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Gender composition and group dynamics: Evidence from a laboratory experiment with microfinance clients

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ABSTRACT

We investigate the effect of gender composition on the group dynamics of microfinance clients in Tanzania using a laboratory experiment. We focus on three dimensions: (i) the ability to collaborate on problem-solving, (ii) joint decision-making in risk taking, and (iii) the willingness to cooperate in a public-goods game. Our main finding is that female groups are better at collaborating in problem-solving than male and mixed groups, and are also more willing to take risks. However, in the public-goods game we find no robust evidence of female groups contributing more than male and mixed groups. Our findings suggest that one reason why female loan groups often have higher repayment rates than male and mixed groups may be that female groups are more able to collaborate and find common solutions to common challenges.

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“Loan group composition should be based on gender; once you have a single man in a group of women, there is a problem.” (Female loan-group member)

1. Introduction

Microfinance institutions (MFIs) typically require borrowers to form joint liability groups as a substitute for the lack of physical or financial collateral.¹ There are a number of joint decisions to be made in a loan group, and the ability and willingness of its members to collaborate and cooperate is clearly of great importance. For instance, if someone in the loan group has a problem with their business and their loan repayments, members must jointly find solutions and decide how to deal with this. Similarly, when a member applies for a larger loan, the loan group members must jointly decide whether to accept the increased risk that this creates for the loan group.²

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¹ For an excellent survey of the economics of microfinance, see [Armendáriz de Aghion and Murdoch \(2010\)](#). For recent evidence on the general impact of microcredit, see [Banerjee et al. \(2015\)](#). See also, for example, [Giné and Karlan \(2014\)](#) and [Giné et al. \(2010\)](#) who study the impact of joint liability and other loan group features.

² Microfinance proponents also argue that the loan group structure can create non-financial benefits for its members, in particular for women, who may have limited other possibilities to meet outside their homes to discuss business, and potentially also do business together ([Feigenberg et al., 2014](#)).

Given the growth of MFIs, and the importance of such institutions for the development of small-scale business in poorer countries, designing and composing well-functioning loan groups could potentially be of great importance for poverty reduction and development. While many researchers have examined different features of loan groups, such as joint liability and the role of frequent repayment, few discuss the role of loan group composition. Exceptions include [Anthony and Horne \(2003\)](#) and [Sharma and Zeller \(1997\)](#), who both find that the percentage of women in a loan group correlates positively with individual repayment rates. Similarly, [D'Espallier et al. \(2011\)](#) find that having a higher percentage of women clients in MFIs is associated with lower portfolio risk, fewer write-offs, and fewer provisions, while [Wydick \(1999\)](#) reports that gender heterogeneity negatively influences informal provision of insurance in loan groups.

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Although indicative, these studies do not provide information about mechanisms that may explain why women-dominated groups tend to avoid repayment problems, and they have not established a causal relationship between gender composition and loan group outcomes.

In this paper, we report from a lab experiment conducted among microfinance clients in Tanzania, where we randomly allocated the microfinance clients into groups in the lab. This experimental design allows us to explore how gender composition of (lab) groups influences three important dimensions of group dynamics among microfinance clients; the groups' ability to collaborate and solve a common challenge, the willingness to take risks as a group, and the willingness to cooperate and contribute to resolving a social dilemma. We believe that our group games may shed light on the group dynamics of the loan groups also outside the lab.

Ability to collaborate is measured based on how groups solve multiple-choice problems face to face. This problem-solving exercise captures real-life situations in which loan group members must work together to find solutions to common challenges.

Willingness to take risks as a group is captured by letting groups decide jointly, face to face, whether to invest in a risky asset or not. This game resembles real-life situations in which loan groups must make joint decisions involving risk, such as accepting group members' loans or investment projects.³

Willingness to cooperate is measured based on the groups' contributions in a public goods game. Unlike the group games on ability to collaborate and risk-taking, contributions in the public goods game were done anonymously. This game captures an essential dimension of cooperation in many group settings, namely the issue of individual free riding at the cost of the group's common welfare.

Our main finding is that group composition shapes the groups' ability to collaborate: all-female groups outperform both mixed and all-male groups in the problem solving game, even though women perform no better than men at the individual level. Moreover, we also find evidence of all-female groups taking more risk than mixed groups, and to some extent we also find that all-female groups take more risk than all-male groups. On the other hand, in cooperation-game, we find no robust evidence of female groups contributing more than male and mixed groups to the public good.

We contribute to the experimental literature on group dynamics along two dimensions. To our knowledge, we are the first to use a face-to-face problem-solving exercise in order to shed light on how gender composition may influence groups' ability to collaborate, and our findings indicate that this dimension may capture important gender differences.⁴ Moreover, our study is also among the first to investigate how gender composition shapes a group's common risk decision in a face-to-face environment.

While there are few previous studies to contrast our findings in the problem-solving exercise, [Booth and Nolen \(2012a\)](#) found similar patterns as in our risk-game, as they found that young girls behaved less risk-aversely in a lottery task when assigned to groups of girls or attending single-gender schools.⁵ However, [Castillo et al. \(2015\)](#) found that women in fact took more risks as the share of men in the room increased, contrasting our findings from the risk game. On the other hand, the (lack of) findings in the public-goods game are in line with most previous studies investigating public-goods games, suggesting that neither gender nor gender composition is important when explaining contributions (see [Sell et al., 1993](#); [Eckel and Grossman, 2008](#)).⁶ However, investigating behavior in a prisoner's dilemma game [Charness and Rustichini \(2011\)](#)

³ [Sharma and Zeller \(1997\)](#) suggest that one reason why female loan groups may be better at repaying loans is that they invest in less risky projects.

⁴ Face-to-face communication has also previously been used in experimental settings, such as in [Bochet et al. \(2006\)](#), studying public good contributions. In a survey article, [Sally \(1995\)](#) found that non-binding face-to-face communication increased contributions substantially in games with voluntary contribution mechanism.

⁵ Investigating willingness to compete, [Booth and Nolen \(2012b\)](#) also found that the gender of peers mattered, as they found that girls from single-sex schools behaved more like boys, and that girls from single-gender experimental groups were more competitive than girls from mixed experimental groups. Furthermore, also investigating the role of group composition, [Dufwenberg and Muren \(2006\)](#) found that women-dominated groups were more generous and egalitarian, although the most generous groups were those with two men and one woman.

⁶ In the experimental literature on general gender differences, it is well established that there are systematic gender differences in preferences. For instance, men are more willing to take risks and to compete, and men and women react differently to changes in the decision-making environment (see, e.g., [Niederle and Vesterlund, 2007](#); [Croson and Gneezy, 2009](#); [Charness and Gneezy, 2012](#))

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