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Myrto Chliova  
_ESADE Business School, Ramon Llull University, myrto.chliova@esade.edu_

Jan Brinckmann  
_ESADE Business School, Ramon Llull University_

Nina Rosenbusch  
_Wilfrid Laurier University_

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IS MICROCREDIT A BLESSING FOR THE POOR?
A META-ANALYSIS

Myrto Chliova, ESADE Business School, Ramon Llull University, Spain
Jan Brinckmann, ESADE Business School, Ramon Llull University, Spain
Nina Rosenbusch, Wilfrid Laurier University, Canada

ABSTRACT

Increasing efforts aim at economic development and the reduction of poverty through microcredit-enabled entrepreneurship in developing countries. Especially with the award of the Nobel Peace Prize to Prof. Yunus, microcredit lending has risen to prominence and the volume of microcredit loans has increased substantially. However, theory on this financing form is controversial. Further, the academic community lacks conclusive evidence about the impact of such programs. Primary empirical studies report fragmented and to a large extent contradictory results. In this meta-analysis, we empirically synthesize a total of 637 quantitative empirical findings from 97 studies conducted to date to depict whether and how microcredit financing impacts entrepreneurs' financial well-being and human development. With our findings we contribute to research on the nexus of entrepreneurship in the informal economy and economic development, and offer recommendations for practitioners and academics working on this promising and ambitious frontier.

INTRODUCTION

“If we are looking for one single action which will enable the poor to overcome their poverty, I would go for credit. [...] If we can come up with a system which allows everybody access to credit while ensuring excellent repayment - I can give you a guarantee that poverty will not last long.”
Mohammed Yunus (1994)

While much entrepreneurship research is dedicated to entrepreneurs in developed countries, oftentimes with a focus on high-potential technology entrepreneurs and VC-backed startups, little is known about approaches to foster low technology, often subsistence-directed, entrepreneurial activity of poor individuals in less developed countries. Although these people represent a large part of the world’s population and their challenges for development are apparent, we still lack an understanding of key instruments that benefit the individuals in these largely informal economies.

Economists and entrepreneurship scholars have identified access and deployment of financial resources as an essential element for increasing wealth (Guiso, Sapienza, & Zingales, 2004; King & Levine, 1993; Schumpeter, 1934). Yet, information asymmetries increase agency costs in credit markets, especially so for small firms or individuals (Amit, Brander, & Zott, 1998; Binks & Ennew, 1996). In developed markets this problem is solved through setting higher interest rates, requiring collateral, developing a close working relationship with the borrowers (Binks & Ennew, 1996), or through the provision of equity by informed venture capitalists (Amit et al., 1998). For the low income segments in developing markets, however, the low amounts of credit demanded,
the lack of collateral and a traceable credit history combined with ill-defined property rights lead to an imperfect credit market that constrains access to credit (Ghatak, 1999; Parker & Van Praag, 2006; Webb, Bruton, Tihanyi, & Ireland, in press). In order to address credit constrains and enable economic activities and development, microcredit (MC) has been proposed as an effective tool (Maes & Reed, 2012; Yunus, 1998). MC schemes refer to “the issuance of small, unsecured loans to individuals or groups for the purpose of starting or expanding businesses” (Khavul, 2010, p. 58). These schemes employ mechanisms of group lending and group joint liability to ensure that the agency costs of lending are mitigated, especially when physical collateral or credit information on the borrowers are unavailable (Ghatak, 1999; Yunus, 1998). According to data collected by the Microfinance Information Exchange more than 3,600 MC providers had reached over 205 million borrowers as of 2010 (Maes & Reed, 2012). However, the expansion of the MC industry and high loan repayment ratios have not overcome doubts regarding the actual impact of these credits for the client entrepreneurs (Hermes & Lensink, 2011; Morduch, 1999).

In order to address the controversy in the theoretical domain, the academic community developed a proliferating body of empirical studies investigating the effects of MCs on the credit-taking individuals. Surprisingly, while some studies present positive results of MC (Khandker, 2005; Khandker, Samad, & Khan, 1998; McKernan, 2002), several other studies have reported modest, or even a negative impact of MC on financial outcomes (Banerjee, Duflo, Glennerster, & Kinnan, 2009; Coleman, 1999; Stewart, Rooyen, Dickson, Majoro, & Wet, 2010). Overall, the current lack of conclusive evidence in this body of literature (Hermes & Lensink, 2011; Khavul, Chavez, & Bruton, 2012) raises questions about the capacity of MC to improve the financial standing of enterprising individuals. Our main aim in this study is to evaluate the financial and non-financial consequences of MC for the enterprising individuals following an evidence-based research approach.

Our central contribution lies in scrutinizing whether MC is an adequate means to provide financial resources for enterprising individuals in a context where other credit instruments are generally not available. Hence, we can depict whether the characteristics of MC are beneficial for the credit-taking individuals. A second contribution relates to the multidimensional analysis of consequences of MC. Management and entrepreneurship research frequently focuses exclusively on the financial outcomes of an individual’s behavior. However, research on the goals of entrepreneurs reveals that a variety of benefits and outcomes are important for the individuals beyond pure financial returns (Fauchart & Gruber, 2011; Gimeno, Folta, Cooper, & Woo, 1997; Miller, Grimes, McMullen, & Vogus, 2012; Peredo & Chrisman, 2006). Hence, extending financial theory, we analyze whether MC provides benefits to the individuals that go beyond financial returns. Since quantitative evidence of consequences of MC typically analyzes both financial and non-financial outcomes (Hermes & Lensink, 2011), we see a unique opportunity to depict the more complete consequences of the use of a specific financial instrument. We hope that our findings encourage entrepreneurship researchers to develop a more complex understanding of consequences and performance outcomes of individual behavior (Rauch, Wiklund, Lumpkin, & Frese, 2009). A third contribution relates to the unique context of our analysis. Much of the prior finance literature focuses on the provision of financial capital to individuals and firms in contexts where formal institutions are well established and property rights are being enforced (North, 1990). MC focuses on the poor, who generally operate in the informal economy, which is characterized by low or inexistent property rights and contract enforcement, by a lack of reliable institutions, and by economic exchanges based on social relationships which substitute formal market arrangements (Mair, Marti, & Ventresca, 2012; McMullen, 2011; Webb, Tihanyi, Ireland, & Sirmon, 2009). With our research we can therefore provide unique evidence regarding the consequences of obtaining and using a specific credit instrument in such environments.
Credit in Formal and Informal Markets

Decades after Schumpeter (1934) linked entrepreneurship with economic development, the promotion of entrepreneurship has gained renewed popularity as a solution for poverty alleviation in the context of less developed countries. Scholars and policy makers alike agree that entrepreneurship is crucial for economic development (Baumol, 2002; Schumpeter, 1934). Developing countries are thus particularly interested in creating wealth and reducing poverty through entrepreneurship. However, to pursue economic activities and create wealth, entrepreneurs need access to credit (Guiso et al., 2004; King & Levine, 1993; Schumpeter, 1934). In the case of entrepreneurial activity whereby the entrepreneur needs to turn to external sources of funding, important agency costs result due to the information asymmetries between lenders and borrowers (Amit et al., 1998; Binks & Ennew, 1996; Cassar, 2004). The entrepreneurs typically have more information about the value of their endeavors than their financiers and can use this information to their advantage, creating a problem of “adverse selection.” Additionally, the inability of financiers to closely monitor all activities of the entrepreneurs can result in “moral hazard” concerns, if the entrepreneurs do not act in good faith (Amit et al., 1998). Both of these agency costs increase the risk for the lenders, making lending potentially unprofitable.

In developed markets, these agency costs are mitigated through the requirement of a collateral, and through a close working relationship between the lender and the borrower (Amit et al., 1998; Binks & Ennew, 1996). In developing markets, however, these limitations persist. Poor entrepreneurs typically need tiny loan amounts and lack collateral (Ghatak, 1999), while property rights and formal accounting practices are frequently not established and enforced (North, 1990; J. Webb et al., in press). In the absence of formal funding opportunities many (nascent) entrepreneurs in developing countries turn to friends and family, as well as informal moneylenders for credit provision (Collins, 2009). However, such funding sources may be limited due to the prevailing poverty amongst large parts of the population. Furthermore, to mitigate the high risks of loan default, lenders will generally demand high interest rates (Cassar, 2004). MC providers have re-designed the lending process to reduce these agency costs through the use of group lending and joint liability, which relies on “social collateral” to substitute for lack of physical collateral (Yunus, 1998). MC schemes seem to be successful from the issuing institutions’ perspective. For example, Grameen foundation, the most well-known MC scheme reports high repayment rates between 95 and 98% (Grameen). However, the evidence regarding whether entrepreneurs benefit from MC is less conclusive (Hermes & Len-sink, 2011; Khavul et al., 2012).

Microcredit and Financial Well-Being

Proponents of MC have advocated its use for improving the financial well-being of the poor by providing them the funds needed to start or grow their formal or informal businesses. Financial capital is important for entrepreneurs as it increases success chances of their businesses for several reasons. First, nascent entrepreneurs in developing countries, generally do not often have the op-
portunity to save money that can be used to start a business due to far spread subsistence activities, high unemployment rates and low wages. Hence, they are not able to use their own funds to cover initial startup costs. Because other potential lenders are either not willing to serve this group of customers (Khavul et al., 2012) or they charge high interest rates (Yunus, 1998), MC institutions are often the only source of viable funding. Further, financial capital determines the strategies an entrepreneur can pursue with the business and, therefore, how the business will develop in the future (Cooper, Gimeno-Gascon, & Woo, 1994). As more funds are available, these can be used to address cash-flow limitations and finance projects that promise positive returns and facilitate growth. Lastly, research has shown that financial and human capital are substitutes (Chandler & Hanks, 1998). Hence, financial capital can at least partially compensate for a lack of human capital which is needed to run a business successfully (Unger, Rauch, Frese, & Rosenbusch, 2011). Access to loans provided by banks is limited when entrepreneurs do not show a high degree of human capital (Parker & Van Praag, 2006) such that entrepreneurs with low human capital may have to rely on other sources of finance to start and develop their businesses. In developing countries, higher education is often accessible only to wealthy elite. Poor members of the society have limited chances to develop a stock of human capital, which creates a problem when starting a business. Financial capital can not only compensate for this lack of human capital to some extent; it also gives entrepreneurs opportunities to develop their human capital or acquire human capital in the market (Cooper et al., 1994). In addition, MC providers often offer advice and training for entrepreneurs (Karlan & Valdivia, 2011), which may also help them to improve their businesses’ performance.

Previous empirical research has shown that financial capital improves the growth and competitiveness of entrepreneurial businesses in developed countries (Guiso et al., 2004; King & Levine, 1993). Conversely, credit constraints decrease the profitability of businesses (Parker & Van Praag, 2006). Although previous empirical research on the performance effects of MC in less developed countries is less conclusive (Bruton, Khavul, & Chavez, 2011; Khavul, 2010), the above-mentioned theoretical arguments point to a positive effect. Hence, we propose:

**H1: Microcredit has a positive impact on the development of the funded businesses.**

Proponents of MC have maintained that it strengthens the capacity of entrepreneurs to make small-scale investments in productive assets. These investments in turn increase the returns from the entrepreneurs’ businesses and ultimately their income, spending and general socio-economic status (Stewart et al., 2010; Woller, 2004). Due to several reasons such as economic instabilities and a limited access to education, people in developing countries often cannot find permanent employment. Hence, their income is low and unstable. Entrepreneurship enabled by MC provides new sources of income for these individuals. Provided that the started business is successful, entrepreneurs should be able to increase their income. Their increased financial well-being will in consequence also reflect in higher personal consumption and expenditures. We posit that:

**H2: Microcredit has a positive impact on the personal financial well-being of clients.**

**Microcredit and Non-Financial Well-Being**

Entrepreneurship research has documented that non-financial outcomes are frequently of major importance to entrepreneurs (e.g., Fauchart & Gruber, 2011; Gimeno et al., 1997; Miller et al., 2012). While there is relatively little research on the motivations and needs of poor entrepreneurs
in developing countries, they have been reported to value non-financial outcomes such as health, education for their children (Collins, 2009) or the chance to acquire a higher status in their communities (Sanyal, 2009). In the following we discuss the effect of MC on different non-financial outcome dimensions that have been suggested in previous studies.

**Impact on Health and Nutrition**

One of the main non-financial outcomes expected by MC proponents is an improvement of the health and nutrition of client entrepreneurs. This effect can be attributed to the higher income generated by the productive activities of the entrepreneurs (Yunus, 1998), as well as by the immediate availability of funds from microloans that can be allocated to pressing needs when these arise unexpectedly (Collins, 2009). Thus, funds provided by MC institutions can either directly or indirectly - via newly generated income through entrepreneurial activities - improve the health and nutrition of client entrepreneurs and their families. Hence, the provision of MC should have a positive effect on the health and nutrition of client entrepreneurs and their families. We put forth:

H3: Microcredit has a positive effect on the health of client entrepreneurs and their families.

**Impact on Education of Children**

An additional non-financial impact of MC might be an improvement on the education of the clients’ children (Yunus, 1998). However, this relationship is controversial, as participation in MC programs can have both positive and negative effects on the decision to send children to school. The resulting impact might depend on the allocation of resources in a household (Holvoet, 2004). Following prior arguments, MC has a positive effect on the households’ financial budgets, in particular if the business is successful. On the one hand, this could enable parents to send their children to school, as access to schooling is often relatively costly in developing countries considering both direct costs (tuition, material, school uniforms etc.) and indirect opportunity costs (children could spend their time working and contributing to the families’ income). An increase in the families’ financial budget could compensate for these costs and increase their willingness and ability to send their children to school. On the other hand, opening or expanding a microenterprise could also prevent parents from sending their children to school. Children at the base of the economic pyramid frequently have to work to support their parents in their entrepreneurial and work endeavors (Collins, 2009). Parents starting a business might decide to keep children out of school so that children can help them with household chores or with the enterprise itself, as increased entrepreneurial activity places increased labor demands on the entrepreneur’s family (Morduch, 1999; Wydick, 1999). In sum, theory suggests opposing directions for the effect of MC on education. In order to explore the effects, we put forth competing hypotheses:

H4a: Microcredit has a positive effect on the education of client entrepreneurs’ children.

H4b: Microcredit has a negative effect on the education of client entrepreneurs’ children.

**Impact on Women’s Empowerment**

The empowerment of women has been debated extensively in discussions of MC and its outcomes. Empowerment can be defined as “women’s capacity to increase self-reliance, their right to determine choices, and their ability to influence the direction of change by gaining control over material and nonmaterial resources” (Sanyal, 2009, p. 530). Women’s empowerment is particularly
relevant in the cultural context where MC was originally developed. In Bangladesh for example, serious voids exist in women’s autonomy and rights, which in turn constrain their involvement in entrepreneurship and more broadly in the labor market, limiting their mobility outside the confines of their houses (Mair et al., 2012). The MC provision is in the vast majority of cases directed towards female clients which enables them to have a greater control of resources, ownership and operation of enterprises, as well as a greater contribution towards their household’s income (Woller, 2004). This increases women’s empowerment. For instance, Hashemi et al. (1996) find that participation in MC enables the female clients to negotiate gender barriers more effectively, develop an identity, gain experience and confidence in the public sphere. The authors further find that women’s mobility outside the house, their ability to make decisions and their understanding of legal and political issues increases. However, the validity of such assertions is uncertain (Khavul, 2010, p. 66). To analyze the relevance of MC for women’s empowerment we put forth:

\[H5: \text{Microcredit has a positive effect on the empowerment of client entrepreneurs.}\]

**Social Capital**

Social capital has been recognized as a key variable that positively impacts individuals, organizations, as well as societies at large (Burt, 1995; Granovetter, 1973; Putnam, 2001). Its importance can be equally crucial to issues of economic development, although it is frequently overlooked in development efforts (Woolcock, 1998). Policies promoting local entrepreneurship and the development of entrepreneurial capacity among excluded populations are expected to significantly contribute to their successful inclusion into economic activity (Hall, Matos, Sheehan, & Silvestre, 2012). MC is strategically poised to affect social capital creation. Sanyal (2009) observed how the economic exchanges and the participation in MC groups creates new social capital as a by-product. The scholar observes that the main motivation for group participation and group meeting attendance was an economic motive. The repeated interaction, however, in consequence led to the creation of a group network. Participants have been reported to coordinate to protect their rights and to sanction inappropriate behavior in their community (Pronyk et al., 2008; Sanyal, 2009). We thus posit:

\[H6: \text{Microcredit has a positive effect on social capital among groups of client entrepreneurs.}\]

**METHODS**

In the past few decades, a substantial amount of quantitative research has been conducted on individual MC programs and their outcomes, but consensus is lacking on the conclusions to be drawn from this extant literature. In a situation like this, meta-analysis can advance the field by synthesizing the extant literature in a quantitative manner, so that comprehensible and generalizable conclusions can be drawn (Geyskens, Krishnan, Steenkamp, & Cunha, 2009; Lipsey & Wilson, 2001).
of the following: “microfinance”, “micro-finance”, “microcredit”, “micro-credit”, “microloans”, “micro-loans”, “microenterprise”, “micro-enterprise”, “microdebt”, “empirical” and “quantitative”, and searched the databases in the fields of title, abstract and article keywords. We also manually searched a number of respected management and entrepreneurship journals (“Academy of Management Journal”, “Administrative Science Quarterly”, “Strategic Management Journal”, “Journal of Business Venturing”, “Entrepreneurship Theory & Practice” and “Strategic Entrepreneurship Journal”) using the same keywords. Finally, we reviewed studies from the reference sections of studies that had already been identified as relevant through the initial database search, as well as from reference sections of qualitative reviews on MC (Duvendack & Palmer-Jones, 2011; Goldberg, 2005; Morduch & Haley, 2002; Stewart et al., 2010; Woller, 2004). We employed a number of inclusion criteria in order to make use of the maximum number of studies, while retaining conceptual and analytical clarity on the specific relationships studied. We thus only included studies if they: a) consider microcredit programs, not pure micro-savings or micro-insurance programs, b) study the direct provision of credit to poor people, not support to secure funding from other sources and c) consider the actual participation and reception of loans by MC clients, not the “intention to treat” the person, which signals eligibility to become a client in the future (Banerjee et al., 2009). Unfortunately, a number of studies, even though quantitative, do not report the necessary bivariate statistics. We contacted authors of studies that did not report the corresponding measurements, and when they have provided them (in 6.8% of cases), the respective studies were included in our meta-analysis. The final population of studies coded is k=100. The list of studies is available upon request by the authors.

**Dependent and Independent Variables**

The outcomes of MC are measured in a variety of ways in the literature. Based on prior theorizing, we were particularly interested in measures that represented the following categories of outcomes: business development, financial well-being, health, education of children, empowerment of women and social capital. A common problem in MC research is that the exact proxies used for measurement vary greatly (Woller, 2004). This is mainly the result of difficulties of measuring conceptually refined variables in the context of the informal economy, where official records, as well as clear boundaries between the household and the microenterprise are lacking. We included four different operationalizations of financial well-being: assets, expenditures, income and poverty classification of the household. Measures of business development include profits, sales, productivity, production outcomes, assets bought for productive purposes, as well as improvements in business practices. Furthermore, we decided to combine measure of health with measures of nutrition. The frequencies and examples of operationalizations of each dependent variable are available upon request from the authors. The independent variable is in most cases dichotomous participation (or not) in MC programs, where participation entails reception of at least one loan. We have also included continuous operationalizations of participation in MC programs, measured as time of participation since reception of the loan.

**Data Analysis**

In a first stage, we extracted the corresponding effect sizes from each study for each dependent variable. We coded the Pearson's product-moment $r$ correlation reported in studies, or any other bivariate measurement that can be converted to $r$ (Lipsey & Wilson, 2001). Several studies were more inclined to report the exact statistics only when relationships exhibited statistical significance. In these cases, excluding the non-significant effect sizes entirely might lead to results being...
biased upwards. We therefore considered t-value=0, when an effect size was reported as insignificant but its specific p-value had not been reported (9.3% of effect sizes). When more than one sample was used in the same study, we coded the effect sizes of each sample separately. Inversely, in certain cases more than one study reported effect sizes taken from a common sample. If the overlapping studies were reporting the same types of relationships, effect sizes were taken from only one of the studies. If they were reporting different relationships, then effects were coded for all the relationships present, and the sample – not the study – was considered the unit of analysis.

Once effect sizes had been coded, corrections were made for “artifacts” in measurements in the primary studies that can create systematic sources of variance and artificially distort findings (Geyskens et al., 2009; Hunter & Schmidt, 2004). Specifically, we corrected for artificial dichotomization of the dependent variable (Hunter & Schmidt, 2004). Our independent variable, however, is naturally dichotomized; therefore we did not correct it for dichotomization. We decided not to correct for reliability of the independent and dependent variables (Hunter & Schmidt, 2004), as the majority of our effect sizes are based on objective measurements and do not report Cronbach’s a. After applying the corrections for the artifact of dichotomization, effect sizes were averaged out so that only one effect size is provided by each study for each relationship studied (Geyskens et al., 2009). To combine the findings from the selected studies we have followed the Hedges & Olkin methodology (Hedges, Olkin, & Statistiker, 1985) and used the CMA meta-analysis software (Borenstein, Hedges, Higgins, & Rothstein, 2009).

Robustness checks were employed including absence of artifact corrections, different artifact corrections, exclusion of outliers and potential biases due to studies’ methodology. The only robustness check that raised concerns regarded the presence of outliers. As outliers we considered the few averaged effect sizes (j = 6 out of 643) that deviated more than 3 standard deviations from the average of the effect sizes reported. The removal of outliers produces more moderate averaged effect sizes, especially in the dependent variables of health and nutrition, and of education; however, due to the limited number of outliers and their extreme values we consider their removal justified. After the combination of studies using the same sample, and the removal of outliers, the final set of effect sizes used are 637, derived from 97 studies. Detailed reports of the results of the robustness checks are available upon request by the authors.

**Results**

We tested our hypothesized relationships using random effects models, since random effects models provide more conservative and realistic estimations than fixed effects models (Geyskens et al., 2009). Table 1 summarizes the results of the meta-analysis, reporting the average weighted effect size for each relationship, as well as the respective confidence interval and statistical significance level of each effect size.

The results suggest that MC has an impact on our dependent variables, albeit with different intensities on each one. The effect of MC on business development of funded microenterprises is statistically significant (r = .12, p < .01), providing support for hypothesis 1. Interestingly, the effect of MC on financial well-being of entrepreneurs is greater and statistically significant (r = .16, p < .01). Thus hypothesis 2 is supported. Looking at the non-financial outcomes of MC, the effect on health and nutrition of the clients and their families is statistically significant (r = .08, p < .01)
as well as the effect on education ($r = .05, p < .01$). Thus, hypotheses 3 and 4a are supported, while hypothesis 4b is not. MC has a much greater impact on empowerment ($r = .18, p < .01$), providing support for H5. Finally, the impact on social capital is somewhat smaller in magnitude, but significant ($r = .15, p < .05$), thus hypothesis 6 is supported.

**Discussion**

Our meta-analysis sheds light on the multiple outcomes that can be affected by the provision of MC. MC appears to have a positive effect on a number of indicators, alleviating concerns that it might be harmful instead of beneficial for poor people. However, our results indicate that the overall expected effects are small in terms of magnitude. Benefits arise especially regarding outcomes such as women’s empowerment, financial well-being and social capital; however, claims of a transformative impact should be treated with caution as effects of MC on outcomes such as health and nutrition and children’s education are relatively small.

**Theoretical Implications**

MC’s positive effect on business development of funded enterprises shows that there is some basis for the alleged process of economic development through the provision of credit. Financial constraints are one of the bottlenecks for successful entrepreneurship both in developed (Baumol, 2002; Schumpeter, 1934) and in developing countries (Bruton et al., 2011). Before the advent of MC, formal lenders were reluctant to consider poorer entrepreneurs as credit-worthy and reliable. MC instruments were created to address this financing gap. Moreover, MC has increased competition between formal and informal lenders, driving interest rates down (Khavul et al., 2012; Miller et al., 2012). Entrepreneurs at the bottom of the financial pyramid are given additional resources, such as increased access to credit, training programs in bookkeeping and enterprise management, as well as the possibility to gradually build lump sums and savings (Collins, 2009). The increased financial and human capital resources are then likely to boost the overall level of development of the clients’ microenterprises (Cooper et al., 1994; Parker & Van Praag, 2006; Unger et al., 2011). Our results lend credibility to these relationships. However, the relatively low intensity of this effect suggests the positive relationship might be at least partly offset by negative effects or zero-effects. The assertion that each person can be an entrepreneur (Yunus, 1998) might therefore be overly optimistic.

Financial well-being of the clients and their families is another outcome of MC provision that our findings corroborate. The effect is interestingly stronger than MC’s effect on business development. We interpret this finding as indicating that, beyond credit’s indirect effect on wealth creation through entrepreneurship, a direct relationship is also potentially present. Multiple studies have suggested that credit is in great demand in informal markets irrespective of entrepreneurial endeavors (Hulme, 2000; Morduch & Haley, 2002; Woller, 2004). Credit can help smooth consumption for clients and their families (Armendariz & Morduch, 2007), as the poor face great variability in their income throughout the year. Additionally, it can provide the clients with a reliable means of saving and making important investments for the family, even if these investments are not related to production purposes (Collins, 2009). A direct effect of MC on the financial well-being of households should therefore be included in relevant models and disentangled from the effect that is mediated by entrepreneurial activity.
Our results further highlight the importance of acknowledging and researching the non-financial benefits of MC as a pillar of entrepreneurship. The detected effect of MC on non-financial indicators supports the notion that entrepreneurs channel gains from their ventures towards non-financial goals that lead to greater welfare for them and their families (Gimeno et al., 1997; Rindova, Barry, & Ketchen, 2009). Our findings support proponents’ claims for potential beneficial effects on health and nutritional outcomes and on educational outcomes for their children to a certain extent. Regarding the impact on education, our results weaken concerns over a potentially damaging overall effect of micro-credit on children’s education (Morduch, 1999; Wydick, 1999), due to the expansion of the parents’ entrepreneurial ventures that can increase labor demands on children. However, further research might be necessary to shed light into the specific conditions under which MC is more (or less) appropriate for improving education.

Our findings furthermore highlight the substantial positive side-effects that MC can produce in the form of increased empowerment of women and increased social capital. While MC might not change suppressive structures that prevent women from engaging in economic activity (Goetz & Gupta, 1996; Rahman, 1999), participation in these programs assigns them responsibilities and rights, and physically assembles them in common spaces (Mair et al., 2012). Thus, repeated interactions ultimately likely convey more power to women and can facilitate the joint pursuit of common causes (Sanyal, 2009). This effect can create a virtuous cycle, as a greater number of empowered women have the opportunity to engage in entrepreneurship and more generally market activity, and through these become further respected and empowered.

Managerial Implications

A host of managerial and policy implications flow from our findings. Our findings suggest that MC has a positive impact on the financial and non-financial outcomes of poor populations in informal economies. Thus, MC can be considered an overall positive instrument. However, given that its effects are moderate, proponents should be more cautious and avoid overly enthusiastic claims regarding its potential. As Morduch (1999, p. 1609) foresaw, “the promise of microfinance should be kept into context.” From a policy point of view, the impact of credit for the economic and human capital development of poor people should best be evaluated in comparison to alternative interventions, and not in absolute numbers. For instance, the overall effectiveness of development aid programs has been estimated through meta-analysis to be close to zero (Doucouliagos & Paldam, 2008). In comparison, even programs with small expected effectiveness would be preferable. However, when deciding if a particular program is desirable for a specific context, global estimates should be complemented with context-specific insights (Whittington, Jeuland, Barker, & Yuen, 2012).

Our findings are also in accordance with previous research highlighting the different impact of MC on business development outcomes versus on direct improvements of the financial well-being of clients. Rhetoric on MC has obscured to a big extent the phenomenon of MC being used for entrepreneurial endeavors by a small group of clients, while the rest use it as a financial management tool. As Stewart et al. (2010, p. 6), point out “There may be a need to focus more specifically on providing loans to entrepreneurs, rather than treating everyone as a potential entrepreneur.” Yet, as other literature points out there is demand for credit as a financial tool, even though MC providers generally avoid providing credit that is not formally attributable to a business purpose (Collins, 2009). We propose that MC providers should acknowledge this reality, and cater to both segments.
with tailored services. Loans destined for business purposes need to be monitored more strictly and be contingent on the entrepreneurs' needs; loans for consumption and income smoothing, as well as other financial services such as microsavings and microinsurance, can be offered without the pretext of business activity, and structured according to the respective household needs.

In terms of non-financial outcomes, policymakers should be aware that MC appears to have beneficial effects on a number of outcomes. However, due to the relatively low magnitude of the detected effects, we would caution against using MC as the primary solution for affecting non-financial outcomes, especially in the fields of health and education, as effects are small. As with financial outcomes, a comparison of the effect of MC with that of traditional health and education interventions should form the basis for decision-making on appropriate programs. MC appears more promising for fostering empowerment and social capital. In traditional patriarchal societies where women have limited voice, MC might have a larger impact on empowerment (Mair et al., 2012; Sanyal, 2009). This is an important finding that lends credibility to the practice of MC providers to emphasize women entrepreneurs as MC recipients. As both practitioners and academics have pointed out, women are more likely to invest the credit in productive endeavors, and to distribute the earnings generated towards the well-being of their entire families (Armendariz & Morduch, 2007). Our study complements the view that for the greater part women are expected to benefit from MC involvement. Especially in traditional societies where their mobility and market participation are extremely constrained, the activities they engage in due to MC have the potential to improve their status in their families and communities (Sanyal, 2009). Similarly, MC schemes are likely to positively impact the formation of social ties as a by-product of clients' organization and interaction within MC groups. Even if the main factor attracting entrepreneurs into these groups is the financial gain, the frequent interaction between members can gradually build weak and strong ties, and create new avenues for social support and synergies (Sanyal, 2009).

LIMITATIONS, FUTURE DIRECTIONS AND CONCLUSION

Several limitations are present in the primary studies on MC. Thus, findings of meta-analysis should be considered in light of these limitations. These limitations mainly result from the challenging context of informal markets, where transactions are usually minuscule and rarely reported in written form, while funds are used interchangeably for multiple purposes (Portes & Haller, 2005). First, a key constraint in relevant research is the lack of a clear theoretical model (Hermes & Lensink, 2007) that distinguishes the direct and indirect effects present, and the temporal stages of the impact of credit on different dependent variables. The possible interrelationships between the financial and non-financial outcomes of MC are also oftentimes overlooked. Hence, questions arise regarding whether these outcomes are complementary in nature or are trade-offs. A second limitation that affects the findings of meta-analyses is the frequent lack of precision in the measurements used in primary studies (Hermes & Lensink, 2007). A great variety of measurements are currently used to capture the dependent variables we studied, blurring the exact distinctions between constructs. While we partially accounted for this issue in our robustness checks, further research should more concisely distinguish these effects.

As our research depicts the limitations of extant literature, it can also serve in guiding future research. Studies could explore the exact relationships between credit, entrepreneurship and financial outcomes with greater rigor. Researchers are advised to use clearly defined constructs, theoretical models that disentangle the direct and indirect effects of MC as well as longitudinal research designs to advance the precision and rigor of MC research. Researchers are also advised to draw from extant entrepreneurship research when assessing the impact and outcomes of MC.
Our study contributes to a growing body of research looking at entrepreneurship and market activity in informal contexts (Bruton et al., 2011; McMullen, 2011; Webb et al., 2009). While the importance and sheer size of these markets has been emphasized (Portes & Haller, 2005; Prahalad, 2010), the constraints mentioned previously have delayed rigorous empirical research in this domain. We provide insights regarding whether and to what extent MC can be used to promote business development and to have an impact on the financial well-being of clients. Our study also considers multiple non-financial goals and outcomes of entrepreneurship, following research that acknowledges the nuances of entrepreneurial motivations and outcomes (Fauchart & Gruber, 2011; Gimeno et al., 1997; Peredo & Chrisman, 2006). We hope that our meta-analysis provides a comprehensive snapshot of extant literature and points to productive avenues for future research. While entrepreneurship scholarship has largely remained absent from the debates around MC, we contend that its insights are paramount for a better understanding of the process of wealth and welfare creation through credit.

CONTACT: Myrto Chliova: myrto.chliova@esade.edu; (T): +34 932806162; (F): +34 932048105; ESADE Business School, Ramon Llull University, Av. Pedralbes 60, 08034 Barcelona, Spain.

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**TABLE 1**

<table>
<thead>
<tr>
<th>Main relationships</th>
<th>Model</th>
<th>k</th>
<th>r</th>
<th>Confidence Interval (95%)</th>
<th>Z</th>
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<td>Business development</td>
<td>Random effects</td>
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<td>.12</td>
<td>.06 to .17</td>
<td>4.21**</td>
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<tr>
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<td>Random effects</td>
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<td>.16</td>
<td>.11 to .20</td>
<td>6.34**</td>
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<td>.05 to .12</td>
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<td>.18</td>
<td>.13 to .24</td>
<td>6.12**</td>
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<tr>
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<td>Random effects</td>
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<td>.03 to .26</td>
<td>2.41*</td>
</tr>
</tbody>
</table>

k: number of studies, r: Pearson correlation

* p < .10
* * p < .05
* * * p < .01