002)	-0.029	-0.111	0.054	1.6
Pitt et al. (2002)	-0.104	-0.185	-0.023	1.6
Pitt et al. (2002)	-0.006	-0.089	0.077	1.6
Pitt et al. (2002)	-0.243	-0.324	0.162	1.6
Pitt et al. (2002)	-0.089	-0.17	-0.008	1.6
Pitt et al. (2002)	-0.291	-0.373	-0.21	1.6
Pitt et al. (2002)	-0.088	-0.169	-0.007	1.6
Pitt et al. (2002)	-0.034	-0.116	0.048	1.6
Pitt et al. (2002)	-0.008	-0.09	0.075	1.6
Pitt et al. (2002)	0.007	-0.076	0.09	1.6
Pitt et al. (2002)	-0.278	-0.359	0.196	1.6
Setboonsarng et al. (2008)	0.131	0.036	0.226	1.2
Setboonsarng et al. (2008)	0.083	-0.012	0.178	1.2
Setboonsarng et al. (2008)	0.025	-0.07	0.119	1.2
Setboonsarng et al. (2008)	-0.096	-0.191	-0.001	1.2
Setboonsarng et al. (2008)	-0.121	-0.239	-0.003	0.8

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Setboonsarng et al. (2008)	0.04	-0.078	0.158	0.8
Setboonsarng et al. (2008)	-0.073	-0.167	0.022	1.2
Setboonsarng et al. (2008)	0.066	-0.029	0.161	1.2
Setboonsarng et al. (2008)	0.116	-0.002	0.234	0.8
Setboonsarng et al. (2008)	0.061	-0.033	0.156	1.2
Setboonsarng et al. (2008)	0.115	-0.002	0.233	0.8
Setboonsarng et al. (2008)	-0.053	-0.171	0.065	0.8
Setboonsarng et al. (2008)	0.123	0.005	0.241	0.8
Setboonsarng et al. (2008)	0.06	-0.035	0.155	1.2
Setboonsarng et al. (2008)	0.158	0.04	0.276	0.8
Setboonsarng et al. (2008)	0.028	-0.09	0.145	0.8
Total	**-0.025**	**-0.053**	**0.002**	
Panel B				
Heterogeneity:	Q = 303; df 48; p = 0			
I-squared	84.1%			
Tau-squared 0.0000	0.0073			
Random effect model	-0.0253 (-0.0526, 0.00206)			

Figure A16.4: Forest plot of effects of microfinance on assets, excluding outliers
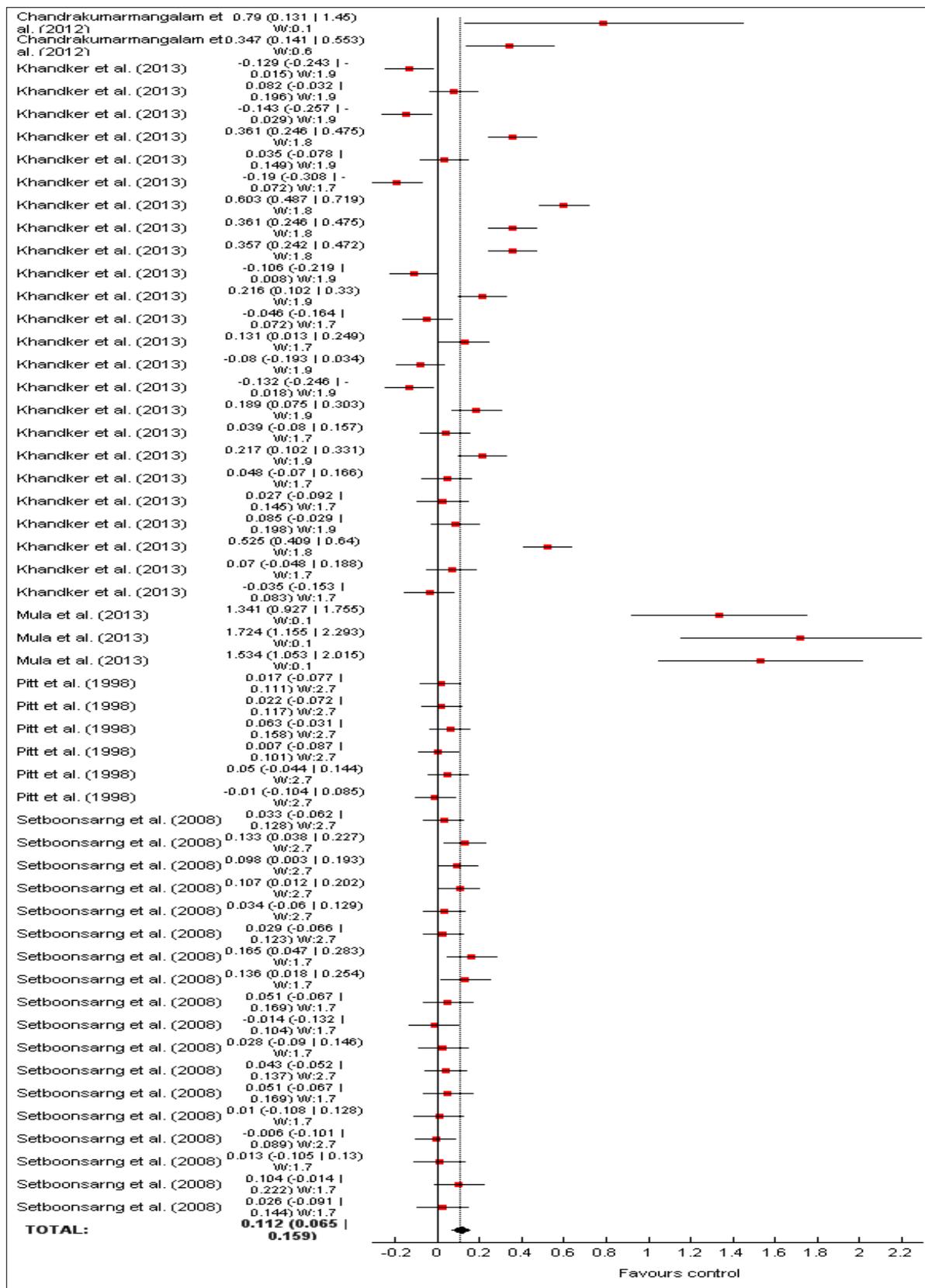
Table A16.4: Microfinance impact on assets, excluding outliers

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Chandrakumarmangalam et al. (2012)	0.79	0.131	1.45	0.1
Chandrakumarmangalam et al. (2012)	0.347	0.141	0.553	0.6
Khandker et al. (2013)	-0.129	-0.243	-0.015	1.9
Khandker et al. (2013)	0.082	-0.032	0.196	1.9
Khandker et al. (2013)	-0.143	-0.257	-0.029	1.9
Khandker et al. (2013)	0.361	0.246	0.475	1.8
Khandker et al. (2013)	0.035	-0.078	0.149	1.9
Khandker et al. (2013)	-0.19	-0.308	-0.072	1.7
Khandker et al. (2013)	0.603	0.487	0.719	1.8
Khandker et al. (2013)	0.361	0.246	0.475	1.8
Khandker et al. (2013)	0.357	0.242	0.472	1.8
Khandker et al. (2013)	-0.106	-0.219	0.008	1.9
Khandker et al. (2013)	0.216	0.102	0.331	1.9
Khandker et al. (2013)	-0.046	-0.164	0.072	1.7
Khandker et al. (2013)	0.131	0.013	0.249	1.7
Khandker et al. (2013)	-0.08	-0.193	0.034	1.9
Khandker et al. (2013)	-0.132	-0.246	0.08	1.9
Khandker et al. (2013)	0.189	0.075	0.303	1.9
Khandker et al. (2013)	0.039	-0.08	0.157	1.7
Khandker et al. (2013)	0.217	0.102	0.33	1.9
Khandker et al. (2013)	0.048	-0.07	0.166	1.7
Khandker et al. (2013)	0.027	-0.092	0.145	1.7
Khandker et al. (2013)	0.085	-0.029	0.198	1.9
Khandker et al. (2013)	0.525	0.409	0.64	1.8
Khandker et al. (2013)	0.07	-0.048	0.188	1.7
Khandker et al. (2013)	-0.035	-0.153	0.083	1.7
Mula et al. (2013)	1.341	0.927	1.755	0.1
Mula et al. (2013)	1.724	1.155	2.293	0.1
Mula et al. (2013)	1.534	1.053	2.015	0.1
Pitt et al. (1998)	0.017	-0.077	0.111	2.7
Pitt et al. (1998)	0.022	-0.072	0.117	2.7
Pitt et al. (1998)	0.063	-0.031	0.158	2.7
Pitt et al. (1998)	0.007	-0.087	0.101	2.7
Pitt et al. (1998)	0.05	-0.044	0.144	2.7
Pitt et al. (1998)	-0.01	-0.104	0.085	2.7
Setboonsarng et al. (2008)	0.033	-0.062	0.128	2.7

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Setboonsarng et al. (2008)	0.133	0.038	0.227	2.7
Setboonsarng et al. (2008)	0.098	0.003	0.193	2.7
Setboonsarng et al. (2008)	0.107	0.012	0.202	2.7
Setboonsarng et al. (2008)	0.034	-0.06	0.129	2.7
Setboonsarng et al. (2008)	0.029	-0.066	0.123	2.7
Setboonsarng et al. (2008)	0.165	0.047	0.283	1.7
Setboonsarng et al. (2008)	0.136	0.018	0.254	1.7
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.7
Setboonsarng et al. (2008)	-0.014	-0.132	0.104	1.7
Setboonsarng et al. (2008)	0.028	-0.09	0.146	1.7
Setboonsarng et al. (2008)	0.043	-0.052	0.137	2.7
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.7
Setboonsarng et al. (2008)	0.01	-0.108	0.128	1.7
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	2.7
Setboonsarng et al. (2008)	0.013	-0.105	0.13	1.7
Setboonsarng et al. (2008)	0.104	-0.014	0.222	1.7
Setboonsarng et al. (2008)	0.026	-0.091	0.144	1.7
Total	**0.112**	**0.065**	**0.159**	
Panel B				
Heterogeneity:	449; df = 52; p = 0			
I-squared	88.4%			
Tau-squared	0.025683			
Random effect model	0.112 (0.0652, 0.159)			

**Figure A17.1: Forest plot based on sub-group analysis for income**
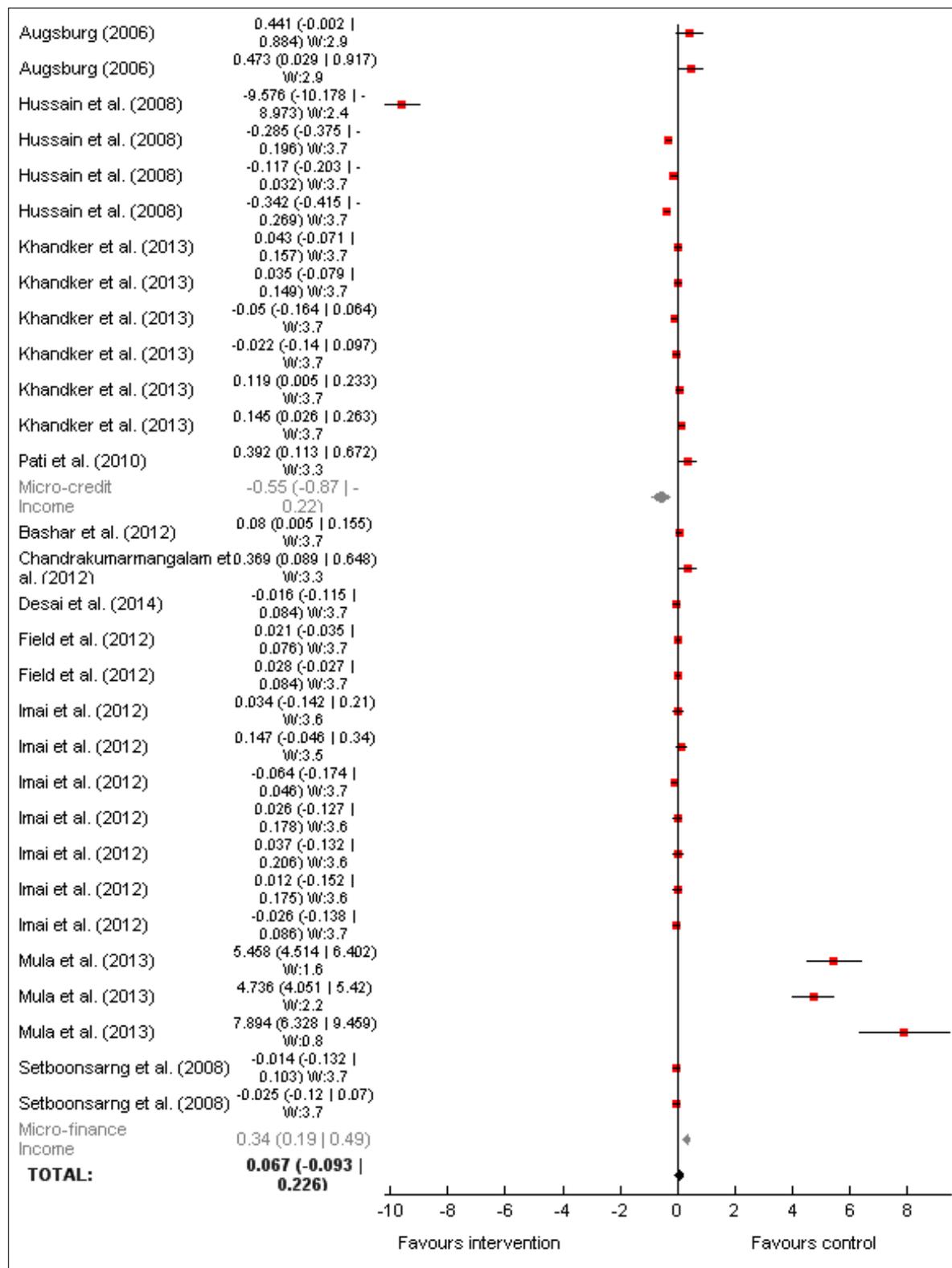
Table A17.1: Sub-group impact on microfinance and micro-credit on income

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Augsburg (2006)	0.441	-0.002	0.884	2.9
Augsburg (2006)	0.473	0.029	0.917	2.9
Hussain et al. (2008)	-9.576	-10.178	-8.973	2.4
Hussain et al. (2008)	-0.285	-0.375	-0.196	3.7
Hussain et al. (2008)	-0.117	-0.203	-0.032	3.7
Hussain et al. (2008)	-0.342	-0.415	-0.269	3.7
Khandker et al. (2013)	0.043	-0.071	0.157	3.7
Khandker et al. (2013)	0.035	-0.079	0.149	3.7
Khandker et al. (2013)	-0.05	-0.164	0.064	3.7
Khandker et al. (2013)	-0.022	-0.14	0.096	3.7
Khandker et al. (2013)	0.119	0.005	0.233	3.7
Khandker et al. (2013)	0.145	0.026	0.263	3.7
Pati et al. (2010)	0.392	0.113	0.672	3.3
Micro-credit — Income	**-0.55**	**-0.87**	**-0.22**	
Bashar et al. (2012)	0.08	0.005	0.155	3.7
Chandrakumarmangalam et al. (2012)	0.369	0.089	0.648	3.3
Desai et al. (2014)	-0.016	-0.115	0.084	3.7
Field (2012)	0.021	-0.035	0.076	3.7
Field (2012)	0.028	-0.027	0.084	3.7
Imai et al. (2012)	0.034	-0.142	0.21	3.6
Imai et al. (2012)	0.147	-0.046	0.34	3.5
Imai et al. (2012)	-0.064	-0.174	0.046	3.7
Imai et al. (2012)	0.026	-0.127	0.178	3.6
Imai et al. (2012)	0.037	-0.132	0.206	3.6
Imai et al. (2012)	0.012	-0.152	0.176	3.6
Imai et al. (2012)	-0.026	-0.138	0.086	3.7
Mula et al. (2013)	5.458	4.514	6.402	1.6
Mula et al. (2013)	4.736	4.051	5.42	2.2
Mula et al. (2013)	7.894	6.328	9.459	0.8
Setboonsarng et al. (2008)	-0.014	-0.132	0.103	3.7
Setboonsarng et al. (2008)	-0.025	-0.12	0.07	3.7
Microfinance — Income	**0.34**	**0.19**	**0.49**	
Total	**0.067**	**-0.093**	**0.226**	
Panel B				
Random effect	0.0668	-0.0927	0.226	
Differences	0.892			
SE	0.183			
Z	4.88			

P	1.06E-06			
Q* within	475			
Q* between	23.8			
Group-1 Q*	202			
Group-2 Q*	272			

Figure A17.2: Forest plot based on sub-group analysis for assets
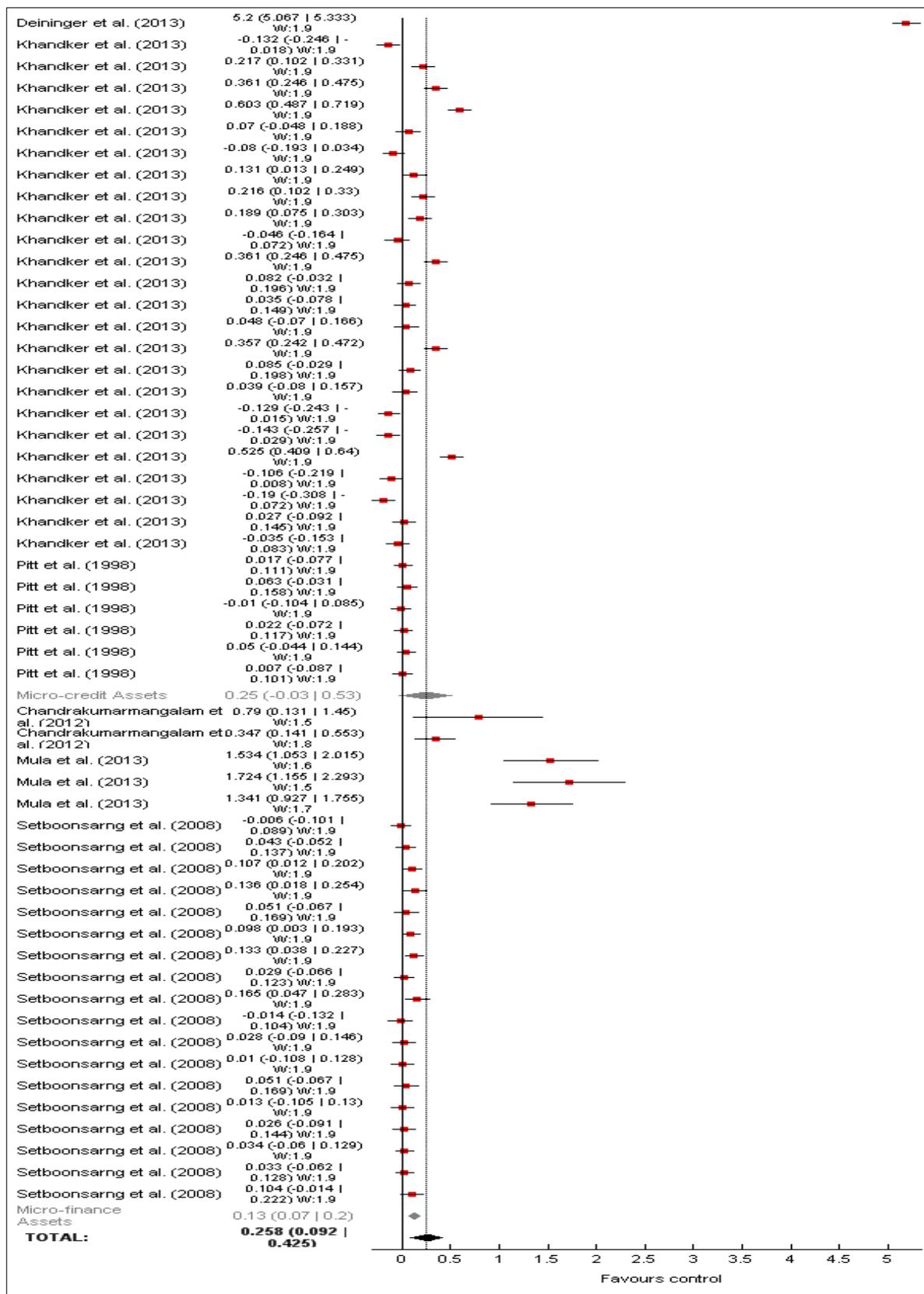
Table A17.2: Sub-group impact on microfinance and micro-credit on assets

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Deininger et al. (2013)	5.2	5.067	5.333	1.9
Khandker et al. (2013)	-0.132	-0.246	-0.018	1.9
Khandker et al. (2013)	0.217	0.102	0.331	1.9
Khandker et al. (2013)	0.361	0.246	0.475	1.9
Khandker et al. (2013)	0.603	0.487	0.719	1.9
Khandker et al. (2013)	0.07	-0.048	0.188	1.9
Khandker et al. (2013)	-0.08	-0.193	0.034	1.9
Khandker et al. (2013)	0.131	0.013	0.249	1.9
Khandker et al. (2013)	0.216	0.102	0.33	1.9
Khandker et al. (2013)	0.189	0.075	0.303	1.9
Khandker et al. (2013)	-0.046	-0.164	0.072	1.9
Khandker et al. (2013)	0.361	0.246	0.475	1.9
Khandker et al. (2013)	0.082	-0.032	0.196	1.9
Khandker et al. (2013)	0.035	-0.078	0.149	1.9
Khandker et al. (2013)	0.048	-0.07	0.166	1.9
Khandker et al. (2013)	0.357	0.242	0.472	1.9
Khandker et al. (2013)	0.085	-0.029	0.198	1.9
Khandker et al. (2013)	0.039	-0.08	0.157	1.9
Khandker et al. (2013)	-0.129	-0.243	-0.015	1.9
Khandker et al. (2013)	-0.143	-0.257	-0.029	1.9
Khandker et al. (2013)	0.525	0.409	0.64	1.9
Khandker et al. (2013)	-0.106	-0.219	0.008	1.9
Khandker et al. (2013)	-0.19	-0.308	-0.072	1.9
Khandker et al. (2013)	0.027	-0.092	0.145	1.9
Khandker et al. (2013)	-0.035	-0.153	0.083	1.9
Pitt et al. (1998)	0.017	-0.077	0.111	1.9
Pitt et al. (1998)	0.063	-0.031	0.158	1.9
Pitt et al. (1998)	-0.01	-0.104	0.085	1.9
Pitt et al. (1998)	0.022	-0.072	0.117	1.9
Pitt et al. (1998)	0.05	-0.044	0.144	1.9
Pitt et al. (1998)	0.007	-0.087	0.101	1.9
Micro-credit Assets	**0.25**	**-0.03**	**0.53**	
Chandrakumarmangalam et al. (2012)	0.79	0.131	1.45	1.5
Chandrakumarmangalam et al. (2012)	0.347	0.141	0.553	1.8
Mula et al. (2013)	1.534	1.053	2.015	1.6
Mula et al. (2013)	1.724	1.155	2.293	1.5
Mula et al. (2013)	1.341	0.927	1.755	1.7
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	1.9

Setboonsarng et al. (2008)	0.043	-0.052	0.137	1.9
Setboonsarng et al. (2008)	0.107	0.012	0.202	1.9
Setboonsarng et al. (2008)	0.136	0.018	0.254	1.9
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.9
Setboonsarng et al. (2008)	0.098	0.003	0.193	1.9
Setboonsarng et al. (2008)	0.133	0.038	0.227	1.9
Setboonsarng et al. (2008)	0.029	-0.066	0.123	1.9
Setboonsarng et al. (2008)	0.165	0.047	0.283	1.9
Setboonsarng et al. (2008)	-0.014	-0.132	0.104	1.9
Setboonsarng et al. (2008)	0.028	-0.09	0.146	1.9
Setboonsarng et al. (2008)	0.01	-0.108	0.128	1.9
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.9
Setboonsarng et al. (2008)	0.013	-0.105	0.13	1.9
Setboonsarng et al. (2008)	0.026	-0.091	0.144	1.9
Setboonsarng et al. (2008)	0.034	-0.06	0.129	1.9
Setboonsarng et al. (2008)	0.033	-0.062	0.128	1.9
Setboonsarng et al. (2008)	0.104	-0.014	0.222	1.9
Microfinance Assets	**0.13**	**0.07**	**0.2**	
Total	**0.258**	**0.092**	**0.425**	
Panel B				
Random effect	0.258	0.0916	0.425	
Differences	0.118			
SE	0.146			
Z	0.806			
P	0.42			
Q* within	127			
Q* between	0.65			
Group-1 Q*	42.1			
Group-2 Q*	84.6			

Figure A17.3: Forest plot based on sub-group analysis for consumption/expenditure

Deininger et al. (2013)	31.997 (31.331 | 32.663) W:1.9
Deininger et al. (2013)	5.32 (5.185 | 5.455) W:2.1
Deininger et al. (2013)	6.119 (5.971 | 6.268) W:2.1
Garikipati (2012)	-0.054 (-0.386 | 0.279) W:2
Garikipati (2012)	0.168 (-0.182 | 0.518) W:2
Khandker et al. (2013)	0.071 (-0.042 | 0.185) W:2.1
Khandker et al. (2013)	0.01 (-0.104 | 0.124) W:2.1
Khandker et al. (2013)	0.06 (-0.053 | 0.174) W:2.1
Khandker et al. (2013)	-0.103 (-0.221 | 0.015) W:2.1
Khandker et al. (2013)	0.096 (-0.022 | 0.214) W:2.1
Khandker et al. (2013)	-0.067 (-0.18 | 0.047) W:2.1
Pati et al. (2010)	0.353 (0.073 | 0.632) W:2
Pitt et al. (1998)	0.04 (-0.015 | 0.094) W:2.1
Pitt et al. (1998)	0.044 (-0.01 | 0.098) W:2.1
Pitt et al. (1998)	0.105 (0.051 | 0.159) W:2.1
Pitt et al. (1998)	0.054 (-0.001 | 0.108) W:2.1
Pitt et al. (1998)	0.117 (0.063 | 0.172) W:2.1
Pitt et al. (1998)	0.118 (0.063 | 0.172) W:2.1
Pitt et al. (2002)	0.202 (0.108 | 0.296) W:2.1
Pitt et al. (2002)	0.068 (-0.025 | 0.162) W:2.1
Pitt et al. (2002)	-0.823 (-0.921 | -0.725) W:2.1
Pitt et al. (2002)	0.076 (-0.018 | 0.17) W:2.1
Pitt et al. (2002)	-0.005 (-0.088 | 0.077) W:2.1
Pitt et al. (2002)	0.182 (0.088 | 0.276) W:2.1
Pitt et al. (2002)	-0.061 (-0.155 | 0.033) W:2.1
Pitt et al. (2002)	0.203 (0.109 | 0.297) W:2.1
Pitt et al. (2002)	0.092 (-0.001 | 0.186) W:2.1
Micro-credit Consumption-Expe	1.57 (1.09 | 2.05)
Banerjee et al. (2009)	0 (-0.047 | 0.047) W:2.1
Banerjee et al. (2009)	0 (-0.048 | 0.048) W:2.1
Banerjee et al. (2009)	0 (-0.048 | 0.048) W:2.1
Chandrakumarmangalam et al. (2012)	0.299 (-0.088 | 0.686) W:2
Chandrakumarmangalam et al. (2012)	0.183 (-1.06 | 1.427) W:1.4
Chandrakumarmangalam et al. (2012)	0.213 (-0.771 | 1.196) W:1.6
Field et al. (2012)	0.024 (-0.031 | 0.08) W:2.1
Imai et al. (2012)	0.13 (0.017 | 0.243) W:2.1
Imai et al. (2012)	0.064 (-0.047 | 0.175) W:2.1
Imai et al. (2012)	0.103 (-0.091 | 0.297) W:2.1
Mula et al. (2013)	0.848 (0.496 | 1.2) W:2
Mula et al. (2013)	1.031 (0.595 | 1.468) W:2
Mula et al. (2013)	1.288 (0.723 | 1.852) W:1.9
Setboonsarng et al. (2008)	0.033 (-0.085 | 0.151) W:2.1
Setboonsarng et al. (2008)	0.007 (-0.111 | 0.124) W:2.1
Setboonsarng et al. (2008)	0.027 (-0.091 | 0.145) W:2.1
Setboonsarng et al. (2008)	-0.02 (-0.115 | 0.075) W:2.1
Setboonsarng et al. (2008)	-0.051 (-0.146 | 0.044) W:2.1
Setboonsarng et al. (2008)	0.008 (-0.087 | 0.103) W:2.1
Setboonsarng et al. (2008)	0.029 (-0.066 | 0.124) W:2.1
Setboonsarng et al. (2008)	0.016 (-0.102 | 0.134) W:2.1
Shoji (2009)	0.508 (0.357 | 0.66) W:2.1
Micro-finance Consumption/Expe	0.09 (0.03 | 0.14)
TOTAL:	**0.942 (0.67 | 1.213)**

Favours control

Table A17.3: Sub-group impact on microfinance and micro-credit on consumption/expenditure

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Deininger et al. (2013)	31.997	31.331	32.663	1.9
Deininger et al. (2013)	5.32	5.185	5.455	2.1
Deininger et al. (2013)	6.119	5.971	6.268	2.1
Garikipati (2012)	-0.054	-0.386	0.279	2
Garikipati (2012)	0.168	-0.182	0.518	2
Khandker et al. (2013)	0.071	-0.042	0.185	2.1
Khandker et al. (2013)	0.01	-0.104	0.124	2.1
Khandker et al. (2013)	0.06	-0.053	0.174	2.1
Khandker et al. (2013)	-0.103	-0.221	0.015	2.1
Khandker et al. (2013)	0.096	-0.022	0.214	2.1
Khandker et al. (2013)	-0.067	-0.18	0.047	2.1
Pati et al. (2010)	0.353	0.073	0.633	2
Pitt et al. (1998)	0.04	-0.015	0.094	2.1
Pitt et al. (1998)	0.044	-0.01	0.098	2.1
Pitt et al. (1998)	0.105	0.051	0.159	2.1
Pitt et al. (1998)	0.054	-0.001	0.109	2.1
Pitt et al. (1998)	0.117	0.063	0.171	2.1
Pitt et al. (1998)	0.118	0.063	0.173	2.1
Pitt et al. (2002)	0.202	0.108	0.296	2.1
Pitt et al. (2002)	0.068	-0.025	0.162	2.1
Pitt et al. (2002)	-0.823	-0.921	-0.725	2.1
Pitt et al. (2002)	0.076	-0.018	0.17	2.1
Pitt et al. (2002)	-0.005	-0.088	0.077	2.1
Pitt et al. (2002)	0.182	0.088	0.276	2.1
Pitt et al. (2002)	-0.061	-0.155	0.033	2.1
Pitt et al. (2002)	0.203	0.109	0.297	2.1
Pitt et al. (2002)	0.092	-0.001	0.186	2.1
Micro-credit — Consumption	**1.57**	**1.09**	**2.05**	
Banerjee et al. (2009)	0	-0.047	0.047	2.1
Banerjee et al. (2009)	0	-0.048	0.048	2.1
Banerjee et al. (2009)	0	-0.048	0.048	2.1
Chandrakumarmangalam et al. (2012)	0.299	-0.088	0.686	2
Chandrakumarmangalam et al. (2012)	0.183	-1.06	1.427	1.4
Chandrakumarmangalam et al. (2012)	0.213	-0.771	1.197	1.6
Field et al. (2012)	0.024	-0.031	0.079	2.1

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Imai et al. (2013)	0.13	0.017	0.243	2.1
Imai et al. (2013)	0.064	-0.047	0.175	2.1
Imai et al. (2013)	0.103	-0.091	0.297	2.1
Mula et al. (2013)	0.848	0.496	1.2	2
Mula et al. (2013)	1.031	0.595	1.468	2
Mula et al. (2013)	1.288	0.723	1.852	1.9
Setboonsarng et al. (2008)	0.033	-0.085	0.151	2.1
Setboonsarng et al. (2008)	0.007	-0.111	0.124	2.1
Setboonsarng et al. (2008)	0.027	-0.091	0.145	2.1
Setboonsarng et al. (2008)	-0.02	-0.115	0.075	2.1
Setboonsarng et al. (2008)	-0.051	-0.146	0.044	2.1
Setboonsarng et al. (2008)	0.008	-0.087	0.103	2.1
Setboonsarng et al. (2008)	0.029	-0.066	0.124	2.1
Setboonsarng et al. (2008)	0.016	-0.102	0.134	2.1
Shoji (2009)	0.508	0.357	0.66	2.1
Microfinance — Consumption	**0.09**	**0.03**	**0.14**	
Total	**0.942**	**0.67**	**1.213**	
Panel B				
Random effect	0.942	0.67	1.21	
Differences	1.48			
SE	0.245			
Z	6.05			
P	1.45E-09			
Q* within	662			
Q* between	36.6			
Group-1 Q*	599			
Group-2 Q*	63.1			

Figure A17.4: Forest plot based on sub-group analysis for education

Study	Effect (CI) Weight
Khandker et al. (2013)	-0.077 (-0.163 | 0.009) W:4.5
Khandker et al. (2013)	0.198 (0.076 | 0.32) W:3.1
Khandker et al. (2013)	0.178 (0.019 | 0.337) W:2.2
Khandker et al. (2013)	0.281 (0.163 | 0.398) W:3.3
Khandker et al. (2013)	0.168 (0.033 | 0.304) W:2.8
Khandker et al. (2013)	-0.01 (-0.169 | 0.15) W:2.2
Pitt et al. (1998)	-0.005 (-0.104 | 0.093) W:3.9
Pitt et al. (1998)	0.135 (0.032 | 0.238) W:3.8
Pitt et al. (1998)	0.058 (-0.041 | 0.157) W:3.9
Pitt et al. (1998)	0.047 (-0.052 | 0.146) W:3.9
Pitt et al. (1998)	-0.012 (-0.115 | 0.091) W:3.8
Pitt et al. (1998)	0.018 (-0.085 | 0.121) W:3.8
Pitt et al. (1998)	0.065 (-0.033 | 0.164) W:3.9
Pitt et al. (1998)	-0.029 (-0.132 | 0.074) W:3.8
Pitt et al. (1998)	0.033 (-0.065 | 0.132) W:3.9
Pitt et al. (1998)	0.048 (-0.055 | 0.151) W:3.8
Pitt et al. (1998)	0.124 (0.021 | 0.227) W:3.8
Pitt et al. (1998)	0.085 (-0.014 | 0.184) W:3.9
Micro credit-Education	0.07 (0.03 | 0.11)
Banerjee et al. (2009)	0 (-0.053 | 0.053) W:6
Chandrakumarmangalam et al. (2012)	0.19 (-1.421 | 1.8) W:0
Setboonsarng et al. (2008)	-0.006 (-0.101 | 0.089) W:4.1
Setboonsarng et al. (2008)	0.01 (-0.108 | 0.128) W:3.3
Setboonsarng et al. (2008)	-0.005 (-0.1 | 0.089) W:4.1
Setboonsarng et al. (2008)	-0.016 (-0.111 | 0.079) W:4.1
Setboonsarng et al. (2008)	0.022 (-0.096 | 0.14) W:3.3
Setboonsarng et al. (2008)	0.002 (-0.115 | 0.12) W:3.3
Setboonsarng et al. (2008)	0.007 (-0.088 | 0.102) W:4.1
Setboonsarng et al. (2008)	0.029 (-0.089 | 0.147) W:3.3
Micro-finance Education	0 (-0.03 | 0.03)
TOTAL:	**0.044 (0.015 | 0.072)**

Favours intervention — Favours control

Table A17.4: Sub-group impact on microfinance and micro-credit on education

Panel A				
Khandker et al. (2013)	-0.077	-0.163	0.009	4.5
Khandker et al. (2013)	0.198	0.076	0.32	3.1
Khandker et al. (2013)	0.178	0.019	0.337	2.2
Khandker et al. (2013)	0.281	0.163	0.398	3.3
Khandker et al. (2013)	0.168	0.033	0.304	2.8
Khandker et al. (2013)	-0.01	-0.169	0.15	2.2
Pitt et al. (1998)	-0.005	-0.104	0.093	3.9
Pitt et al. (1998)	0.135	0.032	0.238	3.8
Pitt et al. (1998)	0.058	-0.041	0.157	3.9
Pitt et al. (1998)	0.047	-0.052	0.146	3.9
Pitt et al. (1998)	-0.012	-0.115	0.091	3.8
Pitt et al. (1998)	0.018	-0.085	0.121	3.8
Pitt et al. (1998)	0.065	-0.033	0.164	3.9
Pitt et al. (1998)	-0.029	-0.132	0.074	3.8
Pitt et al. (1998)	0.033	-0.065	0.132	3.9
Pitt et al. (1998)	0.048	-0.055	0.151	3.8
Pitt et al. (1998)	0.124	0.021	0.227	3.8
Pitt et al. (1998)	0.085	-0.014	0.184	3.9
Micro-credit — Education	**0.07**	**0.03**	**0.11**	
Banerjee et al. (2009)	0	-0.053	0.053	6
Chandrakumarmangalam et al. (2012)	0.19	-1.42	1.8	0
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	4.1
Setboonsarng et al. (2008)	0.01	-0.108	0.128	3.3
Setboonsarng et al. (2008)	-0.005	-0.1	0.089	4.1
Setboonsarng et al. (2008)	-0.016	-0.111	0.079	4.1
Setboonsarng et al. (2008)	0.022	-0.096	0.14	3.3
Setboonsarng et al. (2008)	0.002	-0.115	0.12	3.3
Setboonsarng et al. (2008)	0.007	-0.088	0.102	4.1
Setboonsarng et al. (2008)	0.029	-0.089	0.147	3.3
Microfinance — Education	**0**	**-0.03**	**0.03**	
Total	**0.044**	**0.015**	**0.72**	
Panel B				
Random effect	0.0437	0.0155	0.0719	
Differences	0.0653			
SE	0.0261			
Z	2.5			
P	1.123			
Q* within	18.1			

Q* between	6.26			
Group-1 Q*	17.5			
Group-2 Q*	0.591			

Figure A17.5: Forest plot based on sub-group analysis for women's empowerment

Study	Effect (CI) Weight
Deininger et al. (2013)	0.002 (-0.076 | 0.081) W:5.6
Deininger et al. (2013)	0.03 (-0.049 | 0.108) W:5.6
Mahmud (2003)	0.041 (-0.068 | 0.15) W:3.6
Micro-credit Empowerment	0.02 (-0.03 | 0.07)
Banerjee et al. (2009)	0 (-0.055 | 0.055) W:8.2
Banerjee et al. (2009)	0 (-0.047 | 0.047) W:9.2
Banerjee et al. (2009)	0 (-0.047 | 0.047) W:9.2
Desai et al. (2014)	0.09 (-0.009 | 0.19) W:4.1
Desai et al. (2014)	0.095 (-0.004 | 0.195) W:4.1
Desai et al. (2014)	0.093 (-0.007 | 0.192) W:4.1
Nilakantan et al. (2013)	0.13 (-0.065 | 0.325) W:1.3
Nilakantan et al. (2013)	-0.001 (-0.196 | 0.193) W:1.3
Nilakantan et al. (2013)	0.204 (0.009 | 0.399) W:1.3
Nilakantan et al. (2013)	0.119 (-0.076 | 0.314) W:1.3
Nilakantan et al. (2013)	0.279 (0.084 | 0.474) W:1.3
Nilakantan et al. (2013)	0.154 (-0.04 | 0.349) W:1.3
Nilakantan et al. (2013)	0.095 (-0.1 | 0.289) W:1.3
Nilakantan et al. (2013)	0.139 (-0.055 | 0.334) W:1.3
Nilakantan et al. (2013)	0.042 (-0.152 | 0.237) W:1.3
Nilakantan et al. (2013)	0.085 (-0.109 | 0.28) W:1.3
Nilakantan et al. (2013)	0.087 (-0.107 | 0.282) W:1.3
Nilakantan et al. (2013)	0.095 (-0.1 | 0.289) W:1.3
Setboonsarng et al. (2008)	-0.059 (-0.154 | 0.035) W:4.4
Setboonsarng et al. (2008)	-0.086 (-0.181 | 0.009) W:4.4
Setboonsarng et al. (2008)	-0.033 (-0.151 | 0.085) W:3.2
Setboonsarng et al. (2008)	-0.034 (-0.151 | 0.084) W:3.2
Setboonsarng et al. (2008)	0.072 (-0.023 | 0.167) W:4.4
Setboonsarng et al. (2008)	0.043 (-0.075 | 0.161) W:3.2
Setboonsarng et al. (2008)	-0.047 (-0.142 | 0.047) W:4.4
Setboonsarng et al. (2008)	0.016 (-0.102 | 0.134) W:3.2
Micro-finance-Empowerment	0.03 (0 | 0.06)
TOTAL:	**0.028 (0.005 | 0.052)**

-0.15 -0.1 -0.05 0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45

Favours intervention   Favours control

Table A17.5: Sub-group impact on microfinance and micro-credit on women's empowerment

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Deininger et al. (2013)	0.002	-0.076	0.081	5.6
Deininger et al. (2013)	0.03	-0.049	0.108	5.6
Mahmud (2003)	0.041	-0.068	0.15	3.6
Micro-credit — Empowerment	**0.02**	**-0.03**	**0.07**	
Banerjee et al. (2009)	0	-0.055	0.055	8.2
Banerjee et al. (2009)	0	-0.047	0.047	9.2
Banerjee et al. (2009)	0	-0.047	0.047	9.2
Desai et al. (2014)	0.09	-0.009	0.19	4.1
Desai et al. (2014)	0.095	-0.004	0.195	4.1
Desai et al. (2014)	0.093	-0.007	0.192	4.1
Nilakantan et al. (2013)	0.13	-0.065	0.325	1.3
Nilakantan et al. (2013)	-0.001	-0.196	0.193	1.3
Nilakantan et al. (2013)	0.204	0.009	0.399	1.3
Nilakantan et al. (2013)	0.119	-0.076	0.314	1.3
Nilakantan et al. (2013)	0.279	0.084	0.474	1.3
Nilakantan et al. (2013)	0.154	-0.04	0.349	1.3
Nilakantan et al. (2013)	0.095	-0.1	0.289	1.3
Nilakantan et al. (2013)	0.139	-0.055	0.334	1.3
Nilakantan et al. (2013)	0.042	-0.152	0.237	1.3
Nilakantan et al. (2013)	0.085	-0.109	0.28	1.3
Nilakantan et al. (2013)	0.087	-0.107	0.282	1.3
Nilakantan et al. (2013)	0.095	-0.1	0.289	1.3
Setboonsarng et al. (2008)	-0.059	-0.154	0.035	4.4
Setboonsarng et al. (2008)	-0.086	-0.181	0.009	4.4
Setboonsarng et al. (2008)	-0.033	-0.151	0.085	3.2
Setboonsarng et al. (2008)	-0.034	-0.151	0.084	3.2
Setboonsarng et al. (2008)	0.072	-0.023	0.167	4.4
Setboonsarng et al. (2008)	0.043	-0.075	0.161	3.2
Setboonsarng et al. (2008)	-0.047	-0.142	0.047	4.4
Setboonsarng et al. (2008)	0.016	-0.102	0.134	3.2
Microfinance — Empowerment	**0.03**	**0**	**0.06**	
Total	**0.028**	**0.005**	**0.052**	
Panel B				
Random effect	0.0283	0.0046	0.052	
Differences	0.0109			
SE	0.0289			

Z	0.377			
P	0.706			
Q* within	27.4			
Q* between	0.142			
Group-1 Q*	27			
Group-2 Q*	0.389			

Figure A17.6 Forest plot based on sub-group analysis for employment
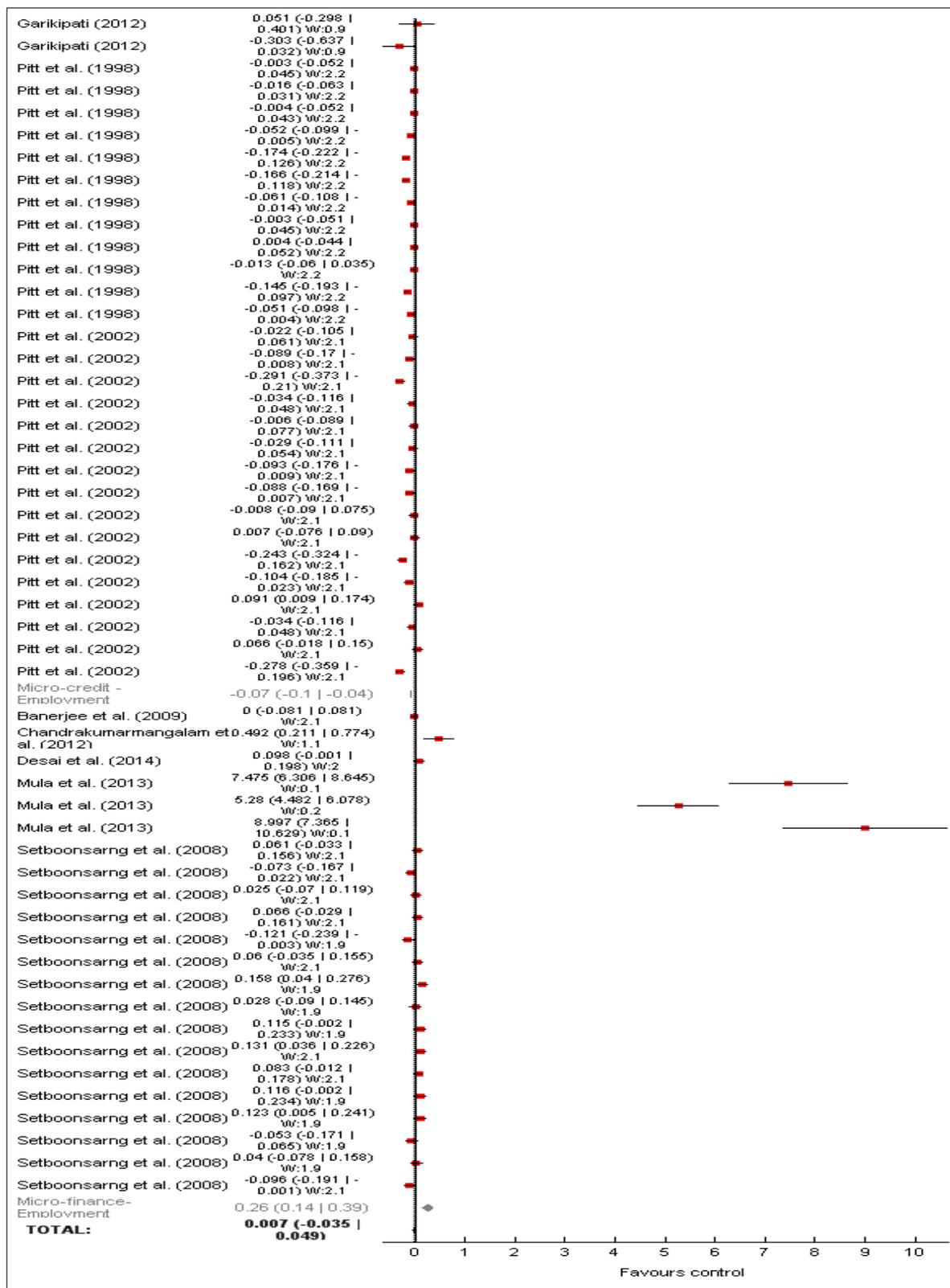
Table A17.6: Sub-group impact on microfinance and micro-credit on employment

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Garikipati (2012)	0.051	-0.298	0.401	0.9
Garikipati (2012)	-0.303	-0.637	0.032	0.9
Pitt et al. (1998)	-0.003	-0.052	0.045	2.2
Pitt et al. (1998)	-0.016	-0.063	0.031	2.2
Pitt et al. (1998)	-0.004	-0.52	0.043	2.2
Pitt et al. (1998)	-0.052	-0.099	-0.005	2.2
Pitt et al. (1998)	-0.174	-0.222	0.126	2.2
Pitt et al. (1998)	-0.166	-0.214	-0.188	2.2
Pitt et al. (1998)	-0.061	-0.108	0.014	2.2
Pitt et al. (1998)	-0.033	-0.051	0.045	2.2
Pitt et al. (1998)	0.004	-0.044	0.052	2.2
Pitt et al. (1998)	-0.013	-0.06	0.035	2.2
Pitt et al. (1998)	-0.145	-0.193	0.097	2.2
Pitt et al. (1998)	-0.051	-0.098	0.044	2.2
Pitt et al. (2002)	-0.022	-0.105	0.061	2.1
Pitt et al. (2002)	-0.089	-0.17	-0.008	2.1
Pitt et al. (2002)	-0.291	-0.373	-0.21	2.1
Pitt et al. (2002)	-0.034	-0.116	0.048	2.1
Pitt et al. (2002)	-0.006	-0.089	0.077	2.1
Pitt et al. (2002)	-0.029	-0.111	0.054	2.1
Pitt et al. (2002)	-0.093	-0.176	-0.009	2.1
Pitt et al. (2002)	-0.088	-0.169	-0.007	2.1
Pitt et al. (2002)	-0.008	-0.09	0.075	2.1
Pitt et al. (2002)	0.007	-0.076	0.09	2.1
Pitt et al. (2002)	-0.243	-0.324	-0.162	2.1
Pitt et al. (2002)	-0.104	-0.185	-0.023	2.1
Pitt et al. (2002)	0.091	0.009	0.174	2.1
Pitt et al. (2002)	-0.034	-0.116	0.048	2.1
Pitt et al. (2002)	0.066	-0.018	0.15	2.1
Pitt et al. (2002)	-0.278	-0.359	-0.196	2.1
Micro-credit — Employment	**-0.07**	**-0.01**	**-0.04**	
Banerjee et al. (2009)	0	-0.181	0.181	2.1
Chandrakumarmangalam et al. (2012)	0.492	0.211	0.774	1.1
Desai et al. (2014)	0.098	-0.001	0.198	2
Mula et al. (2013)	7.475	6.306	8.644	0.1
Mula et al. (2013)	5.28	4.482	6.078	0.2
Mula et al. (2013)	8.997	7.365	10.629	0.1

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Setboonsarng et al. (2008)	0.061	-0.033	0.155	2.1
Setboonsarng et al. (2008)	-0.073	-0.167	0.021	2.1
Setboonsarng et al. (2008)	0.025	-0.07	0.119	2.1
Setboonsarng et al. (2008)	0.066	-0.029	0.161	2.1
Setboonsarng et al. (2008)	-0.121	-0.239	-0.003	1.9
Setboonsarng et al. (2008)	0.06	-0.035	0.155	2.1
Setboonsarng et al. (2008)	0.158	0.04	0.276	1.9
Setboonsarng et al. (2008)	0.028	-0.09	0.145	1.9
Setboonsarng et al. (2008)	0.115	-0.002	0.233	1.9
Setboonsarng et al. (2008)	0.131	0.036	0.226	2.1
Setboonsarng et al. (2008)	0.083	-0.012	0.178	2.1
Setboonsarng et al. (2008)	0.116	-0.002	0.234	1.9
Setboonsarng et al. (2008)	0.123	0.005	0.241	1.9
Setboonsarng et al. (2008)	-0.053	-0.171	0.065	1.9
Setboonsarng et al. (2008)	0.04	-0.078	0.158	1.9
Setboonsarng et al. (2008)	-0.096	-0.191	-0.001	2.1
Microfinance — Employment	**0.26**	**0.14**	**0.39**	
Total	**0.007**	**-0.035**	**0.046**	
Panel B				
Random effect	0.00673	-0.0353	0.487	
Differences	0.328			
SE	0.0648			
Z	5.06			
P	4.17E-07			
Q* within	374			
Q* between	25.6			
Group-1 Q*	339			
Group-2 Q*	34.6			

Figure A18.1   Forest plot of effects of income in relation to country
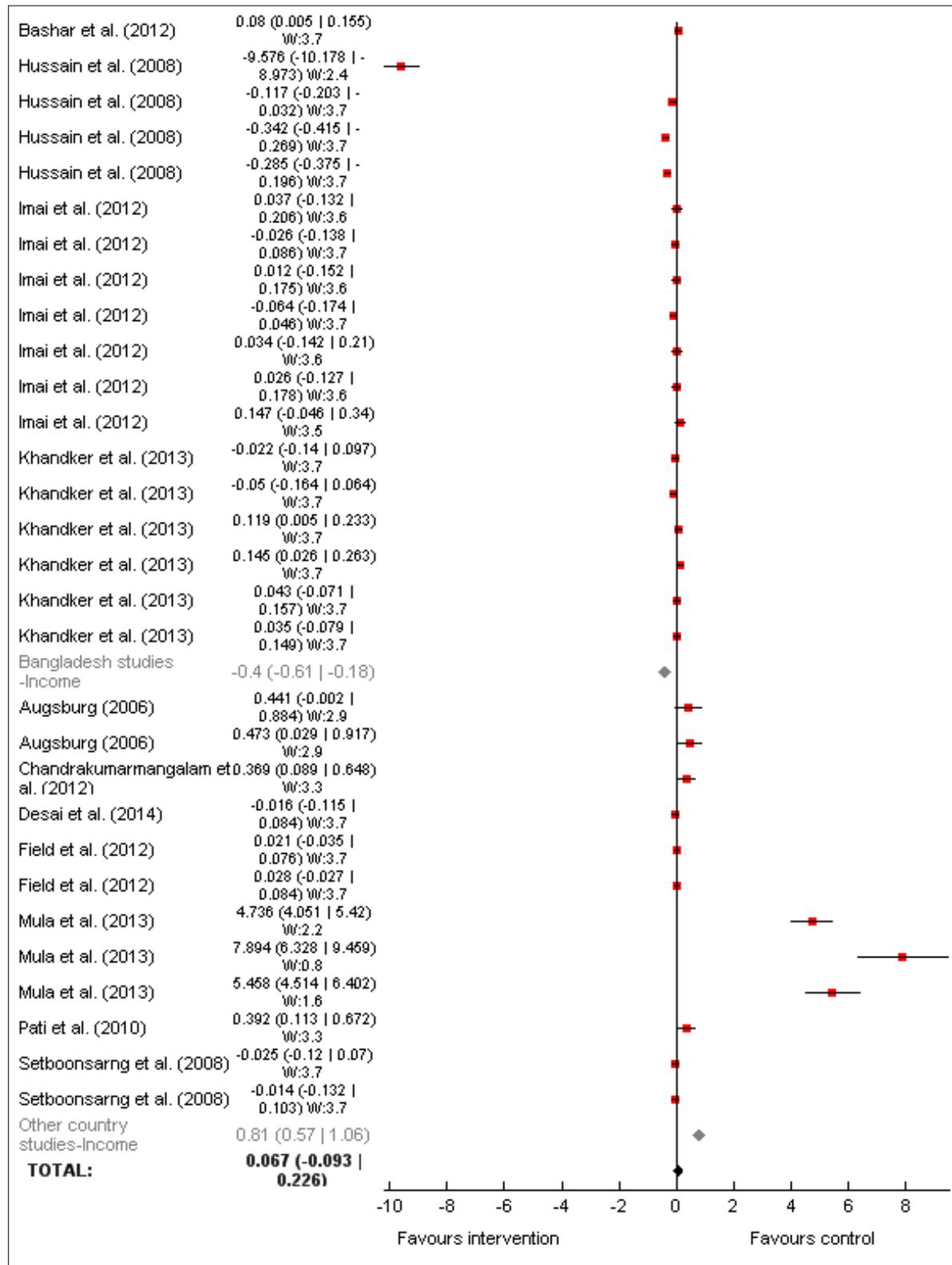
Table A18.1: Microfinance impact on income based on country

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Bashar et al. (2012)	0.08	0.005	0.155	3.7
Hussain et al. (2008)	-9.576	-10.178	-8.973	2.4
Hussain et al. (2008)	-0.117	-0.203	-0.032	3.7
Hussain et al. (2008)	-0.342	-0.415	-0.269	3.7
Hussain et al. (2008)	-0.285	-0.375	-0.196	3.7
Imai et al. (2012)	0.037	-0.132	0.206	3.6
Imai et al. (2012)	-0.026	-0.138	0.086	3.7
Imai et al. (2012)	0.012	-0.152	0.175	3.6
Imai et al. (2012)	-0.064	-0.174	0.046	3.7
Imai et al. (2012)	0.034	-0.142	0.21	3.6
Imai et al. (2012)	0.026	-0.127	0.178	3.6
Imai et al. (2012)	0.147	-0.046	0.34	3.5
Khandker et al. (2013)	-0.022	-0.14	0.097	3.7
Khandker et al. (2013)	-0.05	-0.164	0.064	3.7
Khandker et al. (2013)	0.119	0.005	0.233	3.7
Khandker et al. (2013)	0.145	0.026	0.263	3.7
Khandker et al. (2013)	0.043	-0.071	0.157	3.7
Khandker et al. (2013)	0.035	-0.079	0.149	3.7
Bangladesh Studies — Income	**-0.4**	**-0.61**	**-0.18**	
Augsburg (2006)	0.441	-0.002	0.884	2.9
Augsburg (2006)	0.473	0.029	0.917	2.9
Chandrakumarmangalam et al. (2012)	0.369	0.089	0.648	3.3
Desai et al. (2014)	-0.016	-0.115	0.084	3.7
Field et al. (2012)	0.021	-0.035	0.076	3.7
Field et al. (2012)	0.028	-0.027	0.084	3.7
Mula et al. (2013)	4.736	4.051	5.42	2.2
Mula et al. (2013)	7.894	6.328	9.459	0.8
Mula et al. (2013)	5.458	4.514	6.402	1.6
Pati et al. (2010)	0.392	0.113	0.672	3.3
Setboonsarng et al. (2008)	-0.025	-0.12	0.07	3.7
Setboonsarng et al. (2008)	-0.014	-0.132	0.103	3.7
Other country studies — Income	**0.81**	**0.57**	**1.06**	
Total	**0.067**	**-0.093**	**0.226**	
Panel B				
Random effect	0.0668	-0.0927	0.226	
Differences	1.21			

SE	0.168			
Z	7.19			
P	6.39E-13			
Q* within	489			
Q* between	51.7			
Group-1 Q*	287			
Group-2 Q*	203			

Figure A18.2: Forest plot of effects of assets in relation to country
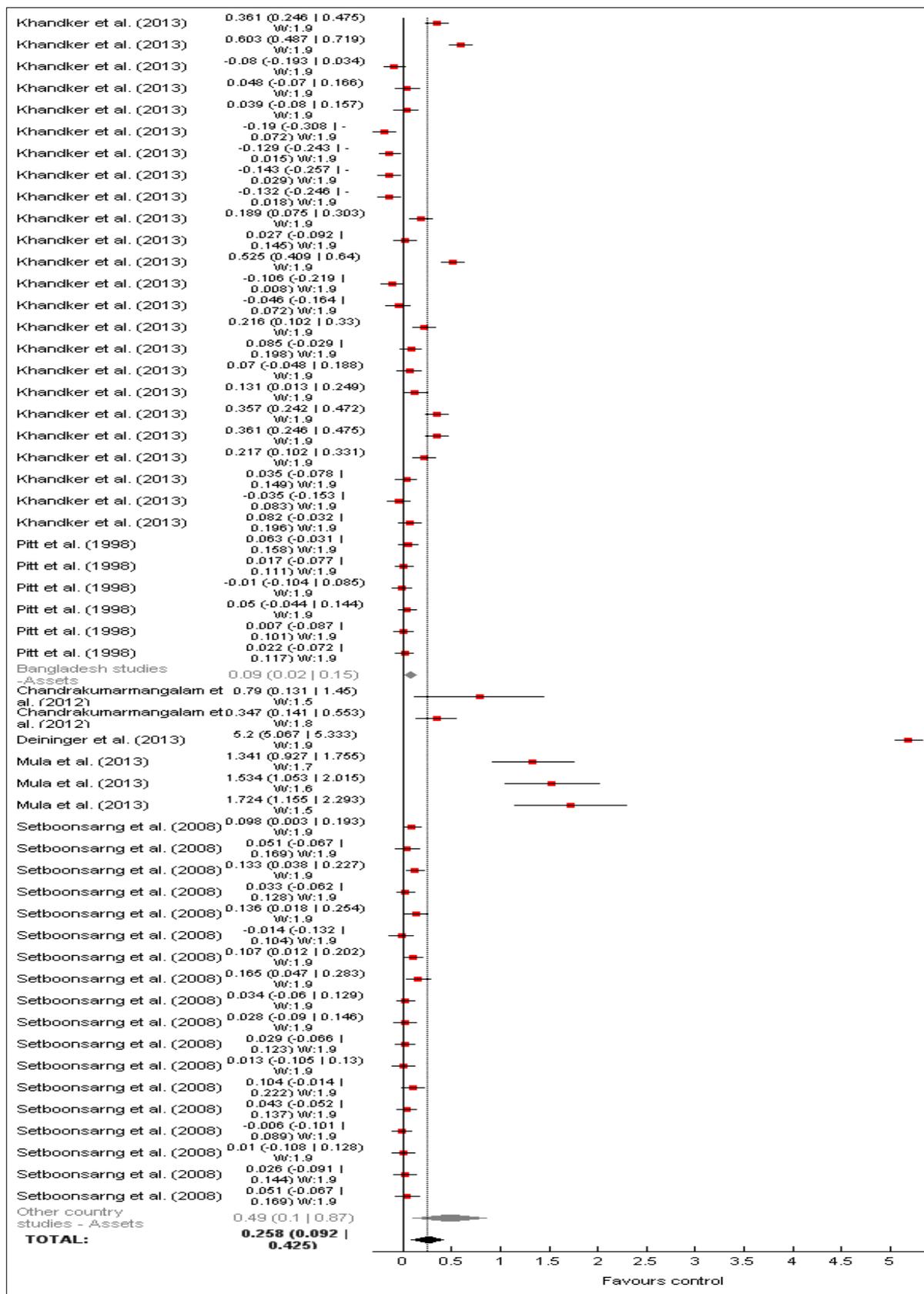
Table A18.2: Microfinance impact on assets based on country

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Khandker et al. (2013)	0.361	0.246	0.475	1.9
Khandker et al. (2013)	0.603	0.487	0.719	1.9
Khandker et al. (2013)	-0.08	-0.193	0.034	1.9
Khandker et al. (2013)	0.048	-0.07	0.166	1.9
Khandker. et al. (2013)	0.039	-0.08	0.157	1.9
Khandker et al. (2013)	-0.19	-0.308	0.072	1.9
Khandker et al. (2013)	-0.129	-0.243	0.015	1.5
Khandker et al. (2013)	-0.143	-0.257	0.029	1.9
Khandker et al. (2013)	-0.132	-0.246	-0.018	1.9
Khandker et al. (2013)	0.189	0.075	0.303	1.9
Khandker et al. (2013)	0.027	-0.092	0.145	1.9
Khandker et al. (2013)	0.525	0.409	0.64	1.9
Khandker et al. (2013)	-0.106	-0.219	0.008	1.9
Khandker et al. (2013)	-0.046	-0.164	0.072	1.9
Khandker et al. (2013)	0.216	0.102	0.33	1.9
Khandker et al. (2013)	0.085	-0.029	0.198	1.9
Khandker et al. (2013)	0.07	-0.048	0.188	1.9
Khandker et al. (2013)	0.131	0.013	0.249	1.9
Khandker et al. (2013)	0.357	0.242	0.472	1.9
Khandker et al. (2013)	0.361	0.246	0.475	1.9
Khandker et al. (2013)	0.217	0.102	0.331	1.9
Khandker et al. (2013)	0.035	-0.078	0.149	1.9
Khandker et al. (2013)	-0.035	-0.153	0.083	1.9
Khandker et al. (2013)	0.082	-0.032	0.196	1.9
Pitt et al. (1998)	0.063	-0.031	0.158	1.9
Pitt et al. (1998)	0.017	-0.077	0.111	1.9
Pitt et al. (1998)	-0.01	-0.104	0.085	1.9
Pitt et al. (1998)	0.05	-0.044	0.144	1.9
Pitt et al. (1998)	0.007	-0.087	0.101	1.9
Pitt et al. (1998)	0.022	-0.072	0.177	1.9
Bangladesh studies – Assets	**0.09**	**0.02**	**0.15**	
Chandrakumarmangalam et al. (2012)	0.79	0.131	1.45	1.5
Chandrakumarmangalam et al. (2012)	0.347	0.141	0.553	1.8
Deininger et al. (2013)	5.2	5.067	5.333	1.9
Mula et al. (2013)	1.341	0.927	1.755	1.7
Mula et al. (2013)	1.534	1.053	2.015	1.6

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Mula et al. (2013)	1.724	1.155	2.293	1.5
Setboonsarng et al. (2008)	0.098	0.003	0.193	1.9
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.9
Setboonsarng et al. (2008)	0.133	0.038	0.227	1.9
Setboonsarng et al. (2008)	0.033	-0.062	0.128	1.9
Setboonsarng et al. (2008)	0.136	0.018	0.254	1.9
Setboonsarng et al. (2008)	-0.014	-0.132	0.104	1.9
Setboonsarng et al. (2008)	0.107	0.012	0.202	1.9
Setboonsarng et al. (2008)	0.165	0.047	0.283	1.9
Setboonsarng et al. (2008)	0.034	-0.06	0.129	1.9
Setboonsarng et al. (2008)	0.028	-0.09	0.146	1.9
Setboonsarng et al. (2008)	0.029	-0.066	0.123	1.9
Setboonsarng et al. (2008)	0.013	-0.105	0.13	1.9
Setboonsarng et al. (2008)	0.104	-0.014	0.22	1.9
Setboonsarng et al. (2008)	0.043	-0.052	0.0137	1.9
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	1.9
Setboonsarng et al. (2008)	0.01	-0.108	0.128	1.9
Setboonsarng et al. (2008)	0.026	-0.091	0.144	1.9
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.9
Other countries studies – Assets	**0.49**	**0.01**	**0.87**	
Total	**0.258**	**0.092**	**0.425**	
Panel B				
Random effect	0.258	0.0916	0.425	
Differences	0.402			
SE	0.199			
Z	2.02			
P	0.0434			
Q* within	62.8			
Q* between	4.08			
Group-1 Q*	31.2			
Group-2 Q*	31.6			

Figure A18.3: Forest plot of effects of consumption/expenditure in relation to country

Study	Effect (95% CI)
Imai et al. (2012)	0.103 (-0.091 | 0.297) W:2.1
Imai et al. (2012)	0.13 (0.017 | 0.243) W:2.1
Imai et al. (2012)	0.064 (-0.047 | 0.175) W:2.1
Khandker et al. (2013)	-0.067 (-0.18 | 0.047) W:2.1
Khandker et al. (2013)	0.096 (-0.022 | 0.214) W:2.1
Khandker et al. (2013)	0.071 (-0.042 | 0.185) W:2.1
Khandker et al. (2013)	0.01 (-0.104 | 0.124) W:2.1
Khandker et al. (2013)	-0.103 (-0.221 | 0.015) W:2.1
Khandker et al. (2013)	0.06 (-0.053 | 0.174) W:2.1
Pitt et al. (1998)	0.105 (0.051 | 0.159) W:2.1
Pitt et al. (1998)	0.118 (0.063 | 0.172) W:2.1
Pitt et al. (1998)	0.044 (-0.01 | 0.098) W:2.1
Pitt et al. (1998)	0.04 (-0.015 | 0.094) W:2.1
Pitt et al. (1998)	0.054 (-0.001 | 0.108) W:2.1
Pitt et al. (1998)	0.117 (0.063 | 0.172) W:2.1
Pitt et al. (2002)	-0.005 (-0.088 | 0.077) W:2.1
Pitt et al. (2002)	0.202 (0.108 | 0.296) W:2.1
Pitt et al. (2002)	0.092 (-0.001 | 0.186) W:2.1
Pitt et al. (2002)	0.068 (-0.025 | 0.162) W:2.1
Pitt et al. (2002)	0.203 (0.109 | 0.297) W:2.1
Pitt et al. (2002)	-0.061 (-0.155 | 0.033) W:2.1
Pitt et al. (2002)	0.076 (-0.018 | 0.17) W:2.1
Pitt et al. (2002)	0.182 (0.088 | 0.276) W:2.1
Pitt et al. (2002)	-0.823 (-0.921 | -0.725) W:2.1
Shoji (2009)	0.508 (0.357 | 0.66) W:2.1
Bangladesh studies -Consumption/Exp	0.05 (-0.02 | 0.12)
Banerjee et al. (2009)	0 (-0.048 | 0.048) W:2.1
Banerjee et al. (2009)	0 (-0.047 | 0.047) W:2.1
Banerjee et al. (2009)	0 (-0.048 | 0.048) W:2.1
Chandrakumarmangalam et al. (2012)	0.299 (-0.088 | 0.686) W:2
Chandrakumarmangalam et al. (2012)	0.183 (-1.06 | 1.427) W:1.4
Chandrakumarmangalam et al. (2012)	0.213 (-0.771 | 1.196) W:1.6
Deininger et al. (2013)	6.119 (5.971 | 6.268) W:2.1
Deininger et al. (2013)	31.997 (31.331 | 32.663) W:1.9
Deininger et al. (2013)	5.32 (5.185 | 5.455) W:2.1
Field et al. (2012)	0.024 (-0.031 | 0.08) W:2.1
Garikipati (2012)	0.168 (-0.182 | 0.518) W:2
Garikipati (2012)	-0.054 (-0.386 | 0.279) W:2
Mula et al. (2013)	1.288 (0.723 | 1.852) W:1.9
Mula et al. (2013)	1.031 (0.595 | 1.468) W:2
Mula et al. (2013)	0.848 (0.496 | 1.2) W:2
Pati et al. (2010)	0.353 (0.073 | 0.632) W:2
Setboonsarng et al. (2008)	0.016 (-0.102 | 0.134) W:2.1
Setboonsarng et al. (2008)	0.008 (-0.087 | 0.103) W:2.1
Setboonsarng et al. (2008)	0.029 (-0.066 | 0.124) W:2.1
Setboonsarng et al. (2008)	-0.051 (-0.146 | 0.044) W:2.1
Setboonsarng et al. (2008)	-0.02 (-0.115 | 0.075) W:2.1
Setboonsarng et al. (2008)	0.033 (-0.085 | 0.151) W:2.1
Setboonsarng et al. (2008)	0.007 (-0.111 | 0.124) W:2.1
Setboonsarng et al. (2008)	0.027 (-0.091 | 0.145) W:2.1
Other country studies-Consumpti	1.96 (1.33 | 2.59)
TOTAL:	0.942 (0.67 | 1.213)

Favours control

Table A18.3: Microfinance impact on consumption/expenditure based on country

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Imai et al. (2012)	0.103	-0.091	0.297	2.1
Imai et al. (2012)	0.13	0.017	0.243	2.1
Imai et al. (2012)	0.064	-0.047	0.175	2.1
Khandker et al. (2013)	-0.067	-0.18	0.047	2.1
Khandker et al. (2013)	0.096	-0.022	0.214	2.1
Khandker et al. (2013)	0.071	-0.042	0.185	2.1
Khandker et al. (2013)	0.01	-0.104	0.124	2.1
Khandker et al. (2013)	-0.103	-0.221	0.015	2.1
Khandker et al. (2013)	0.06	-0.053	0.174	2.1
Pitt et al. (1998)	0.105	0.051	0.159	2.1
Pitt et al. (1998)	0.118	0.063	0.172	2.1
Pitt et al. (1998)	0.044	-0.01	0.098	2.1
Pitt et al. (1998)	0.04	-0.015	0.094	2.1
Pitt et al. (1998)	0.054	-0.001	0.108	2.1
Pitt et al. (1998)	0.117	0.063	0.172	2.1
Pitt et al. (2002)	-0.005	-0.088	0.077	2.1
Pitt et al. (2002)	0.202	0.108	0.296	2.1
Pitt et al. (2002)	0.092	-0.001	0.186	2.1
Pitt et al. (2002)	0.068	-0.025	0.162	2.1
Pitt et al. (2002)	0.203	0.109	0.297	2.1
Pitt et al. (2002)	-0.061	-0.155	0.033	2.1
Pitt et al. (2002)	0.076	-0.018	0.17	2.1
Pitt et al. (2002)	0.182	0.088	0.276	2.1
Pitt et al. (2002)	-0.823	-0.921	0.725	2.1
Shoji (2009)	0.508	0.357	0.66	2.1
Bangladesh studies — Consumption	**0.05**	**-0.02**	**0.12**	
Banerjee et al. (2009)	0	-0.048	0.048	2.1
Banerjee et al. (2009)	0	-0.047	0.047	2.1
Banerjee et al. (2009)	0	-0.048	0.048	2.1
Chandrakumarmangalam et al. (2012)	0.299	-0.088	0.686	2
Chandrakumarmangalam et al. (2012)	0.183	-1.06	1.427	1.4
Chandrakumarmangalam et al. (2012)	0.213	-0.771	1.196	1.6
Deininger et al. (2013)	6.119	5.971	6.268	2.1
Deininger et al. (2013)	31.997	31.331	32.663	1.9
Deininger et al. (2013)	5.32	1.185	5.455	2.1
Field et al. (2012)	0.024	-0.031	0.08	2.1

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Garikipati (2012)	0.168	-0.182	0.518	2
Garikipati (2012)	-0.054	-0.386	0.279	2
Mula et al. (2013)	1.288	0.723	1.852	1.9
Mula et al. (2013)	1.031	0.595	1.468	2
Mula et al. (2013)	0.848	0.496	1.2	2
Pati et al. (2010)	0.353	0.073	0.632	2
Setboonsarng et al. (2008)	0.016	-0.102	0.134	2.1
Setboonsarng et al. (2008)	0.008	-0.087	0.103	2.1
Setboonsarng et al. (2008)	0.029	-0.066	0.124	2.1
Setboonsarng et al. (2008)	-0.051	-0.146	0.044	2.1
Setboonsarng et al. (2008)	-0.02	-0.115	0.075	2.1
Setboonsarng et al. (2008)	0.033	-0.085	0.151	2.1
Setboonsarng et al. (2008)	0.007	-0.111	0.124	2.1
Setboonsarng et al. (2008)	0.027	-0.09	0.145	2.1
Other countries studies — Consumption	**1.96**	**1.33**	**2.59**	
Total	**0.942**	**0.67**	**1.213**	
Panel B				
Random effect	0.942	0.67	1.21	
Differences	1.91			
SE	0.321			
Z	5.94			
P	2.82E-09			
Q* within	433			
Q* between	35.3			
Group-1 Q*	35.9			
Group-2 Q*	397			

Figure A18.4: Forest plot of effects of education in relation to country
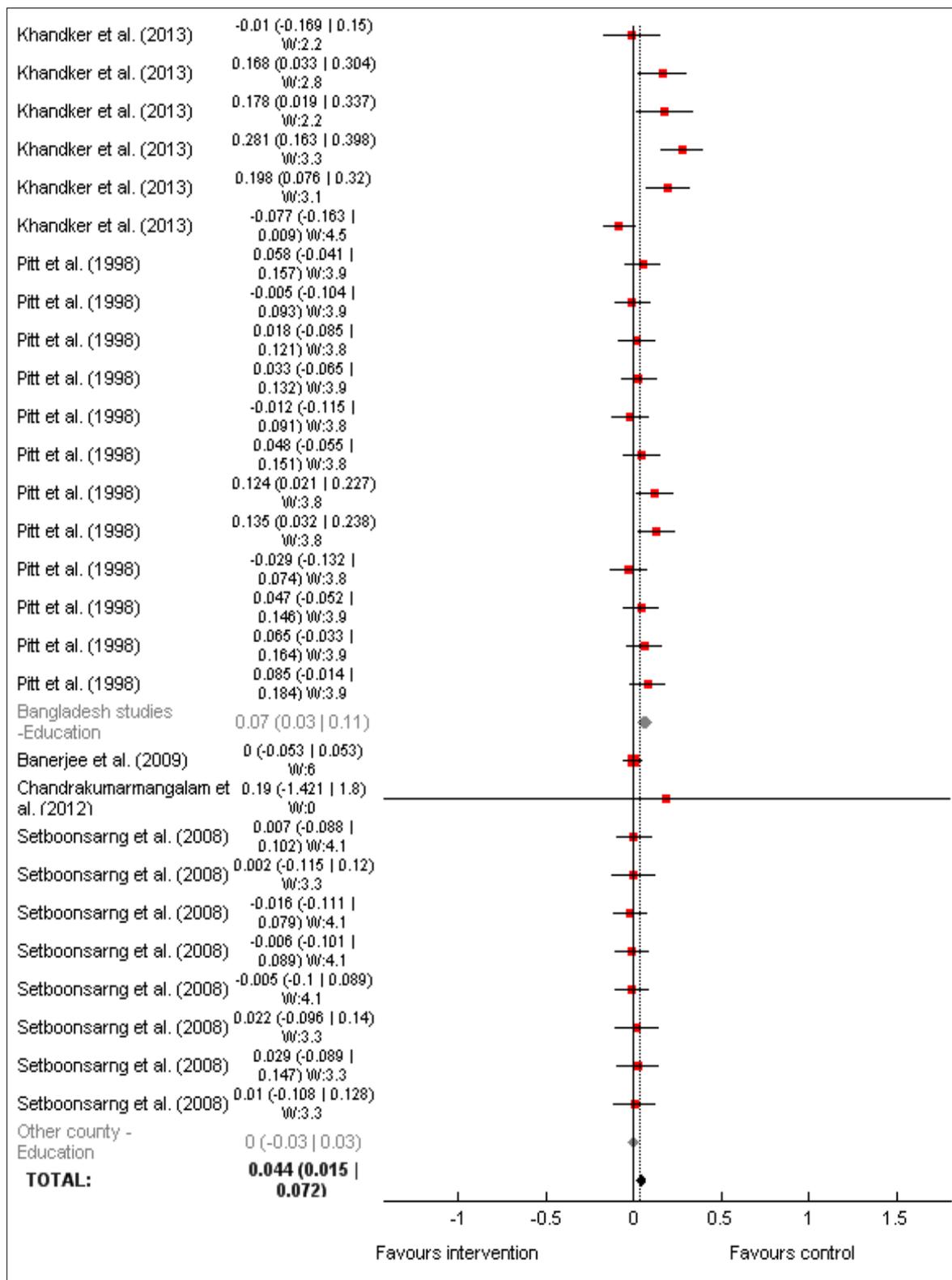
Table A18.4: Microfinance impact on education based on country

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Khandker et al. (2013)	-0.01	-0.169	0.15	2.2
Khandker et al. (2013)	0.168	0.033	0.304	2.8
Khandker et al. (2013)	0.178	0.019	0.337	2.2
Khandker et al. (2013)	0.281	0.163	0.398	3.3
Khandker et al. (2013)	0.198	0.076	0.32	3.1
Khandker et al. (2013)	-0.077	-0.163	0.009	4.5
Pitt et al. (1998)	0.058	-0.041	0.157	3.9
Pitt et al. (1998)	-0.005	-0.104	0.093	3.9
Pitt et al. (1998)	0.018	-0.085	0.121	3.8
Pitt et al. (1998)	0.033	-0.065	-0.005	3.9
Pitt et al. (1998)	-0.012	-0.115	0.091	3.8
Pitt et al. (1998)	0.048	-0.055	0.151	3.8
Pitt et al. (1998)	0.124	0.021	0.227	3.8
Pitt et al. (1998)	0.135	0.032	0.238	3.8
Pitt et al. (1998)	-0.029	-0.132	0.074	3.8
Pitt et al. (1998)	0.047	-0.052	0.146	3.9
Pitt et al. (1998)	0.065	-0.033	0.164	3.9
Pitt et al. (1998)	0.085	-0.014	0.184	3.9
Bangladesh studies — Education	**0.07**	**0.03**	**0.11**	
Banerjee et al. (2009)	0	-0.053	0.053	6
Chandrakumarmangalam et al. (2012)	0.19	-1.421	1.8	0
Setboonsarng et al. (2008)	0.007	-0.088	0.102	4.1
Setboonsarng et al. (2008)	0.002	-0.115	0.12	3.3
Setboonsarng et al. (2008)	-0.016	-0.111	0.079	4.1
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	4.1
Setboonsarng et al. (2008)	-0.005	-0.1	0.089	4.1
Setboonsarng et al. (2008)	0.022	-0.096	0.14	3.3
Setboonsarng et al. (2008)	0.029	-0.089	0.147	3.3
Setboonsarng et al. (2008)	0.01	-0.108	0.128	3.3
Other countries studies — Education	**0**	**-0.03**	**0.03**	
Total	**0.044**	**0.015**	**0.072**	
Panel B				
Random effect	0.0437	0.0155	0.0719	
Differences	0.0653			
SE	0.0261			

Z	2.5			
P	0.0123			
Q* within	18.1			
Q* between	6.29			
Group-1 Q*	17.5			
Group-2 Q*	0.591			

Figure A18.5: Forest plot of effects of women's empowerment in relation to country
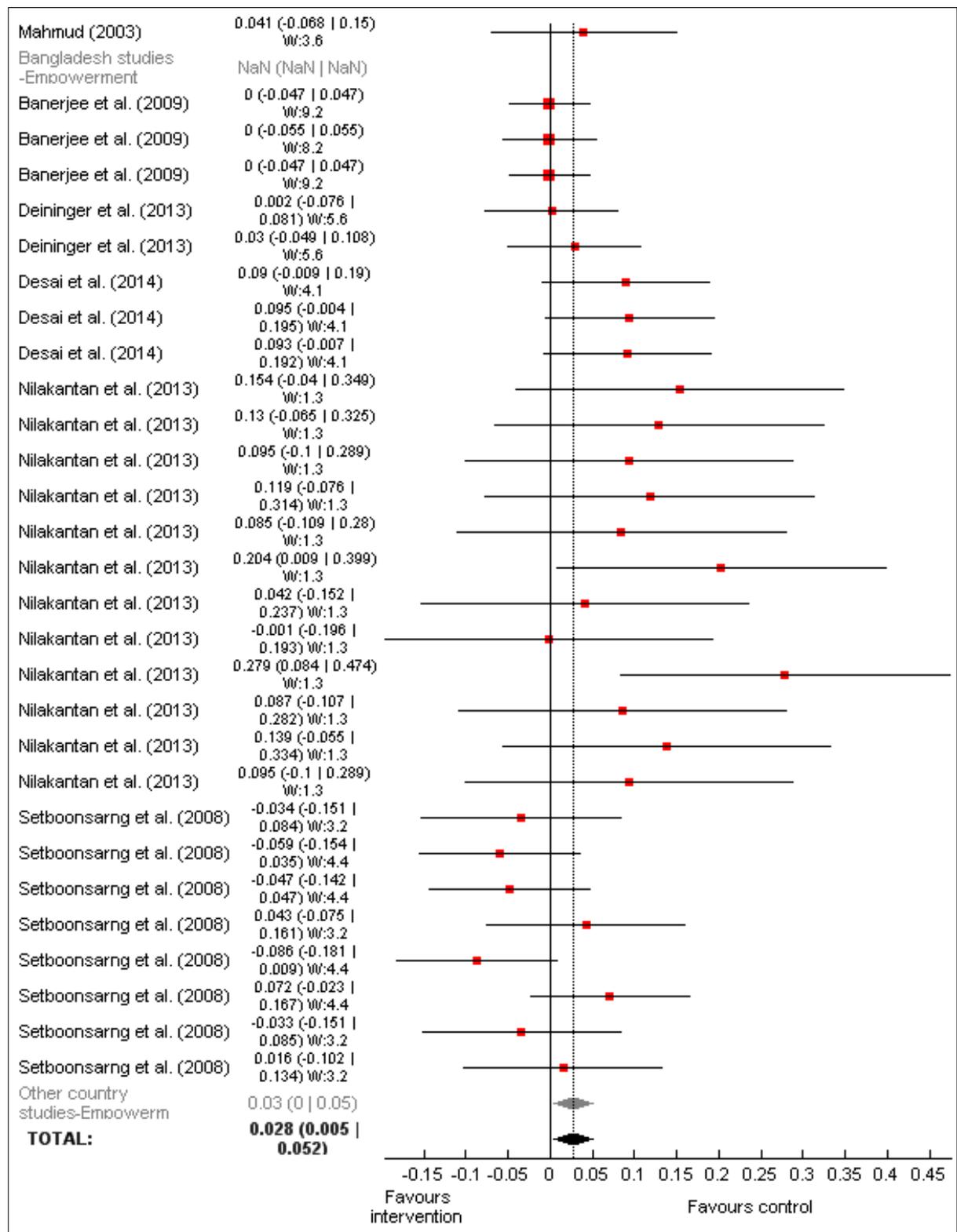
Table A18.5: Microfinance impact on women's empowerment based on country

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Mahmud (2003)	0.041	-0.068	0.15	3.6
Bangladesh studies — Empowerment	**NaN**	**NaN**	**NaN**	
Banerjee et al. (2009)	0	-0.047	0.047	9.2
Banerjee et al. (2009)	0	-0.047	0.047	9.2
Banerjee et al. (2009)	0	-0.055	0.055	8.2
Deininger et al. (2013)	0.002	-0.076	0.081	5.6
Deininger et al. (2013)	0.03	-0.049	0.108	5.6
Desai et al. (2014)	0.09	-0.009	0.19	4.1
Desai et al. (2014)	0.095	-0.004	0.195	4.1
Desai et al. (2014)	0.093	-0.007	0.192	4.1
Nilakantan et al. (2013)	0.154	-0.04	0.349	1.3
Nilakantan et al. (2013)	0.13	-0.065	0.325	1.3
Nilakantan et al. (2013)	0.095	-0.1	0.289	1.3
Nilakantan et al. (2013)	0.119	-0.076	0.314	1.3
Nilakantan et al. (2013)	0.085	-0.109	0.28	1.3
Nilakantan et al. (2013)	0.204	0.009	0.399	1.3
Nilakantan et al. (2013)	0.042	-0.152	0.237	1.3
Nilakantan et al. (2013)	-0.001	-0.196	0.193	1.3
Nilakantan et al. (2013)	0.279	0.084	0.474	1.3
Nilakantan et al. (2013)	0.087	-0.107	0.282	1.3
Nilakantan et al. (2013)	0.139	0.055	0.334	1.3
Nilakantan et al. (2013)	0.095	-0.1	0.289	1.3
Setboonsarng et al. (2008)	-0.034	-0.151	0.084	3.2
Setboonsarng et al. (2008)	-0.059	-0.154	0.035	4.4
Setboonsarng et al. (2008)	-0.047	-0.142	0.047	4.4
Setboonsarng et al. (2008)	0.043	-0.075	0.161	3.2
Setboonsarng et al. (2008)	-0.086	-0.181	0.009	4.4
Setboonsarng et al. (2008)	0.072	-0.023	0.167	4.4
Setboonsarng et al. (2008)	-0.033	-0.151	0.085	3.2
Setboonsarng et al. (2008)	0.016	-0.102	0.134	3.2
Other country studies — Empowerment	**0.03**	**0**	**0.05**	
Total	**0.028**	**0.005**	**0.052**	
Panel B				
Random effect	0.0283	0.0046	0.052	
Differences	0			
SE	0			

Z	0			
P	0			
Q* within	0			
Q* between	0			
Group-1 Q*	0			
Group-2 Q*	29.2			

Figure A18.6: Forest plot of effects of employment in relation to country

Study	Effect (95% CI) Weight
Pitt et al. (1998)	-0.013 (-0.06 | 0.035) W:2.2
Pitt et al. (1998)	-0.061 (-0.108 | -0.014) W:2.2
Pitt et al. (1998)	-0.145 (-0.193 | -0.097) W:2.2
Pitt et al. (1998)	-0.052 (-0.099 | -0.005) W:2.2
Pitt et al. (1998)	-0.016 (-0.063 | 0.031) W:2.2
Pitt et al. (1998)	-0.004 (-0.052 | 0.043) W:2.2
Pitt et al. (1998)	-0.174 (-0.222 | -0.126) W:2.2
Pitt et al. (1998)	-0.166 (-0.214 | -0.118) W:2.2
Pitt et al. (1998)	0.004 (-0.044 | 0.052) W:2.2
Pitt et al. (1998)	-0.003 (-0.051 | 0.045) W:2.2
Pitt et al. (1998)	-0.003 (-0.052 | 0.045) W:2.2
Pitt et al. (1998)	-0.051 (-0.098 | -0.004) W:2.2
Pitt et al. (2002)	-0.022 (-0.105 | 0.061) W:2.1
Pitt et al. (2002)	-0.006 (-0.089 | 0.077) W:2.1
Pitt et al. (2002)	0.066 (-0.018 | 0.15) W:2.1
Pitt et al. (2002)	-0.291 (-0.373 | -0.21) W:2.1
Pitt et al. (2002)	-0.034 (-0.116 | 0.048) W:2.1
Pitt et al. (2002)	-0.093 (-0.176 | 0.009) W:2.1
Pitt et al. (2002)	-0.278 (-0.359 | -0.196) W:2.1
Pitt et al. (2002)	-0.243 (-0.324 | -0.162) W:2.1
Pitt et al. (2002)	-0.104 (-0.185 | 0.023) W:2.1
Pitt et al. (2002)	-0.034 (-0.116 | 0.048) W:2.1
Pitt et al. (2002)	0.091 (0.009 | 0.174) W:2.1
Pitt et al. (2002)	-0.029 (-0.111 | 0.054) W:2.1
Pitt et al. (2002)	-0.008 (-0.09 | 0.075) W:2.1
Pitt et al. (2002)	0.007 (-0.076 | 0.09) W:2.1
Pitt et al. (2002)	-0.089 (-0.17 | -0.008) W:2.1
Pitt et al. (2002)	-0.088 (-0.169 | -0.007) W:2.1
Bangladesh studies -Employment	-0.07 (-0.1 | -0.03)
Banerjee et al. (2009)	0 (-0.081 | 0.081) W:2.1
Chandrakumarmangalam et al. (2012)	0.492 (0.211 | 0.774) W:1.1
Desai et al. (2014)	0.098 (-0.001 | 0.198) W:2
Garikipati (2012)	0.051 (-0.298 | 0.401) W:0.9
Garikipati (2012)	-0.303 (-0.637 | 0.032) W:0.9
Mula et al. (2013)	5.28 (4.482 | 6.078) W:0.2
Mula et al. (2013)	7.475 (6.306 | 8.645) W:0.1
Mula et al. (2013)	8.997 (7.365 | 10.629) W:0.1
Setboonsarng et al. (2008)	0.061 (-0.033 | 0.156) W:2.1
Setboonsarng et al. (2008)	0.131 (0.036 | 0.226) W:2.1
Setboonsarng et al. (2008)	0.06 (-0.035 | 0.155) W:2.1
Setboonsarng et al. (2008)	-0.053 (-0.171 | 0.065) W:1.9
Setboonsarng et al. (2008)	-0.096 (-0.191 | -0.001) W:2.1
Setboonsarng et al. (2008)	0.083 (-0.012 | 0.178) W:2.1
Setboonsarng et al. (2008)	0.028 (-0.09 | 0.145) W:1.9
Setboonsarng et al. (2008)	0.123 (0.005 | 0.241) W:1.9
Setboonsarng et al. (2008)	-0.073 (-0.167 | 0.022) W:2.1
Setboonsarng et al. (2008)	-0.121 (-0.239 | -0.003) W:1.9
Setboonsarng et al. (2008)	0.066 (-0.029 | 0.161) W:2.1
Setboonsarng et al. (2008)	0.115 (-0.002 | 0.233) W:1.9
Setboonsarng et al. (2008)	0.158 (0.04 | 0.276) W:1.9
Setboonsarng et al. (2008)	0.116 (-0.002 | 0.234) W:1.9
Setboonsarng et al. (2008)	0.025 (-0.07 | 0.119) W:2.1
Setboonsarng et al. (2008)	0.04 (-0.078 | 0.158) W:1.9
Other country studies- Employme	0.23 (0.12 | 0.35)
TOTAL:	0.007 (-0.035 | 0.049)

Favours control

Table A18.6: Microfinance impact on employment based on country

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Pitt et al. (1998)	-0.013	-0.06	0.035	2.2
Pitt et al. (1998)	-0.061	-0.108	-0.014	2.2
Pitt et al. (1998)	-0.145	-0.193	-0.097	2.2
Pitt et al. (1998)	-0.052	-0.099	-0.005	2.2
Pitt et al. (1998)	-0.016	-0.063	0.031	2.2
Pitt et al. (1998)	-0.004	-0.052	0.043	2.2
Pitt et al. (1998)	-0.174	-0.222	-0.126	2.2
Pitt et al. (1998)	-0.166	-0.214	-0.118	2.2
Pitt et al. (1998)	0.004	-0.044	0.052	2.2
Pitt et al. (1998)	-0.003	-0.051	0.045	2.2
Pitt et al. (1998)	-0.003	-0.052	0.045	2.2
Pitt et al. (1998)	-0.051	-0.098	-0.004	2.2
Pitt et al. (2002)	-0.022	-0.105	0.061	2.1
Pitt et al. (2002)	-0.006	-0.089	0.077	2.1
Pitt et al. (2002)	0.066	-0.018	0.15	2.1
Pitt et al. (2002)	-0.291	-0.373	-0.21	2.1
Pitt et al. (2002)	-0.034	-0.116	0.048	2.1
Pitt et al. (2002)	-0.093	-0.176	-0.009	2.1
Pitt et al. (2002)	-0.278	-0.359	-0.196	2.1
Pitt et al. (2002)	-0.243	-0.324	-0.162	2.1
Pitt et al. (2002)	-0.104	-0.185	-0.023	2.1
Pitt et al. (2002)	-0.034	-0.116	0.048	2.1
Pitt et al. (2002)	0.091	0.009	0.174	2.1
Pitt et al. (2002)	-0.029	-0.111	0.054	2.1
Pitt et al. (2002)	-0.008	-0.09	0.075	2.1
Pitt et al. (2002)	0.007	-0.076	0.09	2.1
Pitt et al. (2002)	-0.089	-0.17	-0.008	2.1
Pitt et al. (2002)	-0.088	-0.169	-0.077	2.1
Bangladesh studies — Employment	**-0.07**	**-0.1**	**-0.03**	
Banerjee et al. (2009)	0	-0.081	0.081	2.1
Chandrakumarmangalam et al. (2012)	0.492	0.211	0.774	1.1
Desai et al. (2014)	0.098	-0.001	0.198	2
Garikipati (2012)	0.051	-0.298	0.401	0.9
Garikipati (2012)	-0.303	-0.637	0.032	0.9
Mula et al. (2013)	5.28	4.482	6.078	0.2
Mulaet al. (2013)	7.475	6.306	8.645	0.1

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Mula et al. (2013)	8.997	7.365	10.629	0.1
Setboonsarng et al. (2008)	0.061	-0.033	0.156	2.1
Setboonsarng et al. (2008)	0.131	0.036	0.226	2.1
Setboonsarng et al. (2008)	0.06	-0.035	0.155	2.1
Setboonsarng et al. (2008)	-0.053	-0.171	0.065	1.9
Setboonsarng et al. (2008)	-0.096	-0.191	-0.001	2.1
Setboonsarng et al. (2008)	0.083	-0.012	0.178	2.1
Setboonsarng et al. (2008)	0.028	-0.09	0.145	1.9
Setboonsarng et al. (2008)	0.123	0.005	0.241	1.9
Setboonsarng et al. (2008)	-0.073	-0.167	0.022	2.1
Setboonsarng et al. (2008)	-0.121	-0.239	-0.003	1.9
Setboonsarng et al. (2008)	0.066	-0.029	0.161	2.1
Setboonsarng et al. (2008)	0.115	-0.002	0.233	1.9
Setboonsarng et al. (2008)	0.158	0.04	0.276	1.9
Setboonsarng et al. (2008)	0.116	-0.002	0.234	1.9
Setboonsarng et al. (2008)	0.025	-0.07	0.119	2.1
Setboonsarng et al. (2008)	0.04	-0.78	0.158	1.9
Other country studies — Employment	**0.23**	**0.12**	**0.35**	
Total	**0.007**	**-0.035**	**0.049**	
Panel B				
Random effect	0.00673	-0.0353	0.0487	
Differences	0.299			
SE	0.0625			
Z	4.78			
P	1.74E-06			
Q* within	375			
Q* between	22.9			
Group-1 Q*	32.6			
Group-2 Q*	343			

Figure A19.1: Forest plot of effects of income in relation to research design
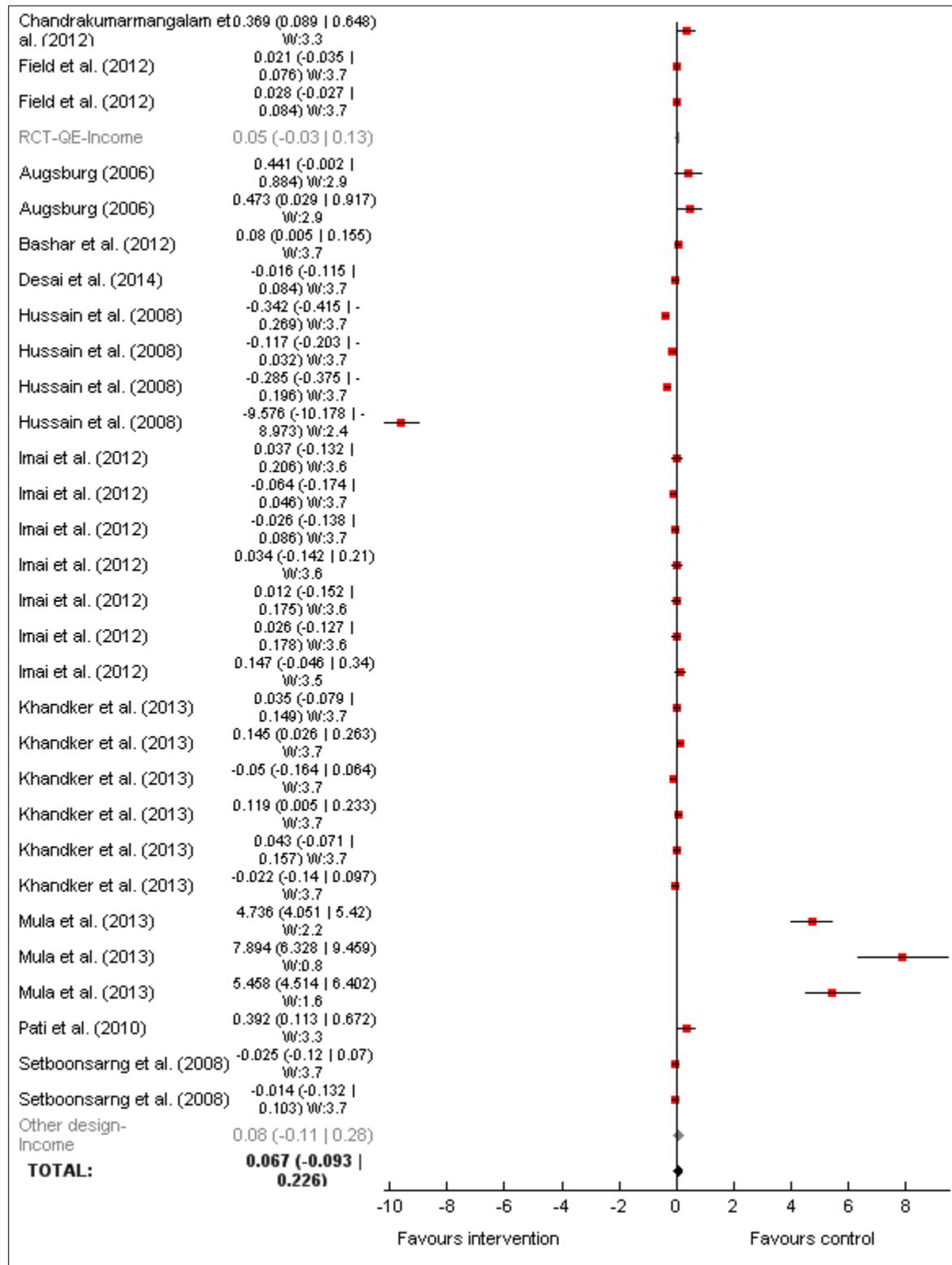
Table A19.1 Microfinance impact on income based on research design

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Chandrakumarmangalam et al. (2012)	0.369	0.089	0.648	3.3
Field et al. (2012)	0.021	-0.035	0.076	3.7
Field et al. (2012)	0.028	-0.027	0.084	3.7
RCT-QE — Income	**0.05**	**-0.03**	**0.13**	
Augsburg (2006)	0.441	-0.002	0.884	2.9
Augsburg (2006)	0.473	0.029	0.917	2.9
Bashar et al. (2012)	0.08	0.005	0.155	3.7
Desai et al. (2014)	-0.016	-0.115	0.084	3.7
Hussain et al. (2008)	-0.342	-0.415	-0.269	3.7
Hussain et al. (2008)	-0.117	-0.203	-0.032	3.7
Hussain et al. (2008)	-0.285	-0.375	-0.196	3.7
Hussain et al. (2008)	-9.576	-10.178	-8.973	3.7
Imai et al. (2012)	0.037	-0.132	0.206	3.6
Imai et al. (2012)	-0.064	-0.174	0.046	3.7
Imai et al. (2012)	-0.026	-0.138	0.086	3.7
Imai et al. (2012)	0.034	-0.142	0.21	3.6
Imai et al. (2012)	0.012	-0.152	0.175	3.7
Imai et al. (2012)	0.026	-0.127	0.078	3.7
Imai et al. (2012)	0.147	-0.046	0.34	3.5
Khandker et al. (2013)	0.035	-0.079	0.149	3.7
Khandker et al. (2013)	0.145	0.026	0.263	3.7
Khandker et al. (2013)	-0.05	-0.164	0.064	3.7
Khandker et al. (2013)	0.119	0.005	0.233	3.7
Khandker et al. (2013)	0.043	-0.071	0.157	3.7
Khandker et al. (2013)	-0.022	-0.14	0.097	3.7
Mula et al. (2013)	4.736	4.051	5.42	2.2
Mula et al. (2013)	7.894	6.328	9.459	0.8
Mula et al. (2013)	5.458	4.514	6.402	1.6
Pati et al. (2010)	0.392	0.113	0.672	3.3
Setboonsarng et al. (2008)	-0.025	-0.12	0.07	3.7
Setboonsarng et al. (2008)	-0.014	-0.132	0.103	3.7
Other Design — Income	**0.08**	**-0.11**	**0.28**	
Total	**0.067**	**-0.093**	**0.226**	
Panel B				
Random effect	0.0668	-0.0927	0.226	
Differences	0.0339			
SE	0.108			

Z	0.315			
P	0.753			
Q* within	476			
Q* between	0.0992			
Group-1 Q*	4.74			
Group-2 Q*	471			

Figure A19.2: Forest plot of effects of assets in relation to research design

Table A19.2: Microfinance impact on assets based on research design

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Chandrakumarmangalam et al. (2012)	0.79	0.131	1.45	1.5
Chandrakumarmangalam et al. (2012)	0.347	0.141	0.553	1.8
Pitt et al. (1998)	0.017	-0.077	0.111	1.9
Pitt et al. (1998)	0.05	-0.044	0.144	1.9
Pitt et al. (1998)	0.007	-0.087	0.101	1.9
Pitt et al. (1998)	-0.01	-0.104	0.085	1.9
Pitt et al. (1998)	0.063	-0.031	0.158	1.9
Pitt et al. (1998)	0.022	-0.072	0.117	1.9
RCT-QE — Assets	**0.05**	**-0.01**	**0.11**	
Deininger et al. (2013)	5.2	5.067	5.333	1.9
Khandker et al. (2013)	0.07	-0.048	0.188	1.9
Khandker et al. (2013)	-0.08	-0.193	0.034	1.9
Khandker et al. (2013)	0.361	0.246	0.475	1.9
Khandker et al. (2013)	0.525	0.409	0.64	1.9
Khandker et al. (2013)	-0.19	-0.308	-0.072	1.9
Khandker et al. (2013)	0.217	0.102	0.331	1.9
Khandker et al. (2013)	-0.132	-0.246	-0.018	1.9
Khandker et al. (2013)	-0.143	-0.257	-0.029	1.9
Khandker et al. (2013)	0.035	-0.078	0.149	1.9
Khandker et al. (2013)	-0.106	-0.219	0.008	1.9
Khandker et al. (2013)	0.131	0.013	0.249	1.9
Khandker et al. (2013)	0.027	-0.092	0.145	1.9
Khandker et al. (2013)	0.216	0.102	0.33	1.9
Khandker et al. (2013)	-0.129	-0.243	-0.015	1.9
Khandker et al. (2013)	0.361	0.246	0.475	1.9
Khandker et al. (2013)	0.603	0.487	0.719	1.9
Khandker et al. (2013)	0.082	-0.032	0.196	1.9
Khandker et al. (2013)	0.085	-0.029	0.198	1.9
Khandker et al. (2013)	0.048	-0.07	0.166	1.9
Khandker et al. (2013)	0.039	-0.08	0.157	1.9
Khandker et al. (2013)	-0.046	-0.164	0.072	1.9
Khandker et al. (2013)	0.357	0.242	0.472	1.9
Khandker et al. (2013)	0.189	0.075	0.303	1.9
Khandker et al. (2013)	-0.035	-0.153	0.083	1.9
Mula et al. (2013)	1.534	1.053	2.015	1.6
Mula et al. (2013)	1.341	0.927	1.755	1.7

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Mula et al. (2013)	1.724	1.155	2.293	1.5
Setboonsarng et al. (2008)	0.043	-0.052	0.137	1.9
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	1.9
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.9
Setboonsarng et al. (2008)	0.098	0.003	0.193	1.9
Setboonsarng et al. (2008)	0.029	-0.066	0.123	1.9
Setboonsarng et al. (2008)	0.034	-0.06	0.129	1.9
Setboonsarng et al. (2008)	0.136	0.018	0.254	1.9
Setboonsarng et al. (2008)	0.107	0.012	0.202	1.9
Setboonsarng et al. (2008)	0.033	-0.062	0.128	1.9
Setboonsarng et al. (2008)	0.104	-0.014	0.222	1.9
Setboonsarng et al. (2008)	-0.014	-0.132	0.104	1.9
Setboonsarng et al. (2008)	0.165	0.047	0.283	1.9
Setboonsarng et al. (2008)	0.013	-0.105	0.13	1.9
Setboonsarng et al. (2008)	0.026	-0.091	0.144	1.9
Setboonsarng et al. (2008)	0.028	-0.09	0.146	1.9
Setboonsarng et al. (2008)	0.133	0.038	0.227	1.9
Setboonsarng et al. (2008)	0.01	-0.108	0.128	1.9
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.9
Other Research Design — Assets	**0.28**	**0.08**	**0.48**	
Total	**0.258**	**0.092**	**0.425**	
Panel B				
Random effect	0.258	0.0916	0.425	
Differences	0.225			
SE	0.105			
Z	2.17			
P	0.03			
Q* within	79.3			
Q* between	4.71			
Group-1 Q*	11.8			
Group-2 Q*	67.4			

Figure A19.3: Forest plot of effects of consumption/expenditure in relation to research design
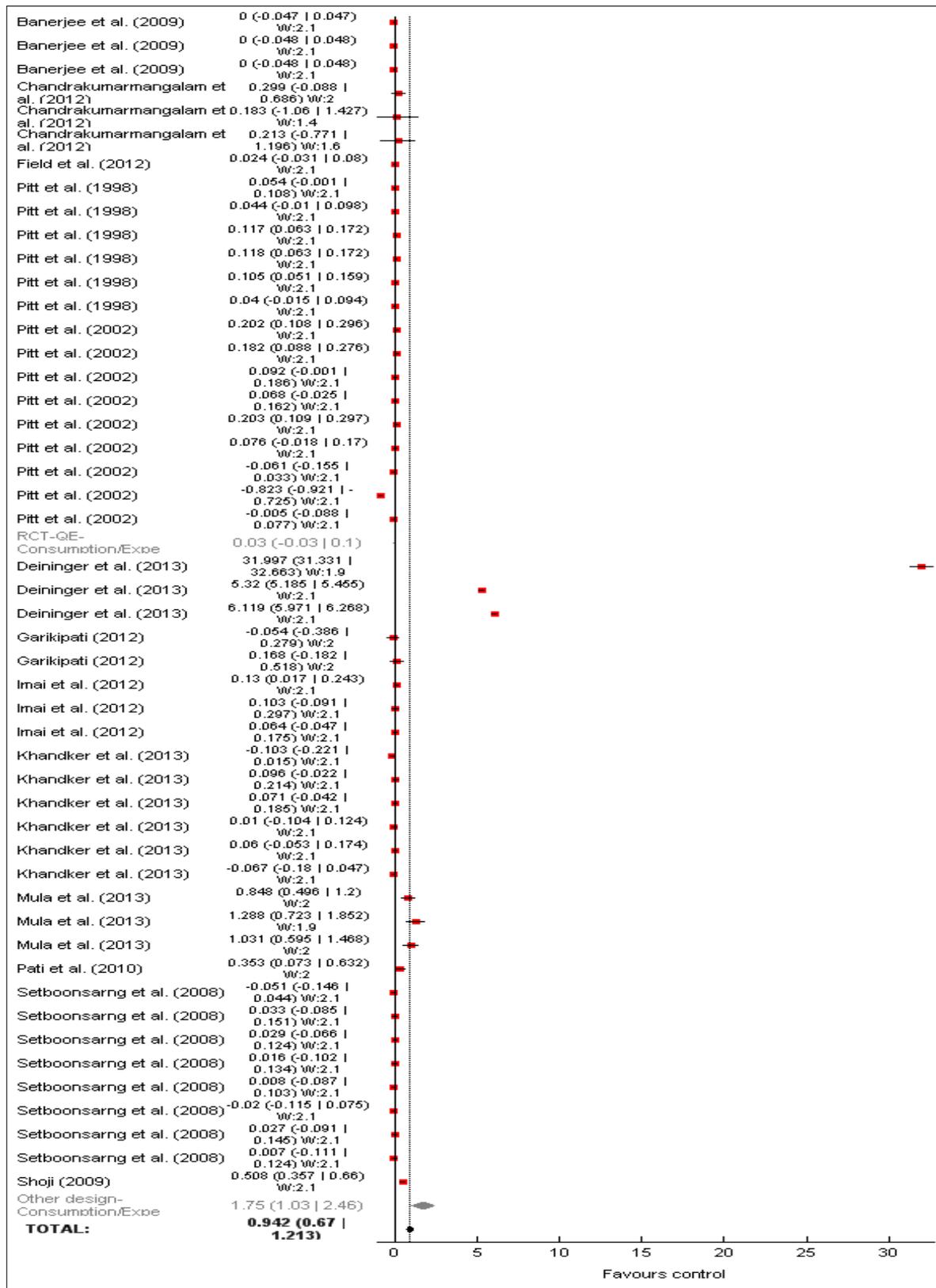
Table A19.3: Microfinance impact on consumption/expenditure based on research design

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.047	0.047	2.1
Banerjee et al. (2009)	0	-0.048	0.048	2.1
Banerjee et al. (2009)	0	-0.048	0.048	2.1
Chandrakumarmangalam et al. (2012)	0.299	-0.088	0.686	2
Chandrakumarmangalam et al. (2012)	0.183	-1.06	1.427	1.4
Chandrakumarmangalam et al. (2012)	0.213	-0.771	1.196	1.6
Field et al. (2012)	0.024	-0.031	0.08	2.1
Pitt et al. (2002)	0.054	-0.001	0.108	2.1
Pitt et al. (2002)	0.044	-0.01	0.098	2.1
Pitt et al. (2002)	0.117	0.063	0.172	2.1
Pitt et al. (2002)	0.118	0.063	0.172	2.1
Pitt et al. (2002)	0.105	0.051	0.159	2.1
Pitt et al. (2002)	0.04	-0.015	0.094	2.1
Pitt et al. (2002)	0.202	0.108	0.296	2.1
Pitt et al. (2002)	0.182	0.088	0.276	2.1
Pitt et al. (2002)	0.092	-0.001	0.186	2.1
Pitt et al. (2002)	0.068	-0.025	0.162	2.1
Pitt et al. (2002)	0.203	0.109	0.297	2.1
Pitt et al. (2002)	0.076	-0.018	0.17	2.1
Pitt et al. (2002)	-0.061	-0.155	0.033	2.1
Pitt et al. (2002)	-0.823	-0.921	-0.725	2.1
Pitt et al. (2002)	-0.005	-0.088	0.077	2.1
RCT-QE — Consumption	**0.03**	**-0.03**	**0.1**	
Deininger et al. (2013)	31.997	31.33	32.663	1.9
Deininger et al. (2013)	5.32	5.185	5.455	2.1
Deininger et al. (2013)	6.119	5.971	6.268	2.1
Garikipati (2012)	-0.054	-0.386	0.279	2
Garikipati (2012)	0.168	-0.182	0.518	2
Imai et al. (2013)	0.13	0.017	0.243	2.1
Imai et al. (2013)	0.103	-0.091	0.297	2.1
Imai et al. (2013)	0.064	-0.047	0.175	2.1
Khandker et al. (2013)	-0.103	-0.221	0.015	2.1
Khandker et al. (2013)	0.096	-0.022	0.214	2.1
Khandker et al. (2013)	0.071	-0.042	0.185	2.1
Khandker et al. (2013)	0.01	-0.104	0.124	2.1
Khandker et al. (2013)	0.06	-0.053	0.174	2.1

Khandker et al. (2013)	-0.067	-0.18	0.047	2.1
Mula et al. (2013)	0.848	0.496	1.2	2
Mula et al. (2013)	1.288	0.723	1.852	1.9
Mula et al. (2013)	1.031	0.595	1.468	2
Pati et al. (2010)	0.353	0.073	0.632	2
Setboonsarng et al. (2008)	-0.051	-0.146	0.044	2.1
Setboonsarng et al. (2008)	0.033	-0.085	0.151	2.1
Setboonsarng et al. (2008)	0.029	-0.066	0.124	2.1
Setboonsarng et al. (2008)	0.016	-0.102	0.134	2.1
Setboonsarng et al. (2008)	0.008	-0.087	0.103	2.1
Setboonsarng et al. (2008)	-0.02	-0.155	0.075	2.1
Setboonsarng et al. (2008)	0.027	-0.091	0.145	2.1
Setboonsarng et al. (2008)	0.007	-0.111	0.124	2.1
Shoji (2009)	0.508	0.357	0.66	2.1
Other Design — Consumption	**1.75**	**1.03**	**2.46**	
Total	**0.942**	**0.67**	**1.213**	
Panel B				
Random effect	0.946	0.67	1.21	
Differences	1.71			
SE	0.365			
Z	4.7			
P	2.61E-06			
Q* within	315			
Q* between	22.1			
Group-1 Q*	276			
Group-2 Q*	38.7			

Figure A19.4   Forest plot of effects of education in relation to research design
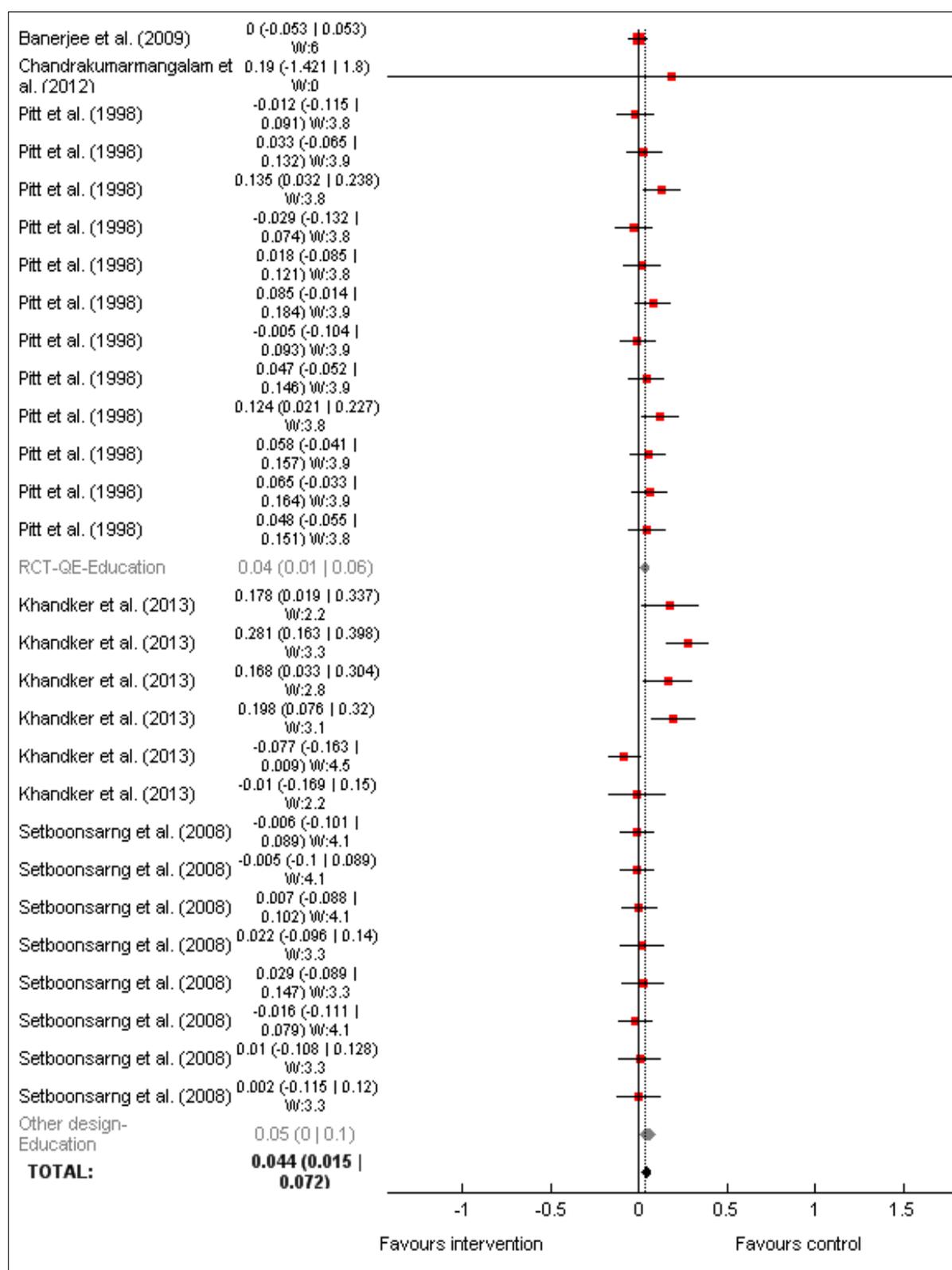
Table A19.4 Microfinance impact on education based on research design

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Banerjee et al. (2009)	0	-0.053	0.053	6
Chandrakumarmangalam et al. (2012)	0.19	-1.421	1.8	0
Pitt et al. (1998)	-0.012	-0.115	0.091	3.8
Pitt et al. (1998)	0.033	-0.065	0.132	3.9
Pitt et al. (1998)	0.135	0.032	0.238	3.8
Pitt et al. (1998)	-0.029	-0.132	0.074	3.8
Pitt et al. (1998)	0.018	-0.085	0.121	3.8
Pitt et al. (1998)	0.085	-0.014	0.184	3.9
Pitt et al. (1998)	-0.005	-0.104	0.093	3.8
Pitt et al. (1998)	0.047	-0.052	0.146	3.9
Pitt et al. (1998)	0.124	0.021	0.227	3.9
Pitt et al. (1998)	0.058	-0.041	0.157	3.9
Pitt et al. (1998)	0.065	-0.033	0.164	3.9
Pitt et al. (1998)	0.048	-0.055	0.151	3.8
RCT–QE — Education	**0.04**	**0.01**	**0.06**	
Khandker et al. (2013)	0.178	0.019	0.337	2.2
Khandker et al. (2013)	0.281	0.163	0.398	3.3
Khandker et al. (2013)	0.168	0.033	0.304	2.8
Khandker et al. (2013)	0.198	0.076	0.32	3.1
Khandker et al. (2013)	-0.077	-0.163	0.009	4.5
Khandker et al. (2013)	-0.01	-0.169	0.15	2.2
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	4.1
Setboonsarng et al. (2008)	-0.005	-0.1	0.089	4.1
Setboonsarng et al. (2008)	0.007	-0.088	0.102	4.1
Setboonsarng et al. (2008)	0.022	-0.096	0.14	3.3
Setboonsarng et al. (2008)	0.029	-0.089	0.147	3.3
Setboonsarng et al. (2008)	-0.016	-0.111	0.079	4.1
Setboonsarng et al. (2008)	0.01	-0.108	0.128	3.3
Setboonsarng et al. (2008)	0.002	-0.115	0.12	3.3
Other design — Education	**0.05**	**0**	**0.1**	
Total	**0.044**	**0.015**	**0.072**	
Panel B				
Random effect	0.0437	0.0155	0.0719	
Differences	0.0133			
SE	0.0301			
Z	0.443			
P	6.58			

Q* within	26.4			
Q* between	0.196			
Group-1 Q*	13.5			
Group-2 Q*	12.9			

Figure A19.5: Forest plot of effects of women's empowerment in relation to research design
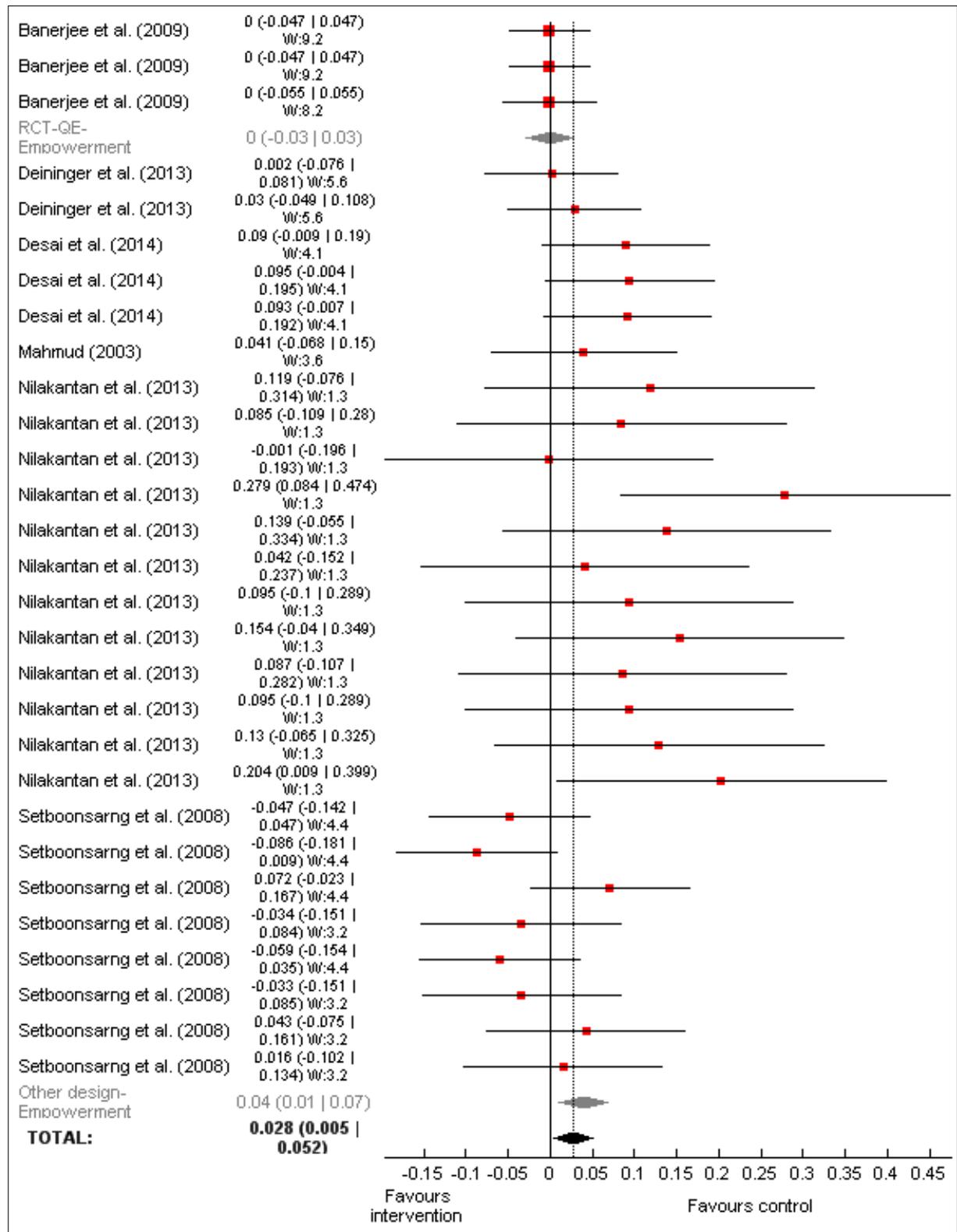
Table A19.5 Microfinance impact on women's empowerment based on research design

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Banerjee et al. (2009)	0	-0.047	0.047	9.2
Banerjee et al. (2009)	0	-0.047	0.047	9.2
Banerjee et al. (2009)	0	-0.055	0.055	8.2
RCT-QE — Empowerment	**0**	**-0.03**	**0.03**	
Deininger et al. (2013)	0.002	-0.076	0.081	5.6
Deininger et al. (2013)	0.03	-0.049	0.108	5.6
Desai et al. (2014)	0.09	-0.009	0.189	4.1
Desai et al. (2014)	0.095	-0.004	0.195	4.1
Desai et al. (2014)	0.093	-0.007	0.192	4.1
Mahmud (2003)	0.041	-0.068	0.15	3.6
Nilakantan et al. (2013)	0.119	-0.076	0.314	1.3
Nilakantan et al. (2013)	0.085	-0.109	0.28	1.3
Nilakantan et al. (2013)	-0.001	-0.196	0.193	1.3
Nilakantan et al. (2013)	0.279	0.084	0.474	1.3
Nilakantan et al. (2013)	0.139	-0.055	0.334	1.3
Nilakantan et al. (2013)	0.042	-0.152	0.237	1.3
Nilakantan et al. (2013)	0.095	-0.1	0.289	1.3
Nilakantan et al. (2013)	0.154	-0.04	0.349	1.3
Nilakantan et al. (2013)	0.087	-0.107	0.282	1.3
Nilakantan et al. (2013)	0.095	-0.1	0.289	1.3
Nilakantan et al. (2013)	0.13	-0.065	0.325	1.3
Nilakantan et al. (2013)	0.204	-0.009	0.399	1.3
Setboonsarng et al. (2008)	-0.047	-0.142	0.047	4.4
Setboonsarng et al. (2008)	-0.086	-0.181	0.009	4.4
Setboonsarng et al. (2008)	0.072	-0.023	0.167	4.4
Setboonsarng et al. (2008)	-0.034	-0.151	0.084	3.2
Setboonsarng et al. (2008)	-0.059	-0.154	0.035	4.4
Setboonsarng et al. (2008)	-0.033	-0.151	0.085	3.2
Setboonsarng et al. (2008)	0.043	-0.075	0.161	3.2
Setboonsarng et al. (2008)	0.016	-0.102	0.134	3.2
Other Design – Empowerment	**0.04**	**0.01**	**0.07**	
Total	**0.028**	**0.005**	**0.052**	
Panel B				
Random effect	0.0283	0.0046	0.052	
Differences	0.0406			
SE	0.021			
Z	1.93			

P	0.0534			
Q* within	24.9			
Q* between	3.73			
Group-1 Q*	0			
Group-2 Q*	24.9			

Figure A19.6: Forest plot of effects of employment in relation to research design
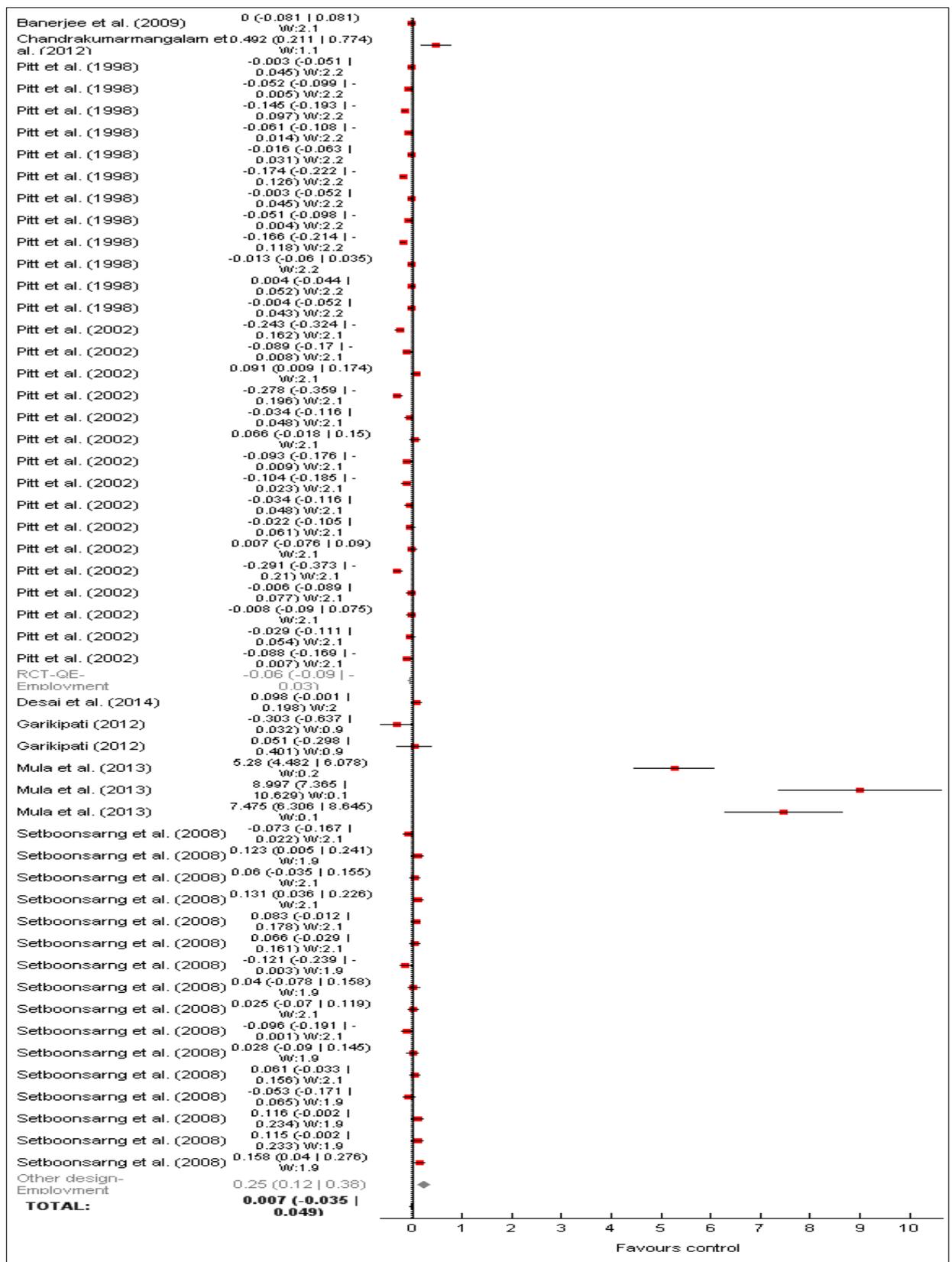
Table A19.6: Microfinance impact on employment based on research design

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.081	0.081	2.1
Chandrakumarmangalam (2012)	0.492	0.211	0.774	2.1
Pitt et al. (1998)	-0.003	-0.051	0.045	2.2
Pitt et al. (1998)	-0.052	-0.099	-0.005	2.2
Pitt et al. (1998)	-0.145	-0.193	0.097	2.2
Pitt et al. (1998)	-0.061	-0.108	0.014	2.2
Pitt et al. (1998)	-0.016	-0.063	0.031	2.2
Pitt et al. (1998)	-0.174	-0.222	0.126	2.2
Pitt et al. (1998)	-0.003	-0.052	0.045	2.2
Pitt et al. (1998)	-0.051	-0.098	-0.004	2.2
Pitt et al. (1998)	-0.166	-0.214	-0.118	2.2
Pitt et al. (1998)	-0.013	-0.06	0.035	2.2
Pitt et al. (1998)	0.004	-0.044	0.052	2.2
Pitt et al. (1998)	-0.004	-0.052	-0.043	2.2
Pitt et al. (2002)	-0.243	-0.324	-0.162	2.1
Pitt et al. (2002)	-0.089	-0.17	-0.008	2.1
Pitt et al. (2002)	0.091	-0.009	0.174	2.1
Pitt et al. (2002)	-0.278	-0.359	-0.196	2.1
Pitt et al. (2002)	-0.034	-0.116	0.048	2.1
Pitt et al. (2002)	0.066	-0.018	0.15	2.1
Pitt et al. (2002)	-0.093	-0.176	-0.009	2.1
Pitt et al. (2002)	-0.104	-0.185	-0.023	2.1
Pitt et al. (2002)	-0.034	-0.116	0.048	2.1
Pitt et al. (2002)	-0.022	-0.105	0.061	2.1
Pitt et al. (2002)	0.007	-0.076	0.09	2.1
Pitt et al. (2002)	-0.291	-0.373	-0.21	2.1
Pitt et al. (2002)	-0.006	-0.089	0.077	2.1
Pitt et al. (2002)	-0.008	-0.09	0.075	2.1
Pitt et al. (2002)	-0.029	-0.111	0.054	2.1
Pitt et al. (2002)	-0.088	-0.169	-0.007	2.1
RCT-QE — Employment	**-0.06**	**-0.09**	**0.03**	
Desai et al. (2014)	0.098	-0.001	0.198	2
Garikipati (2012)	-0.303	-0.637	0.032	0.9
Garikipati (2012)	0.051	-0.298	0.401	0.9
Mula et al. (2013)	5.28	4.482	6.078	0.2
Mula et al. (2013)	8.997	7.365	10.629	0.1
Mula et al. (2013)	7.475	6.306	8.645	0.1
Setboonsarng et al. (2008)	-0.073	-0.167	0.022	2.1

Setboonsarng et al. (2008)	0.123	0.005	0.241	1.9
Setboonsarng et al. (2008)	0.06	-0.035	0.155	2.1
Setboonsarng et al. (2008)	0.131	0.036	0.226	2.1
Setboonsarng et al. (2008)	0.083	-0.012	0.178	2.1
Setboonsarng et al. (2008)	0.066	-0.029	0.161	2.1
Setboonsarng et al. (2008)	-0.121	-0.239	-0.003	1.9
Setboonsarng et al. (2008)	0.04	-0.078	0.158	1.9
Setboonsarng et al. (2008)	0.025	-0.07	0.12	2.1
Setboonsarng et al. (2008)	-0.096	-0.191	-0.001	2.1
Setboonsarng et al. (2008)	0.028	-0.09	0.145	1.9
Setboonsarng et al. (2008)	0.061	-0.033	0.156	2.1
Setboonsarng et al. (2008)	-0.053	-0.171	0.065	1.9
Setboonsarng et al. (2008)	0.116	-0.002	0.234	1.9
Setboonsarng et al. (2008)	0.115	-0.002	0.233	1.9
Setboonsarng et al. (2008)	0.158	0.04	0.276	1.9
Other Design — Employment	**0.25**	**0.12**	**0.38**	
Total	**0.007**	**-0.035**	**0.049**	
Panel B				
Random effect	0.00673	-0.0353	0.0487	
Differences	0.305			
SE	0.0677			
Z	4.51			
P	6.56E-06			
Q* within	378			
Q* between	20.3			
Group-1 Q*	355			
Group-2 Q*	42.8			

Figure A20.1: Forest plot of effects of income in relation to risk of bias
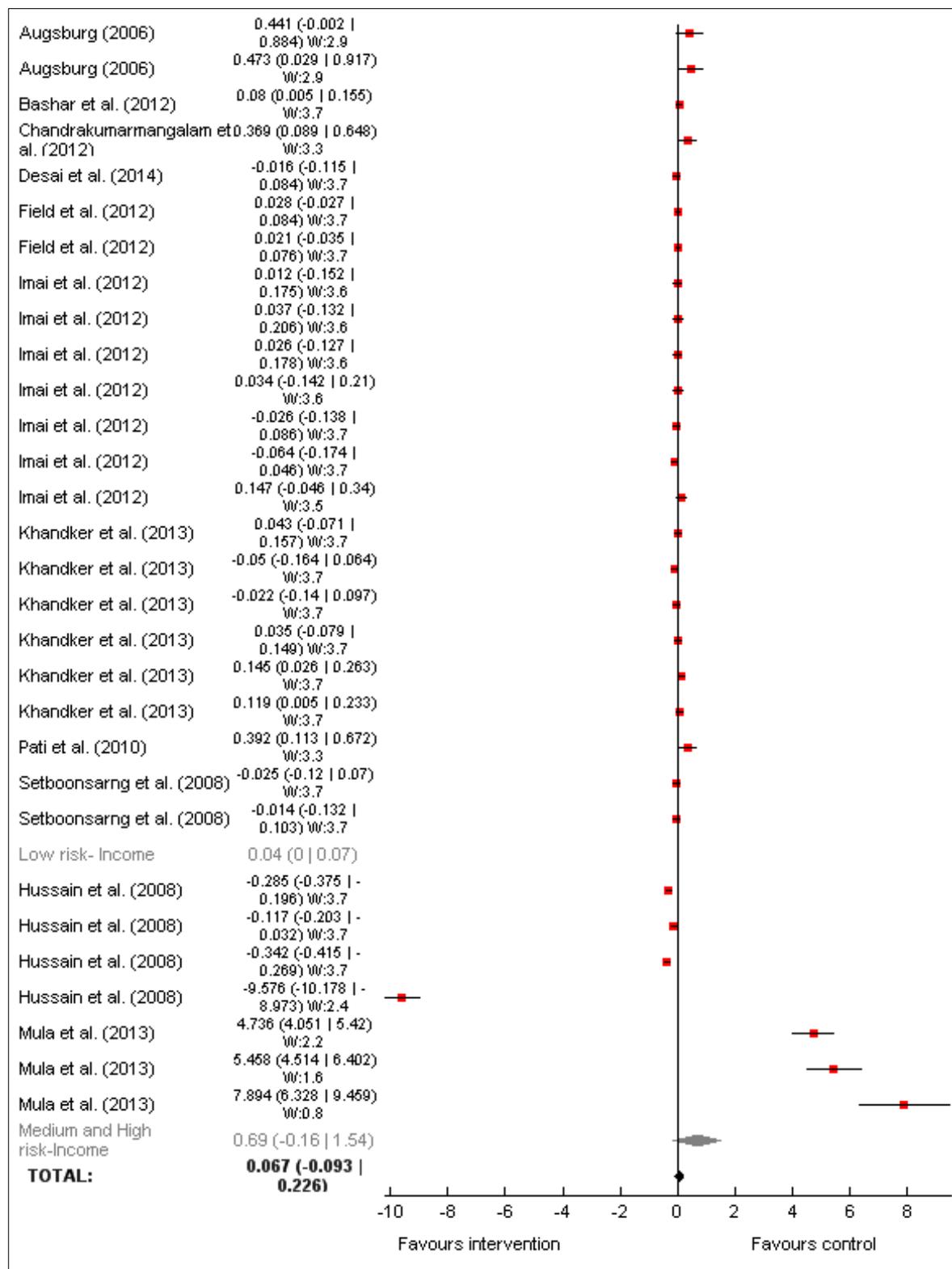
Table A20.1: Microfinance impact on income based on risk of bias

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Augsburg (2006)	0.441	-0.002	0.884	2.9
Augsburg (2006)	0.473	0.029	0.917	2.9
Bashar et al. (2012)	0.08	0.005	0.155	3.7
Chandrakumarmangalam et al. (2012)	0.369	0.089	0.648	3.3
Desai et al. (2014)	-0.016	-0.115	0.084	3.7
Field et al. (2012)	0.028	-0.027	0.084	3.7
Field et al. (2012)	0.021	-0.035	0.076	3.7
Imai et al. (2012)	0.012	-0.152	0.175	3.6
Imai et al. (2012)	0.037	-0.132	0.206	3.6
Imai et al. (2012)	0.026	-0.127	0.178	3.6
Imai et al. (2012)	0.034	-0.142	0.21	3.6
Imai et al. (2012)	-0.026	-0.138	0.086	3.7
Imai et al. (2012)	-0.064	-0.174	0.046	3.7
Imai et al. (2012)	0.147	-0.046	0.34	3.5
Khandker et al. (2013)	0.043	-0.071	0.157	3.7
Khandker et al. (2013)	-0.05	-0.164	0.064	3.7
Khandker et al. (2013)	-0.022	-0.14	0.097	3.7
Khandker et al. (2013)	0.035	-0.079	0.149	3.7
Khandker et al. (2013)	0.145	0.026	0.263	3.7
Khandker et al. (2013)	0.199	0.005	0.233	3.7
Pati et al. (2010)	0.392	0.113	0.672	3.3
Setboonsarng et al. (2008)	-0.025	-0.12	0.07	3.7
Setboonsarng et al. (2008)	-0.014	-0.132	0.103	3.7
Low risk — Income	**0.04**	**0**	**0.07**	
Hussain et al. (2008)	-0.285	-0.375	-0.196	3.7
Hussain et al. (2008)	-0.117	-0.203	-0.032	3.7
Hussain et al. (2008)	-0.342	-0.415	-0.269	3.7
Hussain et al. (2008)	-9.576	-10.178	-8.973	2.4
Mula et al. (2013)	4.736	4.051	5.42	2.2
Mula et al. (2013)	5.458	4.514	6.402	1.6
Mula et al. (2013)	7.894	6.328	9.459	0.8
Medium- and high-risk Income	**0.69**	**-0.16**	**1.54**	
Total	**0.067**	**-0.093**	**0.226**	
Panel B				
Random effect	0.0668	-0.0927	0.226	
Differences	0.656			
SE	0.433			
Z	1.51			

P	0.13			
Q* within	170			
Q* between	2.29			
Group-1 Q*	28.2			
Group-2 Q*	142			

Figure A20.2: Forest plot of effects of assets in relation to risk of bias

Study	Effect (CI)	Weight
Chandrakumarmangalam et al. (2012)	0.347 (0.141 | 0.553)	W:1.8
Chandrakumarmangalam et al. (2012)	0.79 (0.131 | 1.45)	W:1.5
Deininger et al. (2013)	5.2 (5.067 | 5.333)	W:1.9
Khandker et al. (2013)	0.361 (0.246 | 0.475)	W:1.9
Khandker et al. (2013)	-0.08 (-0.193 | 0.034)	W:1.9
Khandker et al. (2013)	0.039 (-0.08 | 0.157)	W:1.9
Khandker et al. (2013)	0.361 (0.246 | 0.475)	W:1.9
Khandker et al. (2013)	0.085 (-0.029 | 0.198)	W:1.9
Khandker et al. (2013)	0.048 (-0.07 | 0.166)	W:1.9
Khandker et al. (2013)	0.035 (-0.078 | 0.149)	W:1.9
Khandker et al. (2013)	-0.19 (-0.308 | -0.072)	W:1.9
Khandker et al. (2013)	0.07 (-0.048 | 0.188)	W:1.9
Khandker et al. (2013)	0.131 (0.013 | 0.249)	W:1.9
Khandker et al. (2013)	0.603 (0.487 | 0.719)	W:1.9
Khandker et al. (2013)	0.216 (0.102 | 0.33)	W:1.9
Khandker et al. (2013)	0.082 (-0.032 | 0.196)	W:1.9
Khandker et al. (2013)	-0.129 (-0.243 | -0.015)	W:1.9
Khandker et al. (2013)	-0.132 (-0.246 | -0.018)	W:1.9
Khandker et al. (2013)	-0.106 (-0.219 | 0.008)	W:1.9
Khandker et al. (2013)	0.027 (-0.092 | 0.145)	W:1.9
Khandker et al. (2013)	0.217 (0.102 | 0.331)	W:1.9
Khandker et al. (2013)	0.357 (0.242 | 0.472)	W:1.9
Khandker et al. (2013)	-0.143 (-0.257 | -0.029)	W:1.9
Khandker et al. (2013)	0.189 (0.075 | 0.303)	W:1.9
Khandker et al. (2013)	0.525 (0.409 | 0.64)	W:1.9
Khandker et al. (2013)	-0.046 (-0.164 | 0.072)	W:1.9
Khandker et al. (2013)	-0.035 (-0.153 | 0.083)	W:1.9
Pitt et al. (1998)	0.022 (-0.072 | 0.117)	W:1.9
Pitt et al. (1998)	0.017 (-0.077 | 0.111)	W:1.9
Pitt et al. (1998)	-0.01 (-0.104 | 0.085)	W:1.9
Pitt et al. (1998)	0.007 (-0.087 | 0.101)	W:1.9
Pitt et al. (1998)	0.05 (-0.044 | 0.144)	W:1.9
Pitt et al. (1998)	0.063 (-0.031 | 0.158)	W:1.9
Setboonsarng et al. (2008)	0.098 (0.003 | 0.193)	W:1.9
Setboonsarng et al. (2008)	0.107 (0.012 | 0.202)	W:1.9
Setboonsarng et al. (2008)	0.133 (0.038 | 0.227)	W:1.9
Setboonsarng et al. (2008)	0.034 (-0.06 | 0.129)	W:1.9
Setboonsarng et al. (2008)	0.033 (-0.062 | 0.128)	W:1.9
Setboonsarng et al. (2008)	0.104 (-0.014 | 0.222)	W:1.9
Setboonsarng et al. (2008)	0.051 (-0.067 | 0.169)	W:1.9
Setboonsarng et al. (2008)	0.029 (-0.066 | 0.123)	W:1.9
Setboonsarng et al. (2008)	0.051 (-0.067 | 0.169)	W:1.9
Setboonsarng et al. (2008)	0.028 (-0.09 | 0.146)	W:1.9
Setboonsarng et al. (2008)	0.026 (-0.091 | 0.144)	W:1.9
Setboonsarng et al. (2008)	-0.014 (-0.132 | 0.104)	W:1.9
Setboonsarng et al. (2008)	0.01 (-0.108 | 0.128)	W:1.9
Setboonsarng et al. (2008)	0.136 (0.018 | 0.254)	W:1.9
Setboonsarng et al. (2008)	0.165 (0.047 | 0.283)	W:1.9
Setboonsarng et al. (2008)	0.043 (-0.052 | 0.137)	W:1.9
Setboonsarng et al. (2008)	-0.006 (-0.101 | 0.089)	W:1.9
Setboonsarng et al. (2008)	0.013 (-0.105 | 0.13)	W:1.9
Low risk-Assets	0.19 (0.02 | 0.36)	
Mula et al. (2013)	1.534 (1.053 | 2.015)	W:1.6
Mula et al. (2013)	1.341 (0.927 | 1.755)	W:1.7
Mula et al. (2013)	1.724 (1.155 | 2.293)	W:1.5
Medium and High risk-Assets	1.49 (1.22 | 1.77)	
TOTAL:	0.258 (0.092 | 0.425)	

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Table A20.2: Microfinance impact on assets based on risk of bias

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Chandrakumarmangalam et al. (2012)	0.347	0.141	0.553	1.8
Chandrakumarmangalam et al. (2012)	0.79	0.131	1.45	1.5
Deininger et al. (2013)	5.2	5.067	5.333	1.9
Khandker et al. (2013)	0.361	0.246	0.475	1.9
Khandker et al. (2013)	-0.08	-0.193	0.034	1.9
Khandker et al. (2013)	0.039	-0.08	0.157	1.9
Khandker et al. (2013)	0.361	0.246	0.475	1.9
Khandker et al. (2013)	0.085	-0.029	0.198	1.9
Khandker et al. (2013)	0.048	-0.07	0.166	1.9
Khandker et al. (2013)	0.035	-0.078	0.149	1.9
Khandker et al. (2013)	-0.19	-0.308	-0.072	1.9
Khandker et al. (2013)	0.07	-0.048	0.188	1.9
Khandker et al. (2013)	0.131	0.013	0.249	1.9
Khandker et al. (2013)	0.603	0.487	0.719	1.9
Khandker et al. (2013)	0.216	0.102	0.33	1.9
Khandker et al. (2013)	0.082	-0.032	0.196	1.9
Khandker et al. (2013)	-0.129	-0.243	-0.015	1.9
Khandker et al. (2013)	-0.132	-0.246	-0.018	1.9
Khandker et al. (2013)	-0.106	-0.219	0.008	1.9
Khandker et al. (2013)	0.027	-0.092	0.145	1.9
Khandker et al. (2013)	0.217	0.102	0.331	1.9
Khandker et al. (2013)	0.357	0.242	0.472	1.9
Khandker et al. (2013)	-0.143	-0.257	-0.029	1.9
Khandker et al. (2013)	0.189	0.075	0.303	1.9
Khandker et al. (2013)	0.525	0.409	0.64	1.9
Khandker et al. (2013)	-0.046	-0.164	0.072	1.9
Khandker et al. (2013)	-0.035	-0.153	0.083	1.9
Pitt et al. (1998)	0.022	-0.072	0.117	1.9
Pitt et al. (1998)	0.017	-0.077	0.111	1.9
Pitt et al. (1998)	-0.01	-0.104	0.085	1.9
Pitt et al. (1998)	0.007	-0.087	0.101	1.9
Pitt et al. (1998)	0.05	-0.044	0.144	1.9
Pitt et al. (1998)	0.063	-0.031	0.158	1.9
Setboonsarng et al. (2008)	0.098	0.003	0.193	1.9
Setboonsarng et al. (2008)	0.107	0.012	0.202	1.9
Setboonsarng et al. (2008)	0.133	0.038	0.227	1.9

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Setboonsarng et al. (2008)	0.034	-0.06	0.129	1.9
Setboonsarng et al. (2008)	0.033	-0.062	0.128	1.9
Setboonsarng et al. (2008)	0.104	-0.014	0.222	1.9
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.9
Setboonsarng et al. (2008)	0.029	-0.066	0.123	1.9
Setboonsarng et al. (2008)	0.051	-0.067	0.169	1.9
Setboonsarng et al. (2008)	0.028	-0.09	0.146	1.9
Setboonsarng et al. (2008)	0.026	-0.091	0.144	1.9
Setboonsarng et al. (2008)	-0.014	-0.132	0.104	1.9
Setboonsarng et al. (2008)	0.01	-0.108	0.128	1.9
Setboonsarng et al. (2008)	0.136	0.018	0.254	1.9
Setboonsarng et al. (2008)	0.165	0.047	0.283	1.9
Setboonsarng et al. (2008)	0.043	-0.052	0.137	1.9
Setboonsarng et al. (2008)	-0.006	-0.101	0.089	1.9
Setboonsarng et al. (2008)	0.013	-0.105	0.13	1.9
Low-risk — Assets	**0.19**	**0.02**	**0.36**	
Mula et al. (2013)	1.534	1.053	2.015	1.6
Mula et al. (2013)	1.341	0.927	1.755	1.7
Mula et al. (2013)	1.724	1.155	2.293	1.5
Medium- and high-risk — Assets	**1.49**	**1.22**	**1.77**	
Total	**0.258**	**0.092**	**0.425**	
Panel B				
Random effect	0.258	0.0916	0.425	
Differences	1.3			
SE	0.165			
Z	7.89			
P	3.09E-15			
Q* within	72.2			
Q* between	6.22			
Group-1 Q*	71			
Group-2 Q*	1.18			

Figure A20.3: Forest plot of effects of consumption/expenditure in relation to risk of bias
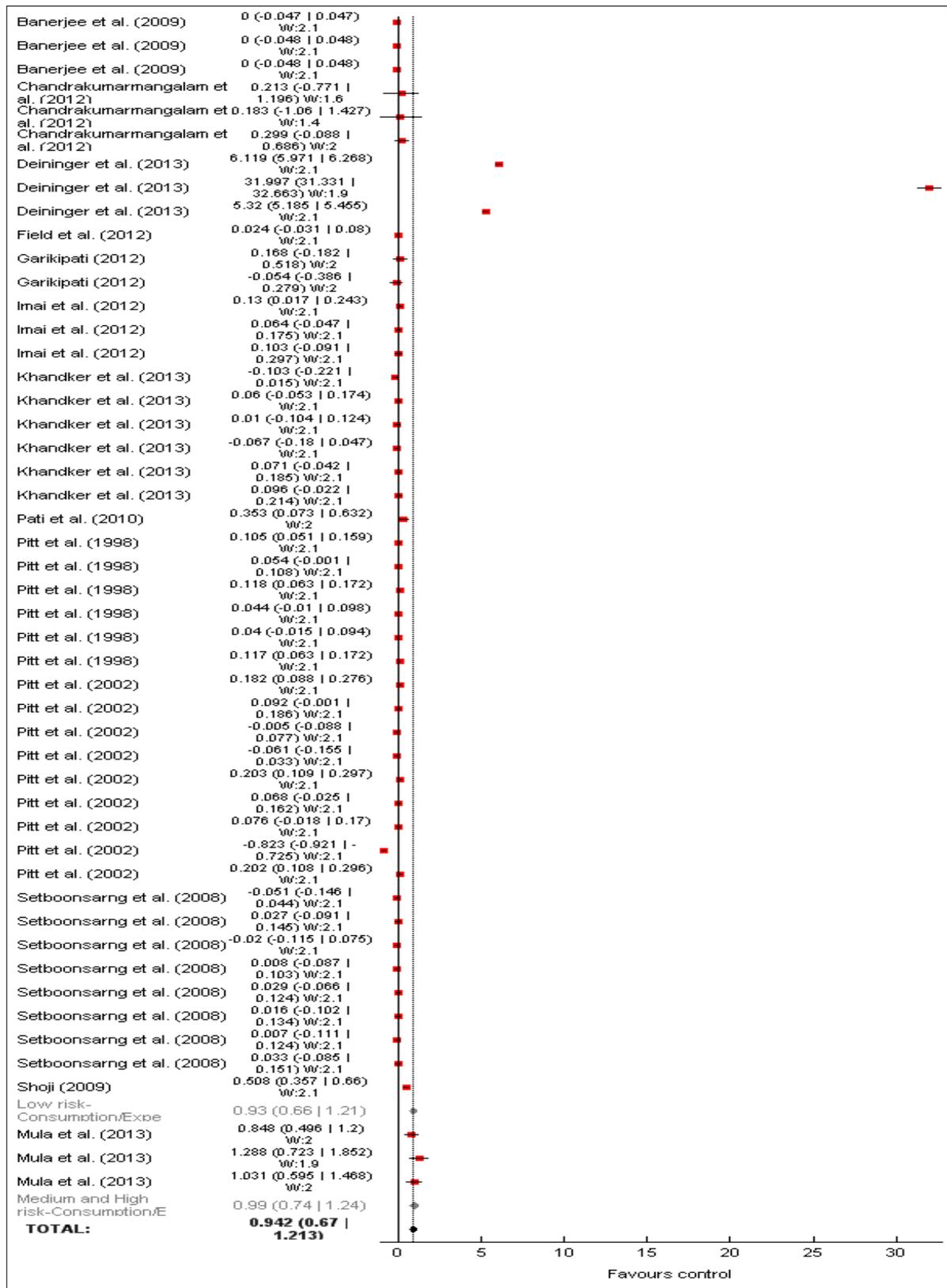
Table A20.3: Microfinance impact on consumption/expenditure based on risk of bias

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.047	0.047	2.1
Banerjee et al. (2009)	0	-0.048	0.048	2.1
Banerjee et al. (2009)	0	-0.048	0.048	2.1
Chandrakumarmangalam et al. (2012)	0.213	-0.771	1.196	1.6
Chandrakumarmangalam et al. (2012)	0.183	-1.06	1.427	1.4
Chandrakumarmangalam et al. (2012)	0.299	-0.088	0.686	2
Deininger et al. (2013)	6.119	5.971	6.268	2.1
Deininger et al. (2013)	31.997	31.331	32.663	1.9
Deininger et al. (2013)	5.32	5.185	5.455	2.1
Field et al. (2012)	0.024	-0.031	0.08	2.1
Garikipati (2012)	0.168	-0.182	0.518	2
Garikipati (2012)	-0.054	-0.386	0.279	2
Imai et al. (2012)	0.13	0.017	0.243	2.1
Imai et al. (2012)	0.064	-0.047	0.175	2.1
Imai et al. (2012)	0.103	-0.091	0.297	2.1
Khandker et al. (2013)	-0.103	-0.221	0.015	2.1
Khandker et al. (2013)	0.06	-0.053	0.174	2.1
Khandker et al. (2013)	0.01	-0.104	0.124	2.1
Khandker et al. (2013)	-0.067	-0.18	0.047	2.1
Khandker et al. (2013)	0.071	-0.042	0.185	2.1
Khandker et al. (2013)	0.096	-0.022	0.214	2.1
Pati et al. (2010)	0.353	0.073	0.632	2
Pitt et al. (1998)	0.105	0.051	0.159	2.1
Pitt et al. (1998)	0.054	-0.001	0.108	2.1
Pitt et al. (1998)	0.118	0.063	0.172	2.1
Pitt et al. (1998)	0.044	-0.01	0.098	2.1
Pitt et al. (1998)	0.04	-0.015	0.094	2.1
Pitt et al. (1998)	0.117	0.063	0.172	2.1
Pitt et al. (2002)	0.182	0.088	0.276	2.1
Pitt et al. (2002)	0.092	-0.001	0.186	2.1
Pitt et al. (2002)	-0.005	-0.088	0.077	2.1
Pitt et al. (2002)	-0.061	-0.155	0.033	2.1
Pitt et al. (2002)	0.203	0.109	0.297	2.1
Pitt et al. (2002)	0.068	-0.025	0.162	2.1
Pitt et al. (2002)	0.076	-0.018	0.17	2.1

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Pitt et al. (2002)	-0.823	0.921	-2.725	2.1
Pitt et al. (2002)	0.202	0.108	0.296	2.1
Setboonsarng et al. (2008)	-0.051	-0.146	0.044	2.1
Setboonsarng et al. (2008)	0.027	-0.091	0.145	2.1
Setboonsarng et al. (2008)	-0.02	-0.115	0.075	2.1
Setboonsarng et al. (2008)	0.008	-0.087	0.103	2.1
Setboonsarng et al. (2008)	0.029	-0.066	0.124	2.1
Setboonsarng et al. (2008)	0.016	-0.102	0.134	2.1
Setboonsarng et al. (2008)	0.007	-0.111	0.124	2.1
Setboonsarng et al. (2008)	0.033	-0.085	0.151	2.1
Shoji (2009)	0.508	0.357	0.66	2.1
Low-risk — Consumption	**0.93**	**0.66**	**1.21**	
Mula et al. (2013)	0.848	0.496	1.2	2
Mula et al. (2013)	1.288	0.723	1.852	1.9
Mula et al. (2013)	1.031	0.595	1.468	2
Medium- and high-risk — Consumption	**0.99**	**0.74**	**1.24**	
Total	**0.942**	**0.67**	**1.213**	
Panel B				
Random effect	0.942	0.67	1.21	
Differences	0.0554			
SE	0.19			
Z	0.291			
P	0.771			
Q* within	1.02E+03			
Q* between	0.0848			
Group-1 Q*	1.02E+03			
Group-2 Q*	1.72			

Figure A20.4: Forest plot of effects of employment in relation to risk of bias

Banerjee et al. (2009)	0 (-0.081 | 0.081) W:2.1	
Chandrakumarmangalam et al. (2012)	0.492 (0.211 | 0.774) W:1.1	
Desai et al. (2014)	0.098 (-0.001 | 0.198) W:2	
Garikipati (2012)	0.051 (-0.298 | 0.401) W:0.9	
Garikipati (2012)	-0.303 (-0.637 | 0.032) W:0.9	
Pitt et al. (1998)	-0.003 (-0.052 | 0.045) W:2.2	
Pitt et al. (1998)	-0.003 (-0.051 | 0.045) W:2.2	
Pitt et al. (1998)	-0.004 (-0.052 | 0.043) W:2.2	
Pitt et al. (1998)	-0.016 (-0.063 | 0.031) W:2.2	
Pitt et al. (1998)	-0.174 (-0.222 | -0.126) W:2.2	
Pitt et al. (1998)	-0.052 (-0.099 | -0.005) W:2.2	
Pitt et al. (1998)	-0.166 (-0.214 | 0.118) W:2.2	
Pitt et al. (1998)	-0.051 (-0.098 | 0.004) W:2.2	
Pitt et al. (1998)	0.004 (-0.044 | 0.052) W:2.2	
Pitt et al. (1998)	-0.145 (-0.193 | 0.097) W:2.2	
Pitt et al. (1998)	-0.061 (-0.108 | 0.014) W:2.2	
Pitt et al. (1998)	-0.013 (-0.06 | 0.035) W:2.2	
Pitt et al. (2002)	0.007 (-0.076 | 0.09) W:2.1	
Pitt et al. (2002)	-0.029 (-0.111 | 0.054) W:2.1	
Pitt et al. (2002)	-0.008 (-0.09 | 0.075) W:2.1	
Pitt et al. (2002)	-0.089 (-0.17 | -0.008) W:2.1	
Pitt et al. (2002)	-0.034 (-0.116 | 0.048) W:2.1	
Pitt et al. (2002)	0.091 (0.009 | 0.174) W:2.1	
Pitt et al. (2002)	-0.243 (-0.324 | 0.162) W:2.1	
Pitt et al. (2002)	-0.278 (-0.359 | 0.196) W:2.1	
Pitt et al. (2002)	-0.022 (-0.105 | 0.061) W:2.1	
Pitt et al. (2002)	-0.006 (-0.089 | 0.077) W:2.1	
Pitt et al. (2002)	-0.088 (-0.169 | 0.007) W:2.1	
Pitt et al. (2002)	-0.104 (-0.185 | 0.023) W:2.1	
Pitt et al. (2002)	0.066 (-0.018 | 0.15) W:2.1	
Pitt et al. (2002)	-0.291 (-0.373 | 0.21) W:2.1	
Pitt et al. (2002)	-0.034 (-0.116 | 0.048) W:2.1	
Pitt et al. (2002)	-0.093 (-0.176 | 0.009) W:2.1	
Setboonsarng et al. (2008)	-0.073 (-0.167 | 0.022) W:2.1	
Setboonsarng et al. (2008)	0.025 (-0.07 | 0.119) W:2.1	
Setboonsarng et al. (2008)	0.123 (0.005 | 0.241) W:1.9	
Setboonsarng et al. (2008)	-0.121 (-0.239 | 0.003) W:1.9	
Setboonsarng et al. (2008)	-0.096 (-0.191 | 0.001) W:2.1	
Setboonsarng et al. (2008)	0.061 (-0.033 | 0.156) W:2.1	
Setboonsarng et al. (2008)	-0.053 (-0.171 | 0.065) W:1.9	
Setboonsarng et al. (2008)	0.066 (-0.029 | 0.161) W:2.1	
Setboonsarng et al. (2008)	0.083 (-0.012 | 0.178) W:2.1	
Setboonsarng et al. (2008)	0.028 (-0.09 | 0.145) W:1.9	
Setboonsarng et al. (2008)	0.04 (-0.078 | 0.158) W:1.9	
Setboonsarng et al. (2008)	0.06 (-0.035 | 0.155) W:2.1	
Setboonsarng et al. (2008)	0.131 (0.036 | 0.226) W:2.1	
Setboonsarng et al. (2008)	0.158 (0.04 | 0.276) W:1.9	
Setboonsarng et al. (2008)	0.116 (-0.002 | 0.234) W:1.9	
Setboonsarng et al. (2008)	0.115 (-0.002 | 0.233) W:1.9	
Low risk-Employment	-0.03 (-0.05 | 0)	
Mula et al. (2013)	8.997 (7.365 | 10.629) W:0.1	
Mula et al. (2013)	5.28 (4.482 | 6.078) W:0.2	
Mula et al. (2013)	7.475 (6.306 | 8.645) W:0.1	
Medium and High risk-Employment	7.16 (5.01 | 9.31)	
TOTAL:	**0.007 (-0.035 | 0.049)**	

Favours control

Table A20.4 Microfinance impact on employment based on risk of bias

Panel A				
Study	SMD	95% Confidence Interval		% Weight
Banerjee et al. (2009)	0	-0.081	0.081	2.1
Chandrakumarmangalam et al. (2012)	0.492	0.211	0.774	1.1
Desai et al. (2014)	0.098	-0.001	0.198	2
Garikipati (2012)	0.051	-0.298	0.401	0.9
Garikipati (2012)	-0.303	-0.637	0.032	0.9
Pitt et al. (1998)	-0.003	-0.052	0.045	2.2
Pitt et al. (1998)	-0.003	-0.051	0.045	2.2
Pitt et al. (1998)	-0.004	-0.052	0.043	2.2
Pitt et al. (1998)	-0.016	-0.063	0.031	2.2
Pitt et al. (1998)	-0.174	-0.22	-0.126	2.2
Pitt et al. (1998)	-0.052	-0.099	-0.005	2.2
Pitt et al. (1998)	-0.166	-0.214	-0.118	2.2
Pitt et al. (1998)	-0.051	-0.098	-0.004	2.2
Pitt et al. (1998)	0.004	-0.044	0.052	2.2
Pitt et al. (1998)	-0.145	-0.193	-0.097	2.2
Pitt et al. (1998)	-0.061	-0.108	-0.014	2.2
Pitt et al. (1998)	-0.013	-0.06	0.035	2.2
Pitt et al. (2002)	0.007	-0.076	0.09	2.1
Pitt et al. (2002)	-0.029	-0.111	0.054	2.1
Pitt et al. (2002)	-0.008	-0.09	0.075	2.1
Pitt et al. (2002)	-0.089	-0.17	-0.008	2.1
Pitt et al. (2002)	-0.034	-0.116	0.048	2.1
Pitt et al. (2002)	0.091	0.009	0.174	2.1
Pitt et al. (2002)	-0.243	-0.324	-0.162	2.1
Pitt et al. (2002)	-0.278	-0.359	-0.196	2.1
Pitt et al. (2002)	-0.022	-0.105	0.061	2.1
Pitt et al. (2002)	-0.006	-0.089	0.077	2.1
Pitt et al. (2002)	-0.088	-0.169	-0.007	2.1
Pitt et al. (2002)	-0.104	-0.185	-0.023	2.1
Pitt et al. (2002)	0.066	-0.018	0.15	2.1
Pitt et al. (2002)	-0.291	-0.373	-0.21	2.1
Pitt et al. (2002)	-0.034	-0.116	0.048	2.1
Pitt et al. (2002)	-0.093	-0.176	-0.009	2.1
Setboonsarng et al. (2008)	-0.073	-0.167	0.022	2.1
Setboonsarng et al. (2008)	0.025	-0.07	0.119	2.1
Setboonsarng et al. (2008)	0.123	0.005	0.241	1.9
Setboonsarng et al. (2008)	-0.121	-0.329	0.003	1.9

Panel A				
Study	**SMD**	**95% Confidence Interval**		**% Weight**
Setboonsarng et al. (2008)	-0.096	-0.191	0.001	2.1
Setboonsarng et al. (2008)	0.061	-0.033	0.156	2.1
Setboonsarng et al. (2008)	-0.053	-0.171	0.065	1.9
Setboonsarng et al. (2008)	0.066	-0.029	0.161	2.1
Setboonsarng et al. (2008)	0.083	-0.012	0.178	2.1
Setboonsarng et al. (2008)	0.028	-0.09	0.145	1.9
Setboonsarng et al. (2008)	0.04	-0.078	0.158	1.9
Setboonsarng et al. (2008)	0.06	-0.035	0.155	2.1
Setboonsarng et al. (2008)	0.131	0.036	0.226	2.1
Setboonsarng et al. (2008)	0.158	0.04	0.276	1.9
Setboonsarng et al. (2008)	0.116	-0.002	0.234	1.9
Setboonsarng et al. (2008)	0.115	-0.002	0.233	1.9
Low-risk — Employment	**-0.03**	**-0.05**	**0**	
Mula et al. (2013)	8.997	7.365	10.629	0.1
Mula et al. (2013)	5.28	4.482	6.078	0.2
Mula et al. (2013)	7.475	6.306	8.645	0.1
Medium- and high-risk — Employment	**7.16**	**5.01**	**9.31**	
Total	**0.007**	**-0.035**	**0.049**	
Panel B				
Random effect	0.00673	-0.0353	0.0487	
Differences	7.19			
SE	1.1			
Z	6.56			
P	5.43E-11			
Q* within	65.5			
Q* between	43			
Group-1 Q*	63.5			
Group-2 Q*	1.94			

Study	Reported statistics	Formula
Augsburg B (2006) Bashar T and Rashid S (2012) Chandakumaramangalam S and Vetrivel SC (2012) Garikipati S (2012) Mahmud S (2003) Shoji M (2010)	Treatment group (n) and control group (n) and its mean and SD	$Sp = \sqrt{\left(\dfrac{(n_t - 1) * SD_t^2 + (n_c - 1) * SD_c^2}{n_t + n_c - 2}\right)}$
Field E, Pande R, Papp J, Park YJ (2012) Hussain AKAMG and Nargis N (2008) Nanda P (1999)	Treatment group (n) and control group (n) and its mean and SE	$Sp = \sqrt{\left(\dfrac{(n_t - 1) * SD_t^2 + (n_c - 1) * SD_c^2}{n_t + n_c - 2}\right)}$ $SE\,(SMD) = \sqrt{\dfrac{n_t + n_c}{n_t * n_c} + \dfrac{SMD^2}{2 * (n_t + n_c)}}$
Imai KS and Azam S (2012) Imai KS, Arun T, Annim SK (2010) Raza WA, Das NC, Misha FA (2012) Setboonsarng S and Parpiev Z (2008) Swain RB and Flora M (2012)	Match-based studies	$SMD = \dfrac{Yr - Yc}{Sp} + SE = \sqrt{\dfrac{n_t + n_c}{n_t * n_c} + \dfrac{SMD^2}{2 * (n_t + n_c)}}$ $SMD\ corrected = SMD\ uncorrected \times \left[1 - \dfrac{3}{4 \times (nt + nc - 2) - 1}\right]$ $SMD = \dfrac{Yt}{Yc}\ SE = Sp^2 \times \left(\dfrac{1}{n_t \times (Yt)^2} + \dfrac{1}{(nc \times (Yc)^2)}\right)$

Study	Reported statistics	Formula
Deininger K and Liu Y (2013) **Desai RM and Joshi S (2013)** **Khandker SR and Samad HA (2013)** **Kuchler A (2012)** **McKernan SM (2002)** **Mula G and Sarker SC (2013)** **Nilakantan R Datta SC,** **Sinha P, Datta SK (2013)** **Pati AP, Lyngdoh BF (2010)** **Pitt MM and Khandker SR (2002)** **Pitt MM, Khandker SR, McKernan SM, Latif MA (1999)** **Pitt M and Khandker SR (1998)**	Multivariate regression including DID, IV	$$\text{SMD} = \frac{\hat{\beta}}{\hat{\alpha}} \quad \text{SE} = \sqrt{\frac{\text{SMD}^2}{v-2}} \left\{ \frac{v}{t2} v \times [c(v)]\, 2 - v + 2 \right\}$$ $$RR = \frac{Yt + \beta}{Y_C} \quad SE = \sigma \times \left(\frac{1}{n_t \times (Y_C + \beta)^2} + \frac{1}{(n_c \times (Y_C)^2)} \right)$$ $$Sp = \sqrt{\left(\frac{(n_t - 1)*SD_t^2 + (n_c - 1)*SD_c^2}{n_t + n_c - 2} \right)}$$
Banerjee E, Duflo E, Glennerster R, Kinnan C (2009)	Treatment and control groups - Total N Control Mean and SD are reported. (Total N, Control Mean and SD only reported; Effect Size calculated under assumptions).	

WORKSHOP: IMPACT OF MICROFINANCE ON THE POOR IN SOUTH ASIA
IIT MADRAS, 11 FEBRUARY 2016

The workshop started with Professor M. Suresh Babu welcoming the participants, followed by a small briefing about the workshop. The Director of IIT Madras, Professor Bhaskar Ramamurthi, inaugurated the workshop, followed by remarks from the Heads of the Departments of Humanities and Social Sciences, and of Management.

Mr Anirban Ganguly from DFID, South Asia Research Hub New Delhi, spoke about the 'role of systematic review in shaping development policy'. He emphasised that there has been a push in systematic reviews to make the process of planning policies for development more transparent, in order to attain proper accountability. Systematic reviews could try eliminating some of the biases that emanate from inbuilt process of evaluation, and avoid duplication of new research in the event of questions on effectiveness of policy implementation. Filtering the global reviews on MF was a problem, and this was the motivation for the launch of some good regional systematic reviews on the impact of MF. According to Mr Ganguly, the broad picture of poverty alleviation and the investments that it involve is complex and, therefore, require detailed analysis. This has some relevance to the workshop, because the impact of MF on direct indicators, such as consumption, and its impact on indirect indicators, such as education and empowerment, does not seem to be divergent.

The next session was the presentation of the *Systematic review of quantitative evidence on the impact of microfinance on poverty in South Asia* by Professor G. Arun Kumar, Professor M. Suresh Babu and Professor Umakant Dash. The primary research question related to the impact of MF on poverty and the conditions under which MF will work for the poor. The presentation also touched upon some of the sub-questions, such as the linkages between types of interventions and benefits. The review also addressed the relationship between types of interventions, components of interventions, benefits, targets and circumstances.

In the presentation, the conceptual framework on the measurements of outcomes for this review were discussed. The broad outcomes were grouped into three categories:

1. Economic outcomes
2. Social outcomes
3. Women's empowerment.

The presentation covered the process of identifying the studies, followed by a detailed discussion of the inclusion and exclusion criteria and the quality-appraisal process. The presentation outlined how the reviewers critically examined the method of analysis, type of intervention, statistical significance and other relevant quantitative information. The next stage after the quality appraisal was assessing the risk of bias and classifying the studies as low-, medium- and high-risk-of-bias.

The synthesis using meta-analysis and narrative synthesis was carried out based on types of outcome. Most of the studies have found that the impact of MF on income, consumption/expenditure is positive. It was observed that consumption smoothing is driven by income smoothing and not by borrowing and lending. MF using micro-savings, has a significant impact on individual expenditure. The effect of consumption using micro-credit is significantly negative. The poorest of the poor benefited from participation to a greater degree than did other demographics.

An examination of the impact of MF on school education showed mixed results. Although some studies indicated that participation in micro-credit increased the incidence of child labour and reduced school enrolment, a few argued that participation in MF programmes impacted positively on girls' education. The impact of MF on poverty indicated positive effects, while some reported no impact. Access to MF leads to a reduction in poverty, particularly for female participants. The evidence indicated a reduction in vulnerability for participants who had participated in the programme for more than a year.

An examination of impact on employment indicated a quantum increase in female employment at village level, largely due to increases in non-farm employment. There is also evidence of increased male wages. It was also found that MF impacted women's empowerment, as it helped women to gain access to assets, increasing self-esteem, knowledge and (social and familial) power.

The next session comprised reflections on the report by Professor M.S. Sriram (IIM Bangalore), Professor Tara Nair (GIDR, Ahmedabad) and Dr V. Puhazhendhi (Development Consultant). His comments are below:

There is a certain amount of mixed results in the findings, mainly due to the nature of the sector. This is partly because MF is a public-policy-induced programme and the outcomes could be sensitive to the models and methods of intervention. Furthermore, an SHG-based public-policy-induced programme was converted to a market-induced programme by the MFIs, to suit their business model and objective of generating profits. This complicated the issue, as the development of credit markets for the poor is only nascent in South Asia. Hence, attempts to find directions of causation and untangling pathways becomes problematic.

The discussants highlighted the point that MF has not affected income generation, but has led to asset creation, possibly because of the highly liquidated nature of assets and under-reporting of income. It was also felt that MF does not have an impact on poverty until a suitable infrastructure is created. Initially, MF was not a poverty-alleviation programme and the focus was on SHG-linked savings, but, over the years, it became a poverty-alleviation programme in South Asia. Concluding the discussion, it was established that it is difficult to map out a clear-cut impact pathway, because looking for a unidirectional, definitional and extreme focus on the impact of MF at this point in time cannot be captured by quantitative studies.

In the following session, Mr Sandeep Moola from The Joanna Briggs Institute, University of Adelaide, Australia, briefed the workshop about the *Systematic review of qualitative evidence on the impact of microfinance in South Asia*. The study provided insights into the benefits afforded recipients and the impact of MF in terms of its outcomes for beneficiaries. It was reported that, in order for beneficiaries to have a positive experience, the support of family and community members was also required. Findings were predominantly related to the benefits derived in terms of financial and economic improvements, in the form of savings, security, planning for future costs and crisis, income contribution and investment in income-generation activities, asset repair and accumulation, lower interest rates and reduced reliance on money-lenders. There were also other benefits, from short-term stabilisation of family-consumption patterns, to long-term income-generating opportunities. Through MF programmes, beneficiaries could contribute to family income and income-generated assets, and the beneficiaries felt that they were more aware of the various options available to them. Apart from household assets, they also took out loans to improve water and sanitation facilities; the other important finding was that, due to MF, they relied less on money-lenders. MF improved their levels of self-esteem and self-respect. The study also observed that there were negative effects due to lack of family support. Debt repayment, failed investments, domination by and subjugation to other members

within MF programmes were also highlighted as issues. The other major finding was the issue of inflexibility in repayment.

Reflecting on the presentation, Dr K. Kalpana of IIT Madras questioned whether, when the benefits were listed, each benefit had the same weightage. She indicated that some of the variables had been impacted differently, because of the models of MF delivery involved. Ms Vaishnavi Prathap of IFMR Finance Foundation, Chennai, stated that there is a lot of potential to bring out the non-financial outcomes. Local context has more weightage for policy-makers. Heterogeneity exists, because there is either inequality of access, or not everyone is able to use credit in the same way.

The concluding session was a panel discussion on 'making microfinance work for the poor'. The session was moderated by Mr Ganguly, who highlighted the need for a far-sighted vision of MF. According to Mr Ganguly, such a vision could emerge from taking stock of the current models of intervention, and a clear understanding of data and variables required to assess the current interventions. The challenge of moving to a market-based model in terms of reach, sustainability and welfare effects was highlighted. The panellists commented on the effectiveness of the current models of MF in terms of poverty reduction as the poorest of the poor are still left out. They also stressed the need to have an urban focus in South Asia, as urbanisation and urban poverty are on the rise. The question of sustainability assumed relevance, as market-based models can succeed under conditions of continued enhanced returns, whereas the development model, which is based on SHG, focuses on upliftment of the poor. It emerged from the floor discussions that MF in South Asia has reached a point where new versions have to be introduced to cope with the emerging challenges. Further studies of MF emphasising qualitative evidence, which would not be captured through straightforward data-collection mechanisms, must be encouraged to capture the changing character of MF in the region.