Do Group Dynamics Influence Social Capital and Female Empowerment? Experimental Evidence from Microfinance*

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Abstract

Group meetings are an intrinsic part of the classic microfinance model that have the potential to increase social capital. Using experimental variation in group meeting frequency, we show that meeting more frequently builds social capital among female microfinance clients in India. However, group composition and individual characteristics are important determinants of social capital gained – clients who are new entrants benefit more from frequent meetings when matched with group members who are also new. To examine potential gains in female empowerment, we provided clients additional resources to assign as gifts during the festival season. Traditional measures of empowerment – consulting husband before allocating gifts and gift-giving to husband-side – are unchanged. However, among experienced client groups we observe an increased concentration of gift allocation towards own nuclear family (and away from extended family). This is consistent with greater social capital being linked to changes in network structure *and* empowerment.

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1 Introduction

There is wide-ranging evidence that social capital contributes to economic development, yet little is understood about how social capital is generated in poor communities. Furthermore, while research indicates that there are economic returns to social interaction, there is limited empirical evidence on the degree to which building social capital among poor women can influence bargaining outcomes, or female empowerment, within the household.[1] Both female empowerment and social capital formation are hallmarks of the current development agenda (Revenga et al., 2011). Since the interaction of these two factors can further elucidate the economic value of social capital in the development process, it is important to understand how and whether the two are connected.

Several studies document that social capital shapes, and is shaped by, mobility, physical distance, and economic status, among other traits (see, for instance, Glaeser et al. (2002)). A common theme in this literature is that isolation – social or geographic – hurts social capital (Putnam, 2000). Community-based programs, such as microfinance and community driven development – thus appear attractive vehicles for both building social capital and for using social capital to empower women. Besley and Coate (1995), for instance, provides theoretical arguments for how microfinance can exploit social capital within communities to increase the viability of lending to the poor.

However, rigorous empirical evidence on these issues remains limited. An important reason for this is the endogenous nature of social ties. Specifically, it is very likely that individuals with specific traits (e.g. those who are more pro-social or have more to gain from group activities) are more likely to engage in community activities. Observational studies, therefore, struggle to identify either how individual membership in different community groups or changes in membership within such groups impact social capital. The use of experimental methods, which are increasingly popular in international development research, appears particularly promising here. In recent work, Feigenberg et al. (2013) generated exogenous variation in the meeting frequency of microfinance groups and showed that clients who met more frequently enjoyed long-term increases in social capital. However, this study

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[1]Social capital, defined by Putnam (1993) as aspects of "social organization, such as trusts, norms, and network," can be perceived as an intermediary towards economic empowerment when it accrues to certain segment of society. For instance, in her examination of seven microfinance programs, Mayoux (2001) uses qualitative and scant quantitative evidence to suggest that microfinance programs which build social capital for women in the community can also have what she labels "empowering" effects.

considered a homogenous sample of first time clients. In many settings, community groups consist of individuals with different histories of participation in social groups. Whether community or microfinance groups are equally able to benefit all women in such groups remains an open question.

Moreover, evidence on whether group-based activities, and microfinance in particular, increase female empowerment remains mixed.[2] Recent field experiments that vary individual access to microfinance report mixed evidence on this front. Banerjee et al. (2013) report the first randomized evaluation of the introduction of group-lending microcredit and find few positive effects on a battery of financial and development outcomes in urban India, including women's empowerment (which they measure through self-reports on whether women make decisions regarding household spending). Angelucci et al. (2013) find similarly limited positive effects but also little evidence supporting the hypothesis that microcredit causes harm.

In this paper we use a field experiment to examine whether variation in microfinance meeting frequency generates social capital among women and whether these effects vary based on the extent of client exposure to microfinance programs. This allows us to test the degree to which microfinance groups can serve as a conduit for social and economic linkages. A similar manipulation has been shown in previous work to encourage friendship formation and economic ties between microfinance clients (Feigenberg et al., 2013). Here, we also find that weekly repayment assignment is associated with an increase in social contact: weekly clients exhibit a 0.69 standard deviation increase in social contact relative to monthly repayment assignment. Furthermore, we find that the estimated impact is largest for first-time borrowers that are paired with group members who are also new microfinance clients: among this subset, weekly clients experience a 1.08 standard deviation increase in social contact relative to monthly clients.

To investigate the impacts of more frequent meeting on female empowerment we provided women with a free good (cloth typically used to make menswear) prior to the festival season. We informed each client that she could either store this good or give it as a gift

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[2]For example, Holvoet (2005) uses survey evidence on South Indian household decision-making processes to argue that credit involving social group intermediation such as microfinance empowers women, as compared to direct bank-borrower credit delivery. The author nonetheless acknowledges the issue of selection bias into the program and the desirability of stronger, experimental evidence. Lyngdoh and Pati (2013) use propensity score matching to make similar empowerment claims among women, microfinance borrowers in matrilineal tribes in northeastern India.

to a man within or outside of her household. After the festival season we tracked the destination of the item.[3] Then we test whether women who were assigned to the treatment arm that met more often differed in terms of how they allocated the free good. We first consider two measures that, in line with the existing literature, presume that empowerment implies autonomous decision-making and greater ability to move resources away from the husband's extended family. We observe no statistically significant difference in either outcome for women assigned to meet weekly. However, women who meet more often do allocate resources in a systematically different fashion. Specifically, they are more likely to reallocate resources away from extended family and towards their own nuclear family (which we define as self, husband, children and children-in-law). We interpret this response to increased social contact as indicative of changes in preferences over giving that accompany increases in network strength. Since little is understood about the exact ways in which individual preferences adapt to changes in networks, more research is needed to uncover how female empowerment changes women's willingness to invest in their traditional networks.

We have highlighted the fact that our results reveal the complexity of measuring female empowerment. That said, we should note that the effect of social capital on women's bargaining power is ambiguous (on this, see Mayoux (2001))[4] While strengthened bonds with other women can raise confidence and consequently empower, they may also potentially encourage a greater spread of prevalent social norms and inhibit women from making resource claims. Furthermore, if greater social capital among group members causes clients to substitute away from their traditional family then it is unclear how empowerment changes can be traced.

Our paper makes methodological and substantive contributions to the existing empirical literature on the determinants and impacts of social capital in low income settings. On the

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[3]There are varying empirical approaches to measuring female economic empowerment within the household. A common strategy used to uncover the distribution of bargaining power within a household that dates back to Deaton (2010) is to measure household consumption of goods that are consumed by certain household members more than others, such as those that have gender-specific utility. A recent application of this method is Ashraf et al. (2010), who find that the use of a financial product, namely a commitment savings product in the Philippines, empowers women by increasing the consumption of female-oriented durable goods.

[4]Mayoux (2001), uses anecdotal evidence from Cameroon to show how microfinance can empower women through social capital but also notes three significant dimensions through which social capital can produce harm. First, social networks can become axes of exclusion. Second, such networks can amplify community pressure and particular norms. Finally, groups with disproportionate social capital, particularly when organized around ethnic or religious lines, can harbor undue, antidemocratic influence.

methodological front, we first add to the growing experimental literature in development economics which seeks to identify the causal impact of well-known development programs on individual well-being. A key concern for this literature has been external validity (Deaton, 1989) . By replicating the findings of Feigenberg et al. (2013) for a more mature and diverse microfinance client population and examining heterogeneity in program impacts across new and old clients we are able to show that development programs that aim to cultivate social capital among women can have a strong affect on group cohesion for an extended period of time and not just at the onset of the program.. We are also able to show how giving behavior of clients, as measured in a real life setting, can be used as a complement to the current practice of eliciting empowerment metrics via surveys. On the substantive front, we provide some of the first rigorous evidence on the role of group composition in influencing social capital accumulation. This finding has significant policy importance given the widespread use of community groups in development program implementation. In particular, it may be most effective to cultivate social capital among groups of individuals that are all relatively unconnected since "bonding capital" appears to be more readily formed than "bridging capital" among female microfinance clients.

The remainder of the paper is structured as follows. Section 2 describes the experimental design, various sources of data, and the empirical strategy. Section 3 presents results related to social interactions and empowerment. Section 4 concludes.

2   Background and Experimental Design

This experiment builds on two other randomized controlled trials that were conducted in Kolkata in 2006 and 2007 in partnership with Village Financial Services Private, Ltd. (VFS). VFS is a microfinance institution that currently offers loans varying in size from 4,000 to 15,000 INR to over 160,000 women in Kolkata. At the time of the experiment, the length of a loan cycle was 10 months and the typical loan carried an implied 22 percent APR.[5] The official criteria for selection into VFS are that women be between the ages of 18 and 55, that the household have some income-generating activity in the form of a business, and

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[5]Recently, the loan cycle has increased in length to 12 months and the APR has increased slightly to 23 percent.

that clients own the home in which they reside.[6] VFS clients mirror the typical profile of the urban poor in developing countries with households reporting an average per capita income of less than two dollars per day at baseline.

Individual loans are disbursed to five-member groups of women. Loan officers assemble members into groups which can be composed of members who know one another or not. For example, if two family members come to VFS to borrow a loan, they will be organized into a five-member group with another three women chosen by the loan officer. Therefore, VFS clients may never have met the other women in their loan groups. While VFS gives individual liability loans, groups are asked to meet together to jointly repay their installments to loan officers. Default is very low- VFS reports a repayment rate of 99 percent.

2.1 Experimental Design

Between January and September 2008, we randomized 148 five-member client groups into two repayment schedules (74 in each category). Randomization occurred after group formation and loan size had been determined but prior to loan disbursal.[7] No clients dropped out of the study between group formation and loan disbursement. Weekly client groups met and repaid weekly, beginning one week after loan disbursal. Monthly client groups met and repaid on a monthly basis, starting five weeks after loan disbursal. All clients received individual liability loans, which, depending on client experience with VFS ranged from 4,000 -12,000 INR. All loans had the same tenure (ten months) and interest rate charged (an implied 22 percent APR).

Our experimental design shares features of earlier repayment flexibility experiments that we conducted with VFS. The first of these, as described in Field and Pande (2008), randomized first time clients into two treatment arms: weekly meeting and repayment or monthly meeting and repayment. The second, described in Field et al. (2013), required that all client groups (mostly second loan cycle clients) repay at the same frequency (fortnightly) but varied whether repayment started two weeks or two months after loan disbursal. Our experiment includes elements of both of these repayment experiments – the treatment group

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[6]While we find these criteria to hold among the majority of our clients, we found exceptions while exploring the summary statistics.

[7]Randomization was stratified (into eight batches) depending on date of group formation. The first and last batches consisted of 12 and 16 groups, respectively, while the middle six were made up of 20 groups each.

repaid less frequently and also began repayment later.

A key difference, and one that is central to our analysis, is that clients in this experiment are heterogenous in terms of how many previous loans they have taken out with VFS. As a result, borrowers vary in terms of how much previous interaction they have had with other VFS clients. The exact distribution of experience in our experimental sample of 739 clients is as follows: 29.0 percent (214) were first-time borrowers, 27.7 percent (205) had previously taken out one VFS loan, and 43.3 percent (320) had previously taken out two VFS loans. In composing the client groups, loan officers prioritized keeping clients who were in the same group in a previous loan intervention together and replaced drop-outs from those groups with new clients. For example, if three members of a group from the second intervention went onto the third, the group in the third intervention would be composed of three second intervention clients and two brand new clients.

2.2 Data

We use multiple data sets to study the impact of our experiment on social capital and empowerment. Clients were surveyed on household activities and demographic information twice: before entering the loan cycle (baseline) and shortly after the end of the loan cycle (endline).[8] Of the 739 study clients, we were able to collect a baseline survey from 706.

2.2.1 Client Characteristics

The average client in our sample is 35 years old and has completed primary education. Our sample is predominantly Hindu and roughly 90 percent of the clients are married. 26 percent of the clients report their primary occupation as being a housewife. The other occupations reported by clients include business owner and casual laborer. The average household size of borrowers is 4.14, and 81 percent of clients report that their family owns the home they live in.

Our baseline survey asked clients about financial autonomy and mobility. Table 1 reports some relevant statistics. Over 51 percent of clients report having at least one financial asset

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[8]The baseline survey was conducted an average of 14 days before the loan was disbursed. While we were able to survey 89 percent of clients before the loan was disbursed, 11 percent of our clients were surveyed an average of eight days after loan disbursement. There is no statistical difference between monthly and weekly contract clients in the average number of days after disbursal that these clients were surveyed.

or account that is separate from their husband. Turning to mobility, between 15-25 percent report needing permission to even go to their neighbor's house or to the market. The fraction of clients that need permission to go to a farther away destination, such as a relative's house or another location that is reported to be more than fifteen minutes away, increases to roughly 50 percent. There is no discernible difference in these measures across new entrants to microfinance and those respondents who have been MFI clients before.

In our baseline survey, two of a client's four group members were selected at random. Clients were then asked whether they knew the husband's names for those two group members, whether they were willing to help the group member in a time of need, and whether they talked about their business with the group member. Responses to these questions provide a measure of baseline knowledge of group members since the baseline survey occurred after groups had been formed but prior to loan disbursement. On average, 75.2 percent of clients were aware of the name of the husband of another group member. While the reported willingness to help another group member is very high (with over 90 percent of clients answering affirmatively), only 16.2 percent of respondents talked to other group members about their businesses.

As is common among the poor in developing countries, households are subject to frequent shocks with over 50.7 percent reporting a birth, death, flood, or illness in the past 30 days. On average, a household loses 0.66 days of work when a shock occurred.[9] It is also clear that informal networks play an important role in reducing risk. Clients reported receiving an average of Rs.1711.1 and giving an average of Rs. 3796.4 in transfers to family and friends over the last 12 months.

The average group in our sample includes 1.5 new members. Reflecting the fact that loan officers prioritized keeping previous groups intact we observe clustering of first-time borrowers. The average new client has 2.4 group members who are also new research clients, while the average returning borrower has only 0.7 such group members. This difference is driven by the fact that 47.0 percent of first-time borrowers have groups composed entirely of new borrowers (there are 19 such groups) , while 49.3 percent returning borrowers have groups without a single first-time borrower (there are 53 such groups). Existing clients borrowers carry loans that are 25.3 percent larger than those taken out by their new counterparts, on

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[9]This can be particularly damaging given that these households report average health, education, household, and drinking water expenditures of Rs.1444.36 or 26.3 USD per month.

average.

Comparing returning and first-time borrowers, the latter are younger and report nearly an extra year in formal education. New clients are less likely to be housewives and are less likely to report having to ask permission to go outside the home.

2.2.2 Social Interactions

To measure group member social interactions during the course of the loan cycle, we rely on data collected during group meetings. The survey was administered every four weeks in both weekly repayment and monthly repayment groups to ensure no differences in the frequency with which borrowers were asked about social behavior (which, in turn, could potentially influence actual behaviors). As discussed in Feigenberg et al. (2013), clients were not asked about relationships with particular group members in the group meeting survey due to the fact that questions were asked in the presence of other group members. Instead, clients were asked about the total number of group members with whom they had discussed personal matters, engaged in home visits, etc. Group meeting survey data was collected from all 739 borrowers. However, to mitigate sample selection concerns we exclude responses recorded after week twenty-three of the loan cycle (clients were permitted to finish repaying loans in full after this date). Once the sample is restricted to include only observations within 23 weeks of loan disbursal, we are left with 707 clients in the sample and an average of 3.8 responses per client.

To investigate changes in social interactions along a number of dimensions, we construct a Social Contact Index. This index estimates average effect size based on responses to the following four survey questions: (1) "How many group members have you visited in their houses in the last two weeks?", (2) "How many group members have visited you in your house in the last two weeks?", (3) "How many people in the group did you talk to about business matters in the last two weeks?", and (4) "How many people in the group did you talk to about personal matters in the last two weeks?". Each component z-score included in the index is constructed by subtracting the Control group mean from client responses and dividing by the Control group standard deviation.[10] For each included outcome measure, client-level responses are averaged over all group meetings that occurred between the first and twenty-third week after loan disbursal. On average, clients reported having visited 0.75

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[10]For further discussion of this index, see Feigenberg et al. (2013).

group members and having been visited by 1.5 group members in the last two weeks. In addition, clients reported having spoken with 1.1 group members about business matters and with 1.4 group members about personal matters in the past two weeks.

2.2.3 Female Empowerment

To measure female empowerment, we make use of a heightened period of gift-giving that occurs during the annual Hindu holiday of Durga Puja. In 2009, Durga Puja occurred at the end of September, approximately 14 months after the median loan disbursement day for third intervention clients. Ghosh (2000) describes Durga Puja as "the most popular religious festival of the Bengali Hindus" that is marked by a "festive atmosphere in West Bengal, especially in the capital city of Kolkata." Traditionally, new clothes are worn on at least one if not all of the four days of the Puja and gifts of apparel (shirts, sarees, accessories) across the extended household and to close friends is common.[11] The expectation of both gift-giving and personal expenditure on food and clothing during the holiday is financially taxing, and a large fraction of VFS clients report taking out loans to finance holiday-related consumption. Since Durga Puja is a prominent fall festival, Eid represents a parallel-timed holiday for Muslims that presumes similar gift-exchange.

Our study approach was as follows: Shortly before Durga Puja, similar shirt pieces (essentially a pastel-colored striped piece of cloth used to make traditional male garments) were hand-delivered as gifts to each of the women.[12] We chose raw fabric, purchased from the VFS store, as opposed to pre-sized or ready-made clothing to minimize constraints on a client's gift-giving choice. The pieces cost 200 Rs. (4 US dollars) or roughly two days wage for our client and were perceived as relatively high quality shirt pieces by our clients. A gift of cloth piece is a very typical gift exchange during the holiday, and to emphasize this purpose, we attached a note to each shirt piece suggesting that they give it to a person of their choice.[13] Alternatively, the shirt pieces could be kept by members of the woman's own

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[11]Since Durga is the benevolent maternal goddess, she is said to represent "the yearnings of young Bengali brides of yore pining to return to their natal families and be free from the stifling constraints of their affinal homes" Ghosh (2000). Because of this mythology, there is an expectation of women visiting their natal homes for Durga Puja and bringing gifts to extended family members.

[12]Our clients predominantly wear sarees and salwar kameez, suggesting that a Western-patterned shirt piece would be an appropriate gift for a male but not a female.

[13]The note contained the following message:"Thank you for your participation in our surveys, and for the upcoming holidays, we would like to give you a shirt piece. We may contact you in the future for another survey regarding your activities and expenses during the Puja/Eid holiday season, including what exactly

household or resold at a discount. After Durga Puja had passed, we sent surveyors to follow up with our clients during the months of November and December.

We successfully tracked the final destination of the shirt pieces for 711 of the 739 clients. In addition to the destination of the gift, we asked clients whether they consulted their husband before deciding how to allocate the shirt piece. The majority (nearly 55 percent) reported giving the shirt piece to their husband, and another 126 (18 percent) reported keeping the shirt piece for themselves (since no clients reported giving the shirt pieces to women, we interpret the choice to keep the shirt piece for themselves as the same as keeping it within the household). We create two empowerment measures – whether the client consulted her husband before allocating and whether she gave it to someone on the husband's side. "Husband's side" refers to the husband's natal family, including, for example, the husband 's brother (the client's brother-in-law) or the husband's father, as well as unrelated friends of the husband.

2.3   Empirical Strategy

Randomization of client groups into weekly or monthly repayment means that we can estimate the causal effect of meeting frequency on consumption outcomes with the following regression:

$$Y_{gi} = \beta_1 W_g + \gamma X_{gi} + \epsilon_{gi} \tag{1}$$

Y_{gi} is the outcome of interest for client i in loan group g and W_g is an indicator for group assignment to the high frequency (weekly) repayment treatment arm. X_{gi} includes controls for stratification dummies and loan size.

We are particularly interested in whether women with little history of interaction are likely to gain more in terms of social capital from joining a group. It is, of course, the case that women who join recently will look different from those who have already taken out multiple MFI loans. Table 1, columns (2)-(4) examine whether baseline characteristics vary depending on client tenure. To do so we estimate

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you decided to do with this shirt piece and who you may have given it to. We would appreciate your continued participation in future surveys as well."

$$Y_{gi} = \beta_1 W_g + +\beta_2 \text{New}_{gi} + \beta_3 W_g \times \text{New}_{gi} + \gamma X_{gi} + \epsilon_{gi} \tag{2}$$

where New_{gi} is an indicator for whether client i is a first-time borrower in VFS. We observe that new clients in monthly groups have smaller loans than returning borrowers and are less likely to be housewives. There is also some imbalance between new clients in weekly and monthly groups: on average, new clients in weekly groups are slightly younger, more likely to be housewives, and have smaller loans.

Column (5) reports p-value for whether overall monthly and weekly clients look different. In the full sample, age, occupation, and loan size are no longer imbalanced, although the weekly group members live in households that on average have 0.21 more members and operate in groups that have an average of 0.24 more new group members. In our analysis we, therefore, focus on equation 1 which reports average differences between weekly and monthly clients. Second, we ask whether differences in new client outcomes across monthly and weekly groups vary with the fraction of other newcomers in a group. To do so we estimate:

$$Y_{gi} = \beta_1 W_g + \beta_2 \text{New}_{gi} + \beta_3 \text{NumNew}_{gi} + \beta_4 W_g \times \text{New}_{gi} + \beta_5 W_g \times \text{NumNew}_{gi}$$
$$+ \beta_6 \text{New}_{gi} \times \text{NumNew}_{gi} + \beta_7 W_g \times \text{New}_{gi} \times \text{NumNew}_{gi} + \gamma X_{gi} + \epsilon_{gi} \tag{3}$$

NumNew_{gi} is the number of first-time VFS borrowers in loan group g other than individual i.

In all specifications, standard errors are clustered at the level of randomization- the loan group. All specifications include controls for stratification cell, loan size, client age, whether the client is married, the client's total years of education, whether the client is a housewife, whether the household head is muslim, and household size.

3 Results

3.1 Does Group Composition Affect Member Interactions and Social Capital?

The results on social capital formation are presented in Columns (1)- (2) of Table 2. In these specifications, the dependent variable is the Social Contact Index described in Section 2.2.2 that estimates average effect size across four measures based on group meeting survey questions. The coefficient on Social Contact Index in Column (1) is large in magnitude (0.686) and statistically significant at the 1 percent confidence level. The Column (2) specification suggests that the impact of weekly assignment on social contact is largely independent of group borrowing history. Other than the large and statistically significant coefficient on Weekly, only the triple interaction term is statistically significant (at 10 percent) in this specification. Considered jointly, Column (2) estimates imply that social contact gains are largest for new clients with group members who are all new as these borrowers experience a 1.08 standard deviation increase in reported social contact.

In sum, there are significant increases in social interaction associated with weekly repayment assignment. While borrowers assigned to weekly repayment experience increased social contact independent of group composition, increases in reported social contact are largest for first-time borrowers with group members who are also new to VFS.

As in Table 2, Appendix Table 1 shows regression specification (1) in the odd columns and regression specification (3) in the even columns as described in Section 2.3. The outcome variables are the four questions used to compose the social capital index as described in section 2.2.2. The odd columns show that weekly clients have between a 0.476 and 0.681 standard deviation gain in the four social capital measures and all are significant at the 1 percent level. Additionally, we see that the result that the largest social capital gains are concentrated among new clients in all new client groups is driven by the measures in Columns (6) and (8). The weekly contract induces new client groups to discuss personal matters and business more frequently. This indicates that the mechanism through which the weekly contract increases social capital is by creating a forum for clients to have personal discussions rather than by having them meet more frequently outside of group meetings.

3.2 Financial Empowerment

The last four columns in Table 2 show the corresponding effects on our measure of female financial empowerment. The first outcome variable concerns the actual allocation, reflecting whether the woman gave the shirtpiece to her husband's side of the family as opposed to keeping it for herself or giving it to her own extended family (columns 3 and 4). The second outcome variable is procedural, reflecting whether the woman consulted her husband before gifting the shirtpiece (columns 5 and 6). The coefficients on weekly repayment are essentially zero and statistically insignificant in columns (3) and (5). The triple interaction regressions similarly suggest no differences based on weekly repayment.

It is relevant that giving on the husbandside is relatively low (5 percent). This likely limits our ability to discern impacts. In Appendix Table 2 we examine whether giving to other groups – specifically, the clientside of the family and keeping the shirtpiece within the nuclear family were affected. These outcomes are harder to interpret since it is unclear whether more empowered women should keep shirt pieces within their nuclear family or give to their side of the family. Column (1) shows a weak but insignificant increase in gift-giving within the nuclear family among clients assigned to the weekly repayment and column (3) shows a parallel insignificant decline in gifting it to the clients side of the family. Neither effect is statistically significant. In the triple interaction regressions in columns (2) and (4), the coefficient on weekly repayment becomes significant. Specifically, among experienced clients who belong to loan groups that consisted wholly of members that had completed atleast two loan cycles we observe an eleven percentage increase in giving gifts to members of the nuclear family (column 2) and a ten percentage point decrease in giving gifts to the client's side (column 4).

We remain agnostic on the interpretation of these effects as it likely reflects a combination of changing network structure for clients and differences in bargaining power.

4 Conclusion

Group meetings are an intrinsic part of the classic microfinance model that have the potential to increase social capital. Using a field experiment in India, we document how social capital is produced among members of microfinance groups, even long after they have joined the group. This suggests that development programs that aim to cultivate social capital among

women can have a strong affect on group cohesion for an extended period of time and not just at the onset of the program. We also demonstrate heterogeneity in that production: clients who are new to microfinance programs are more likely to benefit from more frequent meetings if paired with other new members. This suggests that it may be most effective to cultivate social capital among groups of individuals that are all relatively unconnected. In the words of Putnam, once social links are formed, bonding capital is more likely to grow than bridging capital.

In trying to connect these social capital measures to empowerment, we document the process and outcome of a giving experiment during the primary festival season rather than rely on self-reported measures. We find no evidence of changes in the women's decision-making process or allocation of resources within the household based that results from more frequent repayment, however we do observe changes in resource allocation among certain subsets of clients. In particular, experienced clients who meet more regularly with members of their microfinance group are more likely to allocate resources within the nuclear family as opposed to the client's extended family. Our inability to unambiguously interpret this change in empowerment terms emblemizes the complicated relationship between social capital and empowerment. While real-life giving experiments potentially provide more robust tests of women's empowerment and agency than survey evidence, clear interpretations require understanding underlying preferences, which may change in response to changing social capital and networks.

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Table 1: Randomization Check

	Control Mean (Monthly and Returning Client)	New	Weekly	Weekly*New Client	Monthly vs. Weekly p-Value
	(1)	(2)	(3)	(4)	(5)
Panel A: Borrower and Household Measures					
Client Age	34.629	-0.071	1.145	-2.1758**	0.280
	(0.549)	(0.7961)	(0.6934)	(1.0586)	
Client is Married	0.899	0.044	0.073	-0.073	0.266
	(0.019)	(0.0421)	(0.0484)	(0.0491)	
Client Years of Education	6.522	0.477	-0.253	0.650	0.712
	(0.219)	(0.3882)	(0.4102)	(0.5723)	
Household Size	4.101	-0.084	0.140	0.236	0.052
	(0.095)	(0.1487)	(0.1247)	(0.2527)	
Client is a Housewife	0.290	-0.0933*	0.027	0.1604**	0.181
	(0.029)	(0.0559)	(0.0593)	(0.0721)	
Household Head is Muslim	0.040	0.000	0.043	-0.023	0.406
	(0.013)	(0)	(0.0474)	(0.0357)	
Fraction of New Members in the Group	0.145	0.5482***	0.042	-0.062	0.000
	(0.01)	(0.0632)	(0.05)	(0.0887)	
Loan Amount	8967.742	-1739.9740***	159.017	-1048.2399**	0.033
	(97.649)	(251.4371)	(173.5119)	(408.4941)	
Household Owns Its Home	0.837	0.000	0.000	0.000	0.840
	(0.024)	(0)	(0)	(0)	
Total Household Expenditures in Last 30 Days	1412.148	51.416	-237.764	1104.752	0.910
	(255.254)	(555.7896)	(261.6844)	(1323.2694)	
Panel B: Empowerment Measures					
Number of Times Client Went Outside Last 7 Days	1.686	-0.200	-0.176	0.477	0.789
	(0.109)	(0.2192)	(0.1841)	(0.3152)	
Client and Husband Have Separate Finacial Assets/Acco	0.508	0.047	0.042	-0.006	0.538
	(0.032)	(0.0877)	(0.0654)	(0.0992)	
Client Asks Permission to go to Relative's House	0.519	-0.015	0.015	0.080	0.540
	(0.032)	(0.0623)	(0.0659)	(0.0823)	
Client Asks Permission to go to Neighbor's House	0.142	0.056	0.041	0.076	0.292
	(0.023)	(0.0542)	(0.0571)	(0.0644)	
Client Asks Permission to go 15 mins. from House	0.418	-0.022	0.020	0.067	0.492
	(0.032)	(0.0687)	(0.0632)	(0.0844)	

Notes

1   Total Household Expenditures in Last 30 Days includes expenditures on education, health, drinking water, and house repairs.

2   Column (1) reports the mean value of the outcome variable for returning clients assigned to the monthly repayment contract. Column (2) reports the difference between the mean value of the outcome variable for a new client assigned to monthly repayment and column (1). Column (3) reports the difference between the mean value of the outcome variable for returning clients assigned to weekly repayment and column (1). Column (4) reports the difference between the mean value of the outcome variable for new clients assigned to weekly versus monthly repayment. Column (5) reports the p-value on the difference between the means of the monthly and weekly values of each variable.

3   Differences in means are estimated with stratification fixed effects. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered by loan group.

Table 2. Does Meeting Frequency Change Social Interaction and Empowerment?

	Social Contact Index		Husbandside		Consult Husband	
	(1)	(2)	(3)	(4)	(5)	(6)
Weekly	0.686***	0.769***	-0.00611	-0.0214	-0.00686	-0.0649
	(0.117)	(0.160)	(0.0156)	(0.0219)	(0.0470)	(0.0818)
Weekly* New Client* Number of New Group Members		0.395*		-0.00800		0.0180
		(0.201)		(0.0289)		(0.0852)
Weekly* New Client		-0.292		-0.0191		-0.0545
		(0.269)		(0.0569)		(0.145)
New Client		-0.247		0.00631		-0.0328
		(0.172)		(0.0486)		(0.104)
Weekly* Number of New Group Members		-0.245		0.0213		0.0454
		(0.157)		(0.0203)		(0.0685)
Number of New Group Members		-0.0634		-0.0237*		-0.0761
		(0.0921)		(0.0124)		(0.0467)
New Client* Number of New Group Members		0.00954		0.0109		0.0179
		(0.120)		(0.0194)		(0.0551)
F-statistic						
p-value						
Control Mean- All Monthly	-		0.040		0.328	
	-		(0.195)		(0.470)	
Sample (by Assignment)						
N	707	707	711	711	711	711

Notes

1 Social Contact Index estimates average effect size across four measures based on group meeting survey questions: (1) "How many group members have you visited in their houses in the last two weeks?", (2) "How many group members have visited you in your house in the last two weeks?", (3) ``How many people in the group did you talk to about business matters in the last two weeks?", and (4) "How many people in the group did you talk to about personal matters in the last two weeks?" For each included outcome measure, client-level responses are averaged over all group meetings that occurred between the first and twenty-third week after loan disbursal.

2 Husbandside is a binary variable equal to 1 if the client reported giving the shirt piece to someone on her husband's natal side of the family (husband's father, husband's brother, etc.) or to her husband's unrelated friend after the initial survey.

3 Consult Husband is a binary variable equal to 1 if the client responded "Yes" to the question: (1) "Did you consult with anyone before giving the shirt piece?" and "Husband" to the follow-up of (2) "If so, who was the main person with whom you consulted?"

4 All regressions control for stratification cell, loan size, age, marital status, whether client is Muslim, household size, years of education, and whether client is a housewife. * , **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered by loan group.

Appendix Table 1. Social Contact Index Components

	Number of Members I Visited in Their Homes		Number of Members Visited Me in My Home		Talked Business Matters		Talked Personal Matters	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Weekly	0.538***	0.505***	0.476***	0.645***	0.681***	0.730***	0.502***	0.693***
	(0.104)	(0.142)	(0.171)	(0.236)	(0.128)	(0.186)	(0.146)	(0.194)
Weekly* New Client* Number of New Group Members		-0.0141		0.271		0.540**		0.687***
		(0.185)		(0.281)		(0.218)		(0.252)
Weekly* New Client		0.324		-0.340		-0.644**		-0.626*
		(0.276)		(0.385)		(0.281)		(0.342)
New Client		-0.205		-0.633**		-0.00686		-0.0790
		(0.161)		(0.247)		(0.194)		(0.260)
Weekly* Number of New Group Members		-0.0545		-0.252		-0.200		-0.421**
		(0.143)		(0.207)		(0.170)		(0.187)
Number of New Group Members		-0.0314		-0.229*		-0.00798		0.00714
		(0.0881)		(0.134)		(0.115)		(0.138)
New Client* Number of New Group Members		0.00222		0.296		-0.106		-0.0796
		(0.104)		(0.181)		(0.142)		(0.184)
Control Mean- All Monthly	0.749		1.534		1.102		1.392	
	(0.802)		(1.202)		(0.943)		(1.043)	
Sample (by Assignment)								
N	707	707	707	707	707	707	707	707

Notes

1 Dependent variables are constructed respectively from client responses to the following four group meeting questions: (1) "How many group members have you visited in their houses in the last two weeks?", (2) "How many group members have visited you in your house in the last two weeks?", (3) ``How many people in the group did you talk to about business matters in the last two weeks?", and (4) "How many people in the group did you talk to about personal matters in the last two weeks?" For each included outcome measure, client-level responses are averaged over all group meetings that occurred between the first and twenty-third week after loan disbursal.

2 All regressions control for stratification cell, loan size, age, marital status, whether client is Muslim, household size, years of education, and whether client is a housewife. * , **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered by loan group.

Appendix Table 2- Empowerment

	Shirt Piece in Nuclear Family		Shirt Piece in Client's Side of Family	
	(1)	(2)	(3)	(4)
Weekly	0.0401	0.113***	-0.0276	-0.0954**
	(0.0302)	(0.0425)	(0.0272)	(0.0408)
Weekly* New Client		-0.110		0.180*
		(0.109)		(0.0950)
New Client		0.0934		-0.108
		(0.0826)		(0.0668)
Weekly* Number of New Group Members		-0.0399		0.0240
		(0.0385)		(0.0353)
Weekly* New Client* Number of New Group Members		0.0104		-0.0161
		(0.0554)		(0.0513)
Number of New Group Members		0.0397		-0.0242
		(0.0303)		(0.0279)
New Client* Number of New Group Members		-0.0183		0.0191
		(0.0386)		(0.0332)
Control Mean- All Monthly	0.794		0.150	
	(0.405)		(0.357)	
Sample (by Assignment)				
N	711	711	711	711

Notes

1 Shirt Piece in Nuclear Family is a binary variable equal to 1 if the shirt piece ended up in the nuclear family (client, husband, or son). The definition includes son in law.

2 Shirt Piece in Client's Side of Family is a binary variable equal to 1 if shirt piece ended up on the client side. This does not include if the client kept the shirt piece for herself

3 All regressions control for stratification cell, loan size, age, marital status, whether client is Muslim, household size, years of education, and whether client is a housewife. * , **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Standard errors are clustered by loan group.