

# Inviting Husbands in Women-only Solidarity Groups: Evidence from Southern Mexico\*

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## Abstract

This paper shines light on the notion of intrahousehold frictions and women empowerment. Based on growing concerns by microfinance practitioners that women suffer from increased intrahousehold frictions, we conducted an experiment allowing women to invite their husbands into otherwise women-only groups. Only 4.55% of women agreed to invite their husbands. These paltry take-up rates can be seen through the lens of a noncooperative bargaining model where intrahousehold frictions from women's participation in microfinance are perceived as a tax on women's income. The model we present demonstrates that inviting husbands to join as borrowers entails a tradeoff between reducing household frictions on the one hand and a loss of autonomy over borrowing and spending decisions by women on the other. The value of autonomy outweighs any potential conflict with husbands. Moreover, higher take-up rates in groups where women were allowed to invite female friends and increase the size of their loan, respectively, reinforce the conclusion that including husbands in microfinance is not perceived as an attractive option for women borrowers. Our analysis therefore suggests that practitioners' concerns might be ill-founded in that women prefer to keep their husbands at bay at the expense of frictions and potential gains in bargaining power.

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*"...male exclusion can lead to negative consequences for women who join financial services. They may meet resistance from men who see their exclusive participation as unfair and threatening, their loans might be hijacked...A family whose adult members all have access to financial services is better off than one where half are ineligible.".. Hugh Allen, Microfinance Forum, Beijing, 2006.*

## 1 Introduction

Recent estimates suggest that out of the poorest 150 million microfinance borrowers, as many as seventy-one percent of them are women (Daley-Harris, 2009). A vast majority of these women live in traditional societies, are married or share a household with a male partner (henceforth: husband). How a woman's participation in a microfinance affects the relationship she has with her husband and, more generally, her own bargaining power within her household is unclear. Microfinance borrowing may increase a woman's autonomy by allowing her to generate income independently from her husband. It may also increase intra-household frictions, partially or fully eroding any benefit of an independent source of income. As suggested by Hugh Allen's quote, male household heads might perceive their exclusion from microfinance as unfair, and may turn themselves against their female counterparts. While the feeling of unfairness might be one source of conflict, there might be others. Our field work in southern Mexico suggests that married women in microfinance may reduce time spend in household-related activities, drawing ire from their husbands. While a fair amount of frictions or intrahousehold conflict rooted in microfinance-related activities undertaken by women is rather well documented (see, for example, Rahman, 1999), the inefficiencies from such frictions and the potential way of resolving frictions between household heads has neither been analyzed empirically nor explained theoretically. To our knowledge, this is the first article attempting to rigorously address the issue of intra-household conflict and women empowerment in microfinance.

One possible way of minimizing any increased conflict as a result of microfinance participation is to invite husbands into otherwise women-only borrowing groups. To assess the effect of including husbands, we conducted an experiment allowing women to invite their husbands. Only 4.55% of women agreed to invite their husbands. These paltry take-up rates can be seen through the lens of a noncooperative bargaining model where intrahousehold frictions from women's participation in microfinance are perceived as a tax on women's income. The model we present demonstrates that inviting husbands to join as borrowers entails a tradeoff between reducing household frictions on the one hand and a loss of autonomy over borrowing and spending decisions by women on the other. The value of autonomy outweighs any potential conflict with husbands. Moreover, higher take-up rates in groups where women were allowed to invite female friends and increase the size of their loans, respectively, reinforce the conclusion that including husbands in microfinance is not perceived as an attractive option for women borrowers. Our analysis therefore suggests that practitioners' concerns might be ill-founded in that women prefer to keep their husbands at bay at the expense of frictions and potential gains in bargaining power.

To identify the effect of including husbands on frictions and women's bargaining power, we designed other treatments in order to disentangle two effects. First, by inviting a husband to join a solidarity group, the size of the household loan increases. To separate this income effect from the effect of including a male household head, we created an additional treatment group where existing women borrowers could increase the size of their loans. Second, by inviting a husband to join a solidarity group, the number of group members increases. To separate this effect, we created a treatment group where women were able to invite a female friend. Finally, in order to measure the demand for inviting husbands and friends, we offered several levels

of cash incentives. Take-up rates on the three treatment groups are reported in Table 1.

The strikingly low take-up rates across all treatments are analyzed in this paper through the lens of the Lechene-Preston (2005) framework adapted to the case of microfinance. In the particular case of inviting husbands, our framework suggests that the low take-up rates we observe in Table 1 might be due to the fact that women are reluctant to invite their husbands if doing so does not substantially reduce household frictions, or if the additional income accruing to husbands from microfinance participation is not adequately shared by the husband. Consistent with this interpretation, we find that women who have a greater degree of autonomy in household decision making are more likely to invite a female friend than a husband into the group, whereas women who have fought with their husbands about the loan in the past are more likely to invite a husband than a female friend into the group.

Table 1: TAKE-UP RATES BY TREATMENT

Treatment	Overall Take-up			Take-up by Incentives		
	Offered	Accepted	Percentage	Offered	Accepted	Percentage
Invite Husband	637	29	4.55%			
<i>No Incentive</i>				309	11	3.56%
<i>150 Peso Incentive</i>				188	7	3.72%
<i>300 Peso Incentive</i>				140	11	7.86%
Invite Friend	307	20	6.51%			
<i>150 Peso Incentive</i>				147	8	5.44%
<i>300 Peso Incentive</i>				160	12	7.50%
Increase Credit	329	46	13.98%	329	46	13.98%
p-value: Husband > Friend						0.380
p-value: Husband > Friend for 150 and 300 Peso Incentive						0.127

The remaining 317 borrowers were assigned to the control group.

Low take-up rates from inviting additional female members suggests that the monetary incentives offered to women were not sufficient to offset the losses from increasing the number of participants in the solidarity group (e.g. through free-riding, as in Armendáriz (1999)). Although take-up rates of larger loans are more than twice as high as those for inviting husbands or female friends, such rates are still surprisingly small. From our field work and framework, and contrary to the common wisdom (e.g., de Mel et al (2009)) our interpretation of this result is that only a minority of women borrowers are credit constrained. In support of this interpretation, we find that conditional on tenure, those women clients already accessing larger loans (who are more likely to be credit constrained) are more prone to accept an increase in credit but no more likely to invite a female friend or husband.

Rigorous empirical studies on women’s bargaining power vis-à-vis their male counterparts are scarce. Some notable exceptions include pioneering work by Chattopadhyay and Duflo (2004) on India who demonstrate that elected women in powerful parliamentary positions would favor the provision of public goods, which are most valued by women household heads. In the particular case of microfinance, Pitt and Khandker (1998) on Bangladesh, show that a 100 percent increase in the volume of microfinance loans contracted by women leads to a 5 percent increase in per capita household non-food expenditures, and a 1 percent increase in per capita household food expenditures; while a 100 percent increase in microfinance borrowing by men leads to just a 2 percent increase in nonfood household expenditures and a negligible change in food expenditures.

As discussed by Armendáriz - Morduch (2010), policy makers and donor agencies tend to view women as the main brokers of health and education within the household, and thus have a tendency to deliver aid - be this in the form of grants or subsidized loans - via women. The fear is that men in low income households

might divert resources targeting fragile household members towards purchases of private goods which men value most, such as alcohol and tobacco. While our model captures this concern, it goes further in analyzing the underlying frictions and bargaining between women in microfinance and their male partners.

Even less is known about the effect of microlending on women’s empowerment and household bargaining power. Some studies have shown that the use of contraceptives is widespread among microfinance clients wanting to have less children as opportunity costs increase (see, for example, Chowdhry et al, 1994, and Rahman et al, 1998 on Asia). Other studies, also on Asia, show that higher income from microfinance can empower women whose decisions over resource allocation might ultimately prevail, but at the cost of violence and abuse by their husbands whose role as the main breadwinners within the household is threatened (Rahman, 1999). Evidence from Africa suggests that women are being used by their husbands as conduits for accessing subsidized loans, which husbands will ultimately control from beginning to end. Aside from the study on contraceptives, it does seem as though women’s empowerment from microfinance participation is lower than what donors and socially responsible investors would hope. Specifically, our results in this article demonstrate that involving husbands in group-lending microfinance is not likely to be an adequate tool for decreasing household frictions and increasing women’s bargaining power.

The remainder of this paper is structured as follows. Section 2 describes the stylized facts and the experiment. Section 3 delivers a simple noncooperative bargaining model. Section 4 describes the data gathered from southern Mexico. Section 5 delivers the results obtained from our randomized trial and explains our interpretation of the results. Section 6 spells out some concluding remarks and new avenues for future research.

## 2 The experiment

### 2.1 Stylized facts

Our partner organization, Grameen Trust Chiapas (GTC), is a microfinance non-governmental organization (NGO) operating in the highlands of southern Mexico. Chiapas is one of the poorest states hosting the highest proportion of indigenous population from Mayan descent. GTC slowly started accepting men and husbands as clients into women-only solidarity groups in 2003. Taking advantage of the existing initiative, in 2007 we carried out an experiment intended to measure the impact on women’s bargaining power when men, and, in particular, husbands, were invited into a pool of (solidarity) women-only groups.<sup>1</sup>

There were four main reasons why GTC branch managers were interested in inviting men into women-only solidarity groups.<sup>2</sup> First, informational asymmetries between household-heads were detected. Even if repayments are publicly known in women-only groups, men tend to overestimate the amount of money that their wives are handling. Men therefore decide to contribute less to overall household expenditures, which often creates frictions within the household. Such frictions have perverse effects. In many instances women no longer use their loans for investment only. They divert part of their loans for consumption, and, in particular,

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<sup>1</sup>We requested our partner organization to stop mixing groups in July 2004, but have no evidence that our request was followed. It might be possible that between the four years that passed between the time our partner organization decided to accept husbands and other male members as clients and the time our experiment was carried out, some solidarity groups had already become mixed. The intervention might then have involved a large majority of women that had already self-selected themselves out from a mixed-group pool. Informal conversations with loan officers, however, suggest that the number of mixed groups prior to the experiment was not very large. The administrative data reinforce loan officers’ reports: at the time of randomization only 18 borrowing groups (of 2,157) had two members that shared the same last name, were of a different sex, and were living together within less than 12 years age gap.

<sup>2</sup>The anecdotal evidence described below borrows from Armendáriz and Roome (2008).

for expenditures in food, health and education so as to make up for the shortfall created from reduced contributions by their husbands. Inviting some men to join otherwise women-only solidarity groups allows for husbands to have a more accurate estimate of their wives' true return realizations. Informational asymmetries are reduced with more accurate information by husbands, and men no longer overestimate the size of their wives' net returns, loan officers would argue. And husbands are in turn less likely to reduce their contributions to household expenditures, which reduces frictions, and increases household expenditures in investments from microloans. Relative to women-only groups, in those groups that became mixed informational asymmetries were decreased, and repayment rates by both men and women have increased.

Second, there are work-load externalities, which emerge from having women as the only recipients of loans within the household. Relative to women who self-selected themselves out of a lending program, women in microfinance become busier, the argument goes, and the services that women traditionally provide to the household such as meal preparation, and household chores, decreases in quantity and/or quality. This irritates men, again creating frictions. These frictions in turn cause women to default more often and/or prevent them from making repayments on time. In contrast, when men are invited to join solidarity groups, they seem to more easily internalize such negative work-load externalities and in some instances, husbands help their overburdened wives by becoming more active in household chores. The inclusion of men in turn reduced frictions, increased household expenditures, and boosted repayment rates.

Third, there are no secure hiding places around the house to save daily return realizations.<sup>3</sup> Typically, microloans are repaid weekly or bi-weekly. Women involved in income-generation activities such as petty trade generate return realizations daily, and often have to hide those return realizations from the grabbing hands of male household members in general, and from their husbands in particular.<sup>4</sup> Men steal the money saved in hiding places around the house for consumption, loan officers have explained. Again, this has led to frictions between household heads. When men are invited to join a solidarity group, men are jointly responsible for the loan contracted by women, and therefore are directly and negatively affected if the loan weekly/bi-weekly installments are not met. Frictions between household heads are reduced, and previously stolen money for men's private consumption is used for making frequent repayment of outstanding loans.

Fourth and last, microfinance products are viewed as being targeted at married women only. Allowing for mixed groups eliminates such perceptions and attracts single women. This in turn increased repayment rates as, relative to married women, single women tend to put more effort into their microfinance-related investment activities.

## 2.2 Design of the experiment

The principal objective of the experiment was to try to isolate the effect of including husbands in the borrowing group on frictions, decision-making process, intra-household allocation, and loan outcomes. Inviting a husband in a borrowing group also affects the income of the household and the size of the borrowing group. In order to disentangle the income effect of having more credit in the household from the effect of inviting a husband, we created an additional treatment group where women borrowers were allowed to increase the size of their loan without inviting their husband. The size of the borrowing group is likely to affect outcomes

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<sup>3</sup>In short, women face saving constraints. A similar argument has been made in the context ROSCAs in Africa by, for example, Anderson and Baland (2002). See, also, Ashraf, Karlan and Yin (2006) on savings in the Philippines, and Armendáriz and Morduch (2010) for a more general discussion on saving constraints.

<sup>4</sup>Transaction costs on daily and tiny savings from the standpoint of commercial banks are exceedingly high, and women's daily savings cannot find secure venues for making their way into weekly repayments of microloans. See, for example, Dupas-Robinson (2011) on savings constraints in Kenya, and Collins et al (2009) for a more comprehensive discussion on this issue.

as well, as larger groups may be better able to risk share on the one hand but can create greater moral hazard incentives or free-riding problems on the other.<sup>5</sup> To disentangle the effect of including a husband in a borrowing group from the effect of increasing group size, we created an additional treatment group where women were allowed to invite a female friend.<sup>6</sup>

Finally, we offered varying degrees of cash incentives for taking up the offer. Those choosing to invite a female friend were randomly given either 150 or 300 pesos, while those choosing to invite husbands were randomly given 0, 150, or 300 pesos, i.e., \$0, \$12 or \$24 US dollars approximately.<sup>7</sup> The cash incentives served two purposes. First, we wanted to estimate the demand for inviting friends and husbands. Second, we wanted to examine how those who accepted to include new members with larger cash incentives (who were more likely to be on the margin between inviting and not inviting) differed from those who accepted with smaller cash incentives.<sup>8</sup>

### 3 A Simple Household Bargaining Model

In this section, we develop a simple household bargaining model based on the work of Lechene and Preston (2005). We then use this model to interpret the decision of whether or not accept an increase in credit, invite a husband, or invite a friend.

#### 3.1 Basic Setup

Assume a nuclear household where daily expenses are paid for with income earned by two household heads (henceforth HHs).<sup>9</sup> Income earned by each HH is used for purchasing private and public goods. Utility is derived from both types of goods. Unlike utility from private goods, utility from public goods depends on both HHs contributions. Formally, let there be two HHs: the wife,  $f$ , and her husband/partner,  $m$ . Each household member earns income  $\{Y^i\}_{i \in \{f,m\}}$ , with which she or he purchases private goods  $\{q^i\}_{i \in \{f,m\}}$  and public goods  $\{Q^i\}_{i \in \{f,m\}}$ . Utility of HH  $i$ ,  $\{U^i\}_{i \in \{f,m\}}$  is assumed to be a function of  $i$ 's private good and both HHs' public good contributions. Let  $p$  and  $P$  be the price of private and public goods, respectively. For simplicity, we assume that utility functions take the following form:

$$U^f(q^f, Q^f, Q^m) = \alpha \log q^f + (1 - \alpha) \log(Q^f + \gamma Q^m) \quad (1a)$$

$$U^m(q^m, Q^f, Q^m, F) = \beta \log q^m + (1 - \beta) \log(Q^m + \gamma Q^f) \quad (1b)$$

Parameters  $\alpha$ ,  $\beta$ , and  $\gamma$  are between 0 and 1.  $\alpha$  and  $\beta$  represent the relative valuation of private and public goods for the wife and husband, respectively, while  $\gamma$  represents the "discount" that each member of

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<sup>5</sup>For more on the trade off between risk diversification and free riding from enlarging solidarity groups by including new members, see, Armendáriz (1999).

<sup>6</sup>The hope was that the inclusion of husbands and female friends would have a similar network effects on the borrowing group. Since women were able to choose the friend to invite from the set of all their friends (whereas they only had one husband to choose from), it is likely that their "best" friend would have better network effects than their husband. This caveat should be kept in mind when interpreting the results below.

<sup>7</sup>Since borrowing groups could always invite an additional female friend, there was no need to have a treatment group offering the opportunity to invite a female friend without any cash incentive. Inviting husbands, on the other hand, was restricted to randomly assigned groups.

<sup>8</sup>Unfortunately, due to the low take-up rates, comparisons across cash incentives of those women who accepted a particular treatment was not feasible.

<sup>9</sup>In an extended family, income is typically earned by several members. To simplify matters, however, we will restrict our analysis to just two income earners, i.e. our focus will be on a nuclear household. A vast majority of the clients of our partner organization belong to nuclear households. Our results would however hold in the case where there are more than two income earners within the household.

the household places on the public good purchased by the other member of the household;  $\gamma < 1$  indicates that each HH attaches more value to her/his own public good purchases. This assumption is plausible; for example, it could arise from differences in preferences regarding what type of food the household consumes. Following Lechene and Preston (2005), we focus on a Nash equilibrium where both household members optimally choose the amount of public and private goods to purchase given the other's choices. In what follows we focus on the wife's decisions (the husband's are similar). The wife's optimization problem is:

$$\max_{q^f, Q^f} U^f(q^f, Q^f, Q^m) \text{ s.t. } pq^f + PQ^f \leq Y^f(1 - F) \quad (2)$$

where  $F \in [0, 1]$  captures the level of frictions between the husband and the wife, which we model as the fraction of wife's income that is lost due to intra-household strife.<sup>10</sup> The greater intra-household strife, the less able the wife is to realize the full potential of her income. This might be due to her husband's negative interference in the wife's investment efforts, time lost arguing, and/or fear of reprisal.<sup>11</sup>

First order conditions imply:

$$(1 - \alpha) pq^f = \alpha P (Q^f + \gamma Q^m) \quad (3)$$

which along with her budget constraint implies:

$$q^f = \frac{\alpha}{p} (Y^f(1 - F) + \gamma P Q^m) \quad (4a)$$

$$Q^f = \frac{1}{P} (1 - \alpha) Y^f(1 - F) - \alpha \gamma Q^m \quad (4b)$$

The Nash Equilibrium where both wife and husband play a best response to each other's choice of public good implies that:

$$Q^f(1 - \alpha\beta\gamma^2) = \frac{1}{p} [(1 - \alpha)Y^f(1 - F) - \alpha\gamma(1 - \beta)Y^m] \quad (5)$$

So that total utility of the wife is:

$$U^f(Y^f, Y^m, F) = C + \log((1 - \beta\gamma^2)Y^f(1 - F) + \gamma(1 - \beta)Y^m) \quad (6)$$

where  $C \equiv \alpha \log\left(\frac{\alpha}{p(1 - \alpha\beta\gamma^2)}\right) + (1 - \alpha) \log\left(\frac{1}{P} \frac{(1 - \alpha)}{(1 - \alpha\beta\gamma^2)}\right)$ . Hence, the wife's utility decreases with frictions,  $F$ , and the prices of both goods, but it increases with her and her spouse's income, albeit at different rates. In particular, if  $F < F^*$ , a wife's utility increases more with her own income relative to her husband's income (and vice versa if  $F > F^*$ ).<sup>12</sup> This highly stylized model hence yields the prediction that in households where levels of conflict are high, a wife would prefer her husband to be the primary breadwinner because her own earnings are eroded by frictions.

<sup>10</sup> An alternative model could have  $F$  denote the fraction of the wife's income that the husband steals. Since the wife attaches a lower value to the contributions that her husband makes to the provision of household public goods, such a modeling device would yield the same qualitative predictions.

<sup>11</sup> Husbands might also lose income because of time spent arguing with their wives. However, men are not only likely to have several sources of income, but generally enjoy higher income. Thus, the loss of income from arguing has a higher marginal disutility for women than for men. For simplicity we are making the implicit assumption here that the income loss from arguing is negligible for men. Our results will however hold for as long as we assume an income asymmetry in favor of husbands.

<sup>12</sup>  $F^* \equiv \frac{1 - \beta\gamma^2 - \gamma(1 - \beta)}{(1 - \beta\gamma^2)}$

## 3.2 Interventions

In what follows, consider a wife who generates her own income using a microfinance loan. Suppose that her income from the loan  $Y^f(N, L)$  is a function of group size,  $N$ , and the amount of her loan,  $L$ .<sup>13</sup> Since the wife's utility increases with her own income, in the absence of the intervention, she will optimally choose her group size and loan amount to maximize her income subject to the constraints of the microfinance organization. In our empirical context, our partner organization did not constrain group size, but did constrain that the loan amount had to be less than some amount  $\bar{L}$ . Hence, we know that  $Y^f(N, L) \geq Y^f(\tilde{N}, \tilde{L})$  for all  $\tilde{N}$  and for all  $\tilde{L} \leq \bar{L}$ .

### 3.2.1 Increase the loan size?

Recall from the design of our experiment described above that a treatment group was created to disentangle the income effect from having a husband contributing more to the household via a loan from the microfinance organization. We now model the choice that a married woman is facing via a simple extension of our basic set up. In particular, suppose wives are offered to increase their loan size and that this increased loan size has no effect on household friction,  $F$ . A wife is given the opportunity to increase her loan size from  $L$  to  $L+x$ . Since utility is increasing in income, we know that she will take-up the intervention if  $Y^f(N, L+x) > Y^f(N, L)$ . By revealed preference, we know that she will certainly not take-up the promotion if  $L+x \leq \bar{L}$ ; i.e. the only wives to take-up the "increased-credit" promotion will be those for whom the intervention relaxes their credit constraints. If we assume further that  $\frac{\partial}{\partial L} Y^f(N, L)$  is monotonic, then  $(1-F)Y^f(N, L+x) > Y^f(N, L)$  only if  $L = \bar{L}$ .<sup>14</sup> In other words, the only women who may take-up such a promotion will be those that are already borrowing the maximum amount they can prior to the intervention. This suggests that those who had larger loan amounts before the intervention (who are more likely to be constrained by the maximum loan amount) should be more prone to accept an offer of increased credit.

### 3.2.2 To Invite or Not to Invite?

We now turn to the treatment group where wives in solidarity groups can add new members. Again, recall from the design of our experiment that married women in a particular treatment group were given the opportunity to invite female friends to join as clients against a monetary incentive. This treatment can potentially capture the effect (positive or negative) on household outcomes of a more extended or larger group size, that is, the network effect.<sup>15</sup> More formally, assume that a wife is given the opportunity to invite a female friend into the group for some cash incentive  $I$ , and that inviting a female friend has no effect on household frictions,  $F$ . Since the wife was unconstrained in her decision on how to form a group, it must be that  $Y^f(N+1, L) < Y^f(N, C)$ . Hence, a wife will choose to invite a friend if and only if  $U^f(Y^f(N+1, L) + I, Y^m) \geq U^f(Y^f(N, L), Y^m)$ , which from equation [6] is equivalent to  $I \geq Y^f(N, L) - Y^f(N+1, L)$ . That is, a wife will choose to invite a friend if and only if the cash incentive

<sup>13</sup>For simplicity, the following extension of our basic set-up abstracts from numerous considerations including non-monetary effects of inviting new members (e.g. issues such as pride as in Bénabou and Tirole, 2009). And, also, from the possibility that different invitees may have different impacts on the income derived from the microfinance loan. The analysis of group dynamics and dropouts, in particular, as in Karlan (2001), is excluded from our framework. Our conjecture, however, is that by including such considerations our results would not be qualitatively altered.

<sup>14</sup>The monotonicity of  $\frac{\partial}{\partial L} Y^f(N, L)$  guarantees both a unique optimal loan size and that those with an optimal loan size greater than  $\bar{L}$  will choose loan size  $\bar{L}$ .

<sup>15</sup>Unlike Karlan et al. (2009) where network connections can be used as collateral to secure informal borrowing, increasing network connectivity via inviting female friends in our model is viewed as a device to obtain an immediate monetary reward.



is greater than the efficiency loss from having one too many group members. Such loss of efficiency might arise from a potential free-riding effect as in Armendáriz (1999).

Suppose instead a wife was offered an incentive  $I$  to invite her husband into her borrowing group. The direct advantage of having a husband join a borrowing group is that the total household income will increase; the disadvantage is the indirect loss of bargaining power. That is, the amount of income that is under the wife's control may decrease, which will negatively affect her utility. In addition, inviting a husband into a group may affect how the husband and the wife get along, i.e. household frictions,  $F$ . One could imagine that inviting a husband into a borrowing group may mitigate household frictions by giving the husband more information concerning the wife's activities or exacerbate frictions by reducing the wife's independence. We model the trade-off between higher household income and loss of control of the wife's income as follows. Let's  $\delta \in (0, 1)$  denote the fraction of control that the wife may have over the two microfinance loans. If the total value of the household loan is  $2Y(N + 1, L)$  then the wife's new income would be  $\delta 2Y(N + 1, L) + I$ , and the husband's new income will be  $W^m + (1 - \delta) 2Y(N + 1, L)$ , where for simplicity we are assuming that the husband's alternative sources of income,  $W^m$  is unchanged (e.g.  $W^m$  captures labor income which is not derived from his wife allowing him access to potential return realizations from a microfinance loan).<sup>16</sup> At the same time, assume that inviting a husband changes household frictions from  $F$  to  $\tilde{F}$ . A wife will prefer to invite her husband if and only if:

$$\underbrace{\frac{2\gamma(1-\beta)(1-\delta)}{1-\beta\gamma^2}Y(N+1,L)}_{\text{gain from husband's income}} + \underbrace{(1-\tilde{F})I}_{\text{cash incentive}} + \underbrace{(F-\tilde{F})(Y(N,L)-2\delta Y(N+1,L))}_{\text{gain from reducing frictions}} \geq \underbrace{Y(N,L)-2\delta Y(N+1,L)}_{\text{loss in control and efficiency}} \quad (7)$$

A wife will choose to invite her husband if the combination of the increase in her husband's income, the cash incentive, and the reduction in frictions outweighs the loss in control over her own loan and the loss in efficiency from having one too many members. The comparative statics are intuitive: the more household frictions decline, the more willing a wife is to invite her husband. Similarly, the greater the husband's contributions to the public good,  $\beta$ , and/or the greater the value that the wife attaches to her partner's contributions,  $\gamma$ , the more likely it becomes that a wife will choose to invite her husband. On the other hand, for a given  $\gamma$  and  $\beta$ , as  $\delta$  becomes larger the wife is clearly more likely to be willing to invite her husband because a larger  $\delta$  means that she enjoys greater control over household resources.

Now, even though our experiment by design does not allow for any particular women in a treatment group to choose between inviting a husband or a female friend, the data we have enables us to find out whether a wife would be more prone to invite her husband or a female friend for a given incentive  $I$ . This comparison is important, because if there are positive payoffs from enlarging solidarity group membership, we would wish to know whether a wife values more enlarging the size of the group via inviting her husband or via inviting a female friend. In particular, we ask the following question: when will a wife prefer to invite a friend rather than invite her husband for a given cash incentive? For a given cash incentive  $I$ , wives prefer to invite their female friends over their husbands if and only if:

$$\frac{(1-\beta\gamma^2)\left((1-F)-2\delta(1-\tilde{F})\right)-2\gamma(1-\beta)(1-\delta)}{(1-\beta\gamma^2)} \geq \frac{I}{Y(N+1,L)}(F-\tilde{F}) \quad (8)$$

<sup>16</sup>Modelling the invitation of the husband as generating  $2Y(N + 1, C)$  income for the household rather than  $Y(N + 1, 2C)$  income seems to accord well with field researchers' conversations with both women clients and loan officers.

Clearly, the more inviting one’s husband reduces frictions, the more that a wife would be willing to invite her husband rather than inviting a friend. Note that if there is no change in frictions, then the expression simplifies to:

$$(1 - \beta\gamma^2)(1 - 2\delta) \geq 2\gamma(1 - \beta)(1 - \delta) \quad (9)$$

For this equality to hold it must be the case that both  $\delta < \frac{1}{2}$  and either  $\beta$  is sufficiently close to 1 or  $\gamma$  is low. That is, when household frictions are unchanged, a woman will prefer to invite a female friend when either her husband spends most of his money on his own private goods or when the wife’s valuation of the husband’s purchased of public goods is low relative to her own. The intuition behind this result is very simple: in order for more women to prefer to invite their female friends into the group than their husbands, it must be that the husband would capture more than half the income from the two loans and that the wives have a low valuation of their husband’s spending.<sup>17</sup>

This latter result sheds light on the empirical results, which we describe in greater detail in the following:

## 4 Data

The experiment was conducted in 5 different bank branches of GTC, our partner organization, covering both rural and urban areas in distant geographical areas in the southern tip of the mountainous state of Chiapas, Mexico.<sup>18</sup> Randomization occurred in 2007. At this point in time there were 5,430 active borrowers in 2,091 borrowing groups. Of the 2,091 active borrowing groups, 18 (0.9%) were ineligible because a husband had already joined the group.<sup>19</sup> Of the eligible borrowing groups, 690 (comprising 2,131 individual borrowers, 1,590 of which (74.6%) were married or lived with a male partner) were randomized into the control group or one of the treatment groups.<sup>20</sup> The 1,590 married women in these 690 borrowing groups constitute our sample of analysis.<sup>21</sup> Of these 1,590 women, 1,369 had completed a loan with GTC prior to the beginning of the intervention.

Of these 1,590 GTC clients, a baseline survey was conducted for 1,257 (79.1%), which we used to see how household decision making and conflict affected the decision of whether or not to accept the different treatments. In addition, 1,369 (86.1%) borrowers in 611 groups had completed a loan with our partner organization prior to the beginning of the treatment, giving us information on their baseline loan characteristics. 1,231 (74.9%) of the borrowers took out at least one additional loan after treatment had begun,

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<sup>17</sup>We should note, however, that our analysis focuses on what the data gathered was revealing to us. We did not specifically ask the question as to whether women had invited their husbands and the husbands had refused to join the microfinance group. It might be possible that the low take up rates reported in table 1 could be due to husbands refusing their wives’ invitations. Refusal might be due to spousal observability and communication, which might limit husbands’ savings choice as in Ashraf (2009).

<sup>18</sup>Externalities or spillovers from learning and imitation leading to biased estimates are ruled out in this particular experiment since the chosen branches of our partner organization have sparsely populated clients, and geographical distance across branches is large. Moreover, the entire area is mountainous, which makes access to information about what is happening in other branches and across clients within the same branch difficult. For more on biased estimates resulting from externalities, see, Duflo, Glennester, and Kremer (2007).

<sup>19</sup>Since we do not observe directly if two members of the same group were married, we classify those as married if they are living at the same address, share a last name, are of different sexes, and their ages are within 12 years of each other; hence it may be that some of these borrowing groups may actually have been eligible. The small fraction of otherwise women-only groups that had already invited their husbands suggests that selection occurring prior to the experiment is not a serious problem.

<sup>20</sup>There were 3 additional borrowing groups that had a man join the group after randomization and before treatment and are excluded from the analysis. In addition, there were 360 borrowers who entered groups and received treatment after randomization occurred; because their entrance may have been in response to the experiment itself, we have excluded them from the analysis as well.

<sup>21</sup>There were also 572 non-married women (comprising 31.8% of the group members) in the borrowing groups, which are excluded from the analysis.

which in turn allowed us to examine the effects of treatment on loan outcomes. Finally, 196 borrowers in the sample were randomly selected (the randomization was stratified by treatment) to have of a follow-up interview in the summer of 2008 on household decision making and conflict to assess the effect of treatment on these variables; of these, 148 (75.5%) interviews were successfully conducted, which allowed us to see if the treatments had any effect.

Administrative data were made available from GTC on all its loans during this period, which included information on the characteristics of the loan (amount, interest rate, length, and whether or not the loan was repaid); in addition, the administrative data included the age of the borrower and whether or not she was married. Table 2 reports the summary statistics of the administrative data for our sample.

Table 2: SUMMARY STATISTICS

	Mean	Std Dev	Borrowers	Groups
Loan Amount (pesos)	8,502.48	7,128.84	1,369	611
Interest Rate	0.47	0.05	1,369	611
Loan Length (days)	189.65	23.54	1,369	611
Group Size	4.09	2.58	1,369	611
Tenure with GTC (days)	298.93	145.77	1,590	690
Age	38.93	10.69	1,590	690
Fraction Married	1.00	0.00	1,590	690
New Client	0.14	0.35	1,590	690

Loan variables reported on last loan ending prior to treatment on April 16, 2007. New clients did not have a previous loan so do not have baseline loan variables. All other variables reported as of randomization on February 1, 2007.

Table 3 examines if there were any differences in the mean of various observables across treatment and control groups. Across 10 observables, we can reject (at the 10% level) that the baseline characteristics between treatment and control were the same twice: for abuse ( $p$ -value 0.01) and for age ( $p$ -value 0.09). Given that we are conducting 10 different tests, the fact that there are only 2 statistically significant differences between treatments and control (and only 1 at the 5% level) suggests that randomization of treatment and control groups was carried out correctly.

Table 3: ORTHOGONALITY TESTS OF TREATMENT

	(1) Loan Amount	(2) Tenure	(3) Group Size	(4) Loan Length	(5) Age	(6) Abuse	(7) Decision Making	(8) Education	(9) No Baseline	(10) New Client
Invite Husband	0.463 (0.781)	0.029 (0.042)	0.312 (0.346)	4.193* (2.348)	-1.617* (0.824)	0.019* (0.011)	0.004 (0.020)	0.037 (0.363)	-0.020 (0.036)	0.037 (0.041)
Invite Friend	0.144 (0.919)	0.036 (0.053)	0.024 (0.454)	0.650 (1.635)	0.173 (1.007)	0.008 (0.011)	0.013 (0.021)	-0.299 (0.415)	-0.012 (0.042)	0.085 (0.054)
Increase Credit	0.860 (0.949)	0.010 (0.047)	-0.025 (0.263)	2.322 (1.813)	-0.634 (0.893)	-0.008 (0.008)	0.024 (0.020)	0.645* (0.384)	-0.005 (0.038)	-0.013 (0.040)
Constant	8.106*** (0.608)	0.897*** (0.033)	2.968*** (0.212)	187.362*** (0.903)	40.410*** (0.663)	0.012* (0.007)	0.758*** (0.015)	7.332*** (0.283)	0.221*** (0.029)	0.110*** (0.032)
Observations	1369	1369	1369	1369	1369	1257	1257	1257	1590	1590
R-squared	0.002	0.002	0.006	0.005	0.005	0.006	0.002	0.007	0.000	0.010
F-test: All Treatments=0	0.810	0.864	0.754	0.247	0.116	0.015	0.581	0.099	0.947	0.191

Each observation is a single borrower. Standard errors clustered at the borrowing group level are reported in parentheses. Stars indicate statistical significance: \* p<.10 \*\* p<.05 \*\*\* p<.01.

## 5 Results

### 5.1 Take-up of Treatment

Table 1 in the introduction depicts the take-up rates by treatment. As can be seen, take-up was low across *all* treatment types. Of the 637 borrowers offered to invite their husbands, only 29 of them did, that is, the take-up rate was 4.6 percent. Of the 307 borrowers offered to invite female friends, just 20, or 6.5% agreed. The low take-up rates for inviting husbands and female friends may have a variety of causes. First, it may be that the women who would prefer to have had their husbands join their borrowing group had already invited their husbands prior to the start of the experiment, so that the experiment was only conducted on the self-selected group of women who did not want to invite their husbands. This explanation seems unlikely, however, as only a very small number of borrowing groups included husbands prior to the start of the experiment (see footnotes 1 and 19 above). Second, invited husbands and friends might have refused their wives invitation because microfinance loans are small relative to what the size of the loans that husbands can contract elsewhere, or because microfinance organizations in the area are generally associated with loans which are tailor-made for women, and participation might have been perceived as shameful.<sup>22</sup> The model developed above suggests that the women in our treatment group might *not* have viewed the inclusion of their husbands into their financial affairs as a worthwhile venue for lowering frictions. Third, the cash incentives were paltry compared to the negative impact on the borrowing group from inviting another member, husband or female friends. Even when offered to have a larger loan, only 46 of 329 clients (14.0%) accepted. From the theoretical model above, this suggests that a large majority of clients were not constrained by the credit ceilings imposed by our partner organization.

Take-up may vary depending on the size of the loan as well. If women already benefiting from larger loans are more likely to be credit constrained, then we should see a positive relationship between loan sizes and take-up rates. Conversely, if those with larger loans have more to lose by inviting another group member, we should expect that clients already enjoying larger loans are less willing to invite friends or husbands. We can test this conjecture by regressing whether or not a client took up the promotion by the type of treatment, the size of their last loan prior to treatment, and a term interacting the loan size and the type of treatment.

Table 4 presents the results of these two tests. In column 1, we see that those with an additional year of tenure with GTC are 14.5% more likely to accept an increase in credit, but are only 1.8% ( $(0.145 - 0.127)$ ) more likely to invite a husband and 2.3% ( $(0.145 - 0.122)$ ) more likely to invite a friend. These results remain when controls and branch fixed effects are included (column 2), although inviting husbands and friends are not statistically significantly different from 0. Hence, the results suggest that borrowers who had been borrowing with GTC for longer were more likely to accept more credit, but no more likely to invite husbands or friends. Column 3 depicts a similar story for loan size. Increasing the size of the loan by 1,000 pesos (or approximately \$84 US dollars) increases the probability of accepting an increase in credit by about 1%, but only increases the probability of inviting a husband by 0.3% and a friend by 0.2%. Column 4 demonstrates that this effect is robust to the inclusion of controls.

Disaggregating by the cash incentives offered, we find that increasing the cash incentive boosts take-up rates, albeit modestly. Did the cash incentives differentially induce certain types of women to invite their husband into the borrowing group? To answer this question, we interact the cash incentive with the baseline decision-making and existence of conflicts over the loan. Table 5 presents the results. Column 1 demonstrates that women with less decision making in the household were more likely to invite their

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<sup>22</sup>An alternative explanation can be found in Ashraf (2009), but the focus in her paper is on savings not on loans.

Table 4: TAKE-UP RATES AND GROUP CHARACTERISTICS

	(1)	(2)	(3)	(4)
Invite Husband	0.031 (0.031)	0.218** (0.111)	0.027 (0.017)	0.196* (0.104)
Invite Friend	0.047 (0.033)	0.218** (0.105)	0.050** (0.020)	0.196* (0.102)
Increase Credit	0.019 (0.056)	0.251** (0.111)	0.074** (0.033)	0.267** (0.108)
Tenure*Husband	-0.127* (0.077)	-0.094 (0.074)		
Tenure*Friend	-0.122 (0.080)	-0.104 (0.077)		
Amount*Husband			-0.006 (0.005)	-0.005 (0.004)
Amount*Friend			-0.006 (0.005)	-0.006 (0.005)
Tenure with MFI (years)	0.145** (0.067)	0.131** (0.065)		0.062** (0.028)
Loan Amount (000s of pesos)		0.003* (0.002)	0.008** (0.004)	0.007* (0.004)
Controls	No	Yes	No	Yes
Branch Fixed Effects	No	Yes	No	Yes
Observations	1273	1273	1273	1273
R-squared	0.107	0.153	0.113	0.153

The dependent variable is an indicator variable equal to one if the client accepted the promotion. Each observation is a single borrower. The sample includes all borrowers offered a promotion. Controls include a measure of the pre-treatment decision making of the borrower, whether the borrower is living with her spouse, the length of the marriage, the borrower's education level, the number of adults and children in the household, measures of conflicts and abuse prior to treatment, dummy variables if the respondent was not in the baseline or did not respond to a question, the cash incentive of the treatment, the interest rate of the last loan prior to treatment, the size of the group prior to treatment, the length of the last loan prior to treatment, and the age of the borrower. Standard errors clustered at the borrowing group level are reported in parentheses. Stars indicate statistical significance: \*  $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$ .

husbands, an effect that was modestly stronger when the borrower was offered a cash incentive. Column 2, however, shows that while women who had fought with their husbands in the past about the loan were more likely to invite their husbands. This effect was weaker when cash incentives were offered. Neither of these effects are statistically significant, however.

We find that take-up rates were greater for inviting female friends (5.4%) than inviting husbands (3.7%) with an incentive of 150 pesos, whereas the take-up rates are similar for an incentive of 300 pesos (7.9% and 7.5%, respectively). We can thus reject the hypothesis that take-up rates for inviting husbands are greater for all cash incentives than the take-up rates for inviting friends with a  $p$ -value of 0.127. This result suggests that for a given cash incentive, borrowers slightly preferred to invite a female friend rather than invite a husband. The household bargaining model developed above suggests that such a result could be because the potential increase in household income and/or reduction in household frictions when a husband is invited is dominated by the loss of the wife's control over her loan. If this were the case, then we would expect to see that those households where the possible reduction in household frictions is greatest should be more likely to invite husbands relative to inviting friends. To test this prediction, we constrain our unit of analysis to borrowers who either were asked to invite friends or husbands and see if there is a difference in the probability of take-up based on a wide variety of observables that may be correlated with household frictions and household bargaining.

The results are presented in Table 6. The first column shows that there is no statistically significant difference in the likelihood of a borrower inviting a friend versus inviting a husband after controlling for observables and branch fixed effects. The average effect, however, masks substantial heterogeneity, as is evident in the following columns. Column 2 depicts the results when we allow the probability of take-up to

Table 5: THE EFFECT OF CASH INCENTIVES ON CHOOSING TO INVITE HUSBANDS

	(1)	(2)
Dependent variable: Invited Husband		
Decision making	-0.101 (0.065)	
Decision making * Cash Incentive	-0.019 (0.040)	
Received Cash Incentive	0.042 (0.025)	0.030 (0.020)
Conflicts over loan		0.028 (0.084)
Conflicts over loan * Cash Incentive		-0.013 (0.118)
Constant	0.254* (0.138)	0.170 (0.122)
Controls	Yes	Yes
Branch Fixed Effects	Yes	Yes
Observations	637	637
R-squared	0.061	0.053

Each observation is a single borrower who was offered to invite her husband. Controls include the interest rate of the last loan prior to treatment, the size of the group prior to treatment, the length of the last loan prior to treatment, the age of the borrower, and dummy variables if the respondent was not in the baseline or did not respond to a question. Standard errors clustered at the borrowing group level are reported in parentheses. Stars indicate statistical significance: \*  $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$ .

vary with baseline decision making power.<sup>23</sup> Wives with less decision making are much more likely to invite their husbands into the group than friends, whereas wives with greater decision making are more likely to invite their friends than their husbands. In particular, a wife with no decision making in the household is 6 percentage points more likely to invite her husband than her friend, whereas a wife with full decision making in the household is 3 percentage points more likely to invite her husband than her friend.

The third column shows that women who have fought with their husbands in the past about the loan are more likely to invite their husbands than their friends. In particular, if there has been conflict over the loan in the past, then a woman is 9.5 percentage points more likely to invite her husband and 7.8 percentage points less likely to invite her friend, while there is no difference when there has not been conflict in the past.

The fourth column shows that the effect of decision making and household conflict on the relative take-up of friends and husbands are robust to controlling for the other variables. These results suggest that the wives who are most likely to reduce household frictions – those who have the least control over household decision making or who have fought with their husband in the past over the loan – are more likely to invite their husbands relative to inviting their friends.

## 5.2 Effects of Treatment

To assess the effect of the treatments on loan and household decision making outcomes, we regress the outcome of interest on the various treatments, controlling for the observed baseline level. Specifically we regress:

$$y_{i,1} = \beta_1 \text{hsbnd}_i + \beta_2 \text{frnd}_i + \beta_3 \text{credit}_i + \gamma y_{i,0} + \delta X_i + \varepsilon_{i,1} \quad (10)$$

where  $y_{i,t}$  is the observed variable of interest of individual  $i$  in time  $t$ ,  $t = 0$  refers to prior to the treatment and  $t = 1$  refers to after the treatment and  $\text{hsbnd}_i$ ,  $\text{frnd}_i$ , and  $\text{credit}_i$  refer to the assigned treatment

<sup>23</sup>This measure takes on a value between 0 and 1 and measures the percentage of everyday household tasks in which the wife has a say (i.e. a larger value reflects greater decision making).

Table 6: INVITING FRIENDS VERSUS INVITING HUSBANDS

	(1)	(2)	(3)	(4)
Dependent variable: Invited Husband or Invited Friend				
Invite Husband	0.004 (0.026)	0.061*** (0.022)	0.001 (0.026)	0.059*** (0.022)
Husband*Decision making		-0.093** (0.039)		-0.095** (0.039)
Decision making		0.029 (0.060)		0.028 (0.060)
Husband*Conflicts over loan			0.095* (0.055)	0.104* (0.055)
Conflicts over loan			-0.078*** (0.025)	-0.087*** (0.027)
Constant	0.188** (0.082)	0.182** (0.091)	0.190** (0.082)	0.184** (0.092)
Controls	Yes	Yes	Yes	Yes
Branch Fixed Effects	Yes	Yes	Yes	Yes
Observations	944	944	944	944
R-squared	0.052	0.058	0.053	0.059

Each observation is a single borrower who was offered to either invite her husband or a friend. Controls include the cash incentive of the treatment, the interest rate of the last loan prior to treatment, the size of the group prior to treatment, the length of the last loan prior to treatment, the age of the borrower, and dummy variables if the respondent was not in the baseline or did not respond to a question. Standard errors clustered at the borrowing group level are reported in parentheses. Stars indicate statistical significance: \*  $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$ .

groups.<sup>24</sup> In this specification, the  $\beta$ 's give the effect of the treatment on  $y_i$ , conditional on the baseline level of  $y_i$  and the controls  $X_i$ . Table 7 presents the results of regression [10] for several loan outcomes.

The first column shows that none of the treatments had a statistically significant increase in group size. This is not that surprising given the low take-up of the promotions. In column 2 we find that, if anything, the treatments had a negative effect on the size of the loan (although this effect is only statistically significant for inviting friends and husbands). Both of these results are somewhat surprising given that we would expect that inviting husbands or friends should increase the group size and increasing credit should increase the loan size. Examination of the raw data reveals that the control group experienced a large increase in average loan sizes (from 8,153 pesos before the treatment to 9,806 pesos after treatment), an increase that was roughly comparable to the increase in the mean loan amounts in the credit group (from 9,173 to 10,726 pesos) but much larger than the increase in the "invite a husband" or "invite a friend" treatment groups. Interviews with the loan officers suggest that the normal procedure was to increase the loan size (up to twice the amount of the current loan) of any borrower in good credit standing who requested an increase at the start of a new loan cycle. It hence appears that the treatment to increase credit was not substantially different from the status quo, a finding which is consistent with the low observed take-up rates.

There are two loan outcomes for which a baseline could not be controlled: default rates and whether or not a client contracts an additional loan after the experiment. Columns 3 and 4 compares these outcomes across assigned treatment groups. There is no statistically significant effect of any of the treatments on default rates, although across all three treatments we find evidence that clients are less likely to continue to borrow with GTC relative to the control group. The fall in the probability of continuing to borrow with GTC is greatest for those who were offered an increase in credit: conditional on observables, those offered an increase in credit were 12.8 percentage points less likely than the control group to take out another loan with GTC.

<sup>24</sup>For variables concerning household decision making and conflict,  $y_{i,0}$  comes from the baseline survey and  $y_{i,1}$  comes from the follow-up survey. For variables concerning the loan,  $y_{i,0}$  comes from the last loan beginning prior to randomization and  $y_{i,1}$  comes from the last loan observed after randomization (our data set ends in June 2008).



Table 7: TREATMENT EFFECTS (INTENT-TO-TREAT)

	(1)	(2)	(3)	(4)
	Group Size	Loan Amount	Default	Borrow Again
Invite Husband	0.003 (0.128)	-1322.542* (725.219)	-0.022 (0.047)	-0.069 (0.048)
Invite Friend	-0.209 (0.179)	-2382.260** (1082.110)	0.049 (0.063)	-0.080 (0.068)
Increase Credit	-0.152 (0.115)	-458.927 (834.496)	-0.042 (0.046)	-0.128** (0.050)
Baseline group size	0.638*** (0.049)			
Baseline loan amount		0.640*** (0.122)		
Constant	0.781*** (0.254)	3969.474** (1744.408)	0.184** (0.091)	0.886*** (0.095)
Controls	Yes	Yes	Yes	Yes
Branch Fixed Effects	Yes	Yes	Yes	Yes
Observations	828	1034	1590	1590
R-squared	0.699	0.396	0.082	0.062

Each observation is a single borrower. Default is a dummy variable equal to one if the last loan of a client had been defaulted upon and/or the client was classified as being in default in June 2008. Staying with GTC is a dummy variable equal to one if the client took out at least one additional loan after randomization. Because defaulted loans are not linked to a borrowing group, there are fewer observations for group size than for loan amount. Controls include the cash incentive of the treatment, the tenure of the borrower with GTC, her age and education at the time of randomization, the number of children and adults in the household at the time of randomization, whether the borrower's first loan was treated, and dummies for missing follow-up, baseline surveys, or responses on other control variables. Standard errors clustered at the borrowing group level are reported in parentheses. Stars indicate statistical significance: \*  $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$ .

## 6 Concluding Remarks

A large majority of low-income women cannot access a loan from a microfinance organization unless they belong to a group of clients. Our experiment suggests that the inclusion of husbands in microfinance solidarity groups is not a promising venue for improving women's bargaining power. Our conjecture is that the same holds true for village banking. When given the choice (and in some cases a cash incentive), the vast majority of women preferred to keep their husbands at bay. This reluctance to change the conditions of their group lending contract, however, was not unique to inviting husbands. Take-up rates for inviting friends and increasing credit were also strikingly low. We interpret these findings through the lens of our theoretical framework suggesting that a majority of women borrowers are not credit constrained, and have strong reservations regarding the pernicious effects of including new members into their group contracts.

While absolute take-up rates were low, comparisons of the relative take-up rates across treatments yield valuable insights. Consistent with credit constraints, those women who already had a relatively large loan prior to the treatment were more likely to accept an increase in credit but were not more prone to invite a friend or a husband into their groups. We also find evidence that women who seemed to gain the most from inviting their husbands, namely those who had fought over the loan with their husbands in the past, and who had the least say in household decision making, were most likely to invite their husbands relative to inviting their female friends. This suggests that the possibility of mitigating household conflict may influence a wife's decision of whether to invite her husband on the margin; however, the low absolute take-up rates suggest that this concern did not sufficiently outweigh the costs of including husbands.

Many questions, however, remain unanswered. Are women unwilling to increase their level of indebtedness because of fear of increased intra-household frictions or because they cannot cope with larger-scale businesses due to their low levels of human capital relative to those of their male counterparts? Are women fearful of suffering from free-riding from additional female friends or are already having to endure frictions

among incumbent female members and therefore anxious of exacerbating such frictions by including new female borrowers? Is the current trend towards individual lending destroying social capital or on the contrary a device for preserving friendships, which under group lending methodologies might have been spoiled? These are only some of the critical questions which merit attention in future research on women empowerment in microfinance.

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