Credit Groups, Women's Political Engagement and Public Goods Provision in India[*]

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Abstract

Over the last three decades, the Self-Help Group (or SHG) model of microcredit has witnessed phenomenal expansion in India. This paper examines whether women's membership in SHGs leads to their greater political engagement (via attendance in village assemblies, participation in political party activities, and membership in political committees), and whether this influences public goods provision by the village council. Using pan-Indian survey data from India, we find SHG membership increases women's attendance in village assemblies, shifts the gender composition of attendees in women's favor, and changes public goods provision towards those that are preferred by women. Evidence suggests that the effect operates through social network formation due to SHG membership, which facilitates collective action. We find that SHG membership also increases women's long-term political engagement. We conclude that SHGs contribute to *democratic deepening* by indirectly promoting political participation among rural women.

Key words: Self-Help Groups, Village Assemblies, Political Engagement, Public Goods, Gender, India

JEL Codes: O12, P48, H41

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1. Introduction

Underrepresentation of women in politics is a global problem. Worldwide only seven percent of heads of state are women, and women continue to be a small minority of elected leaders at all levels of politics. Having women in leadership positions yields considerable benefits because women make different policy decisions compared to men (Eagly and Carli (2003)). Women as leaders are likely to prioritize spending in ways that give voice to marginal populations, lead to better economic performance, and lower corruption (Chattopadhyay and Duflo (2004b), Edlund and Pande (2001), Pande and Ford (2012), Swamy, et al. (2001)). Elected women may also act as path breakers and role models, encouraging the growth of the next generation of female leaders (Bhalotra, et al. (2017)).

Many countries have adopted gender based affirmative action policies to address the lack of female representation in politics. This involves reserving a quota of seats for electing women into political positions. For example, in India as a part of a constitutional amendment, all states are required to reserve at least 33% of all political seats in the *panchayat* system (decentralized rural government) for women. This measure has the advantage of quickly elevating women into leadership, particularly in contexts of patriarchy where women's rise to leadership may be impeded.[1] However, India's affirmative action policy has had limited effect in brining women into politics. Beaman et al (2009), for example, show that once the policy is removed after a term, the villages don't observe greater entry of women politicians compared to villages that were never exposed to the quota policy.[2] This suggests that, at least in the context of India, brining women into political leadership positions through policy has had a weak effect in engaging women in politics for the longer run.[3] Moreover, the affirmative policy has been shown to engender male backlash (Luke and Munshi (2011), Besley, et al. (2013), Bertrand, et al. (2013), Economist (2015), Gangadharan, et al. (2016)). This might partly explain the limited entry of women in politics in response to the affirmative action policy.

[1] Currently, there are 127 countries that have some form of gender quota in elections.
[2] They observe a small increase in entry of women in politics if the quota is imposed for two consecutive terms or ten years.
[3] Some countries have a more positive experience of gender quotas in this respect. See, for example, Paola, et al. (2010) for the case of Italy.

In this paper we consider an alternative approach to promote women's political participation. We emphasize the role of local political processes and that of Self Help Groups (henceforth SHGs) in promoting women's participation in these processes. In the long run, this may result in superior selection of women into electoral politics, leading to more effective representation. Additionally, in places where crucial public goods are distributed through participatory political institutions, greater participation of women can have important effects on public goods provision. Finally, women's participation in local political processes might transfer onto participation in other consequential spheres, such as participatory community development projects (Mansuri and Rao (2013)).

As an institutional measure, SHGs have brought millions of women under their fold over the last couple of decades, with the promise of poverty reduction and women's empowerment.[4] The proliferation and prominence of SHGs as part of non-governmental and state policy have led to their gaining a size and scope equal to a social movement, broadly termed as the SHG movement. While women, typically, enroll in SHGs in order to improve their households' financial status, these groups also have an important associational aspect. SHG members interact with each other on a regular basis (required by SHGs), leading to greater social contact and formation of social networks among women (see Section 2 for more details). This unintended social effect of the SHG movement, by facilitating collective action and promoting active citizenship by women can have potential spillovers into the political domain. Since SHGs enjoy a great degree of social legitimacy due to their wide-spread presence and long history of engaging women in productive activities, any role SHGs can play in increasing women's political engagement would be significant. SHGs can, therefore, provide an alternative social process through which more women can be drawn into politics.

Using survey data collected from 17 major states of India, we find that SHG membership of women within a village is strongly and positively associated with increased attendance in village assemblies. We examine the observable characteristics of women that predict SHG membership and attendance in village assemblies to argue that endogenous selection of women into SHG membership is not able to completely explain the observed correlation. Interestingly, the correlation between SHG membership and village assembly attendance is stronger in states with adverse gender norms,

[4] See Section 2.2 for more on the growth of the SHG model of microcredit in India during the last two decades.

suggesting that SHGs are a more important driver of women's political engagement in states where such engagement is potentially more difficult for them. Further, we find suggestive evidence that SHGs' impact on women's political participation can be attributed to the group-based social networks formed by women. This suggests that *associationism* through SHG membership is the key to its transformative social impacts.

To account for potential unobservable characteristics of women driving SHG membership, we use an IV approach. The IV results show that SHG membership leads to increased participation of women in village assemblies. But there is no such effect for men. Consequently, this significantly changes the gender composition of attendees in these village assemblies in favor of women. This, in turn, results in a significant increase in the provision of public goods preferred by women. Membership in SHGs also fosters long-term engagement of women in politics, providing pathways for women to become effective leaders. Drawing on these findings we argue that SHGs contribute to *democratic deepening* (see Heller (2000), page 487) by indirectly promoting the participation of discriminated groups, such as women, in political institutions and processes.

Our findings provide further empirical support to the literature which suggests that there is a relation between associationism and democracy and that participation in associations promotes active citizenship (Cohen and Rogers (1992), Gutmann (1998)). It also adds to the literature on SHGs, which is increasingly bringing to the fore the social, political, and civic effects of these primarily economic groups on their members (Jejeebhoy, et al. (2017), Feigenberg, et al. (2013), Davidson and Sanyal (2017)). Our specific contributions to this literature is to deepen our understanding of the role SHGs play in improving women's political engagement; the salience of the social networks formed by SHGs in achieving this change; and the impact of political engagement along different dimensions. Additionally, our results are not limited to any particular intervention nor geographically restricted, thereby contributing to the external validity of this argument.

2. Background

In India, two important developments have taken place in parallel since the nineties. In 1993 (as a part of the 73rd amendment to the Indian constitution), the decentralization act constitutionally mandated

that village assemblies (*gram sabhas* or *gram sansads*) were to be held in all villages across the country at least twice and up to four times a year, and incorporated them into the system of rural local governance. This heralded a new era of public participation in local politics and in local development planning.

Simultaneously, the early nineties also marked the start of a non-commercialized group-based model of microcredit: lending through the formation of women's self-help groups, or SHGs. SHGs are microfinance groups organized by non-governmental organizations (NGOs) or directly by the state under state-sponsored anti-poverty programs and are usually nested within a federated structure. This makes the presence of SHGs in the village exogenous to village level characteristics. They can be thought of as village-based women's organizations that are facilitated with access to credit as their centerpiece. SHGs in India are linked to banks, receive bank loans, and have the potential for becoming a channel for non-public service delivery.[5] Starting in the Southern Indian states, SHGs have spread across India through the work of NGOs and because of states incorporating them as a pillar of their development strategy.

2.1 Deliberative Democracy in India

The Panchayat is a three-tiered system of local governance in India involving the village (*Gram Panchayat*), the block or sub-district (*Panchayat Samiti*), and the district (*Zilla Parishad*). The *Gram Panchayat,* or the village council (henceforth GP), is the lowest level of local governance in the country, and its members are directly elected by villagers. Each GP covers about 10,000 individuals across one or more villages. These GPs are responsible for the provision and maintenance of local public goods. While the panchayat system has existed in the major provinces of India since the mid 1950's, this system of governance was not effective until the 1990's. The 73rd amendment of the Indian constitution, ratified in 1993, established this three-tiered system of local governance as universal. All states of the country are now constitutionally mandated to implement it. The GP was

[5] For example, group members can contract for collective activities, like providing child care or cooking mid-day meals for schools and also perform important social activities. Microfinance groups studied by Rai and Ravi (2011) in India also provide health insurance in addition to credit. There is supporting evidence from other countries as well. Ugandan microfinance members form associations called *Munno Mukabi*, which organize social functions such as weddings and burials (Sebstad and Cohen (2001)).

given the primary responsibility for the provision of public goods (like building of hand pumps, sanitation facilities, local roads, public irrigation system) and of identifying those villagers most in need of government support (for example identifying households that are eligible for the below poverty line or BPL card). While the GP has very little revenue raising capacity, it has some freedom to allocate funds (which comprises of central and state level grants) to what it sees as relevant and important for the local population. What is relevant and important for the villagers is, at least partly, determined through public consultation.

In order to facilitate public consultation, every GP is constitutionally mandated to organize a *gram sabha* (village assembly) at least 2 and up to 4 times a year. These are deliberative sessions akin to "town hall" meetings organized in the municipalities of the New England states of USA. Any eligible voter within the GP's jurisdiction can attend and deliberate on the agenda and raise new issues. In these meetings development plans are ratified, decisions are taken regarding the provision of public resources and infrastructure, budgetary allocations are discussed and approved through deliberation. Village councils also use these meetings to select beneficiaries for government programs aimed at disadvantaged households. Key local politicians and bureaucrats use these meetings to announce new government policies and projects. Villagers are expected to attend these meetings and have a say in determining which subsidized programs are utilized and who is selected to receive the different kinds of government support. Any project that gets approval from the majority of the meeting attendees is noted down for action and included in the council's annual development plans. The village council is required by law to get the annual plan approved at the village assembly before it is sent up to the next level of government for funding.

Village assemblies therefore have a critical role in this framework of local governance. They have opened up a new institutional arena for large-scale public participation in local politics. And, compared to voting, participating in village assemblies is a more frequent exercise and a deliberative pathway to political participation. This makes it an ideal setting through which ordinary citizens, including women, can gain exposure and experience in politics. Participating in village assemblies over time might also lead to other forms of political participation and facilitate women's gradual ascension to political leadership. Typically, women's attendance in these meetings in rural India is

very low. And this is a matter of concern for pragmatic and normative reasons. This is where SHGs could have an important role to play in promoting women's participation in this local political institution.

2.2 Self-Help groups in India

The Self-help group (or SHG) model is the dominant form of microfinance in India, both in terms of outreach and overall loan disbursements. The SHG model evolved in the early 1990's following the Reserve Bank of India's directives to all nationalized banks in the country to lend to informal groups. In 1992 India's National Bank for Agricultural and Rural Development (NABARD) initiated its bank-SHG linkage program, and over the last two decades this program has evolved into one of the world's largest microfinance networks. SHGs are formed and funded by the state, non-governmental organization and international development agencies. Many states in India have adopted the formation and funding of SHGs as the cornerstone of their anti-poverty policies: several large and ongoing development programs like the government's *Swarna Jayanti Swarojgar Yojana* (part of the Integrated Rural Development Program) and the National Rural Livelihood Mission are based on the SHG model. As of March 2015, there are nearly 8.7 million SHGs that are linked with formal financial sector institutions with total loan outstanding to SHGs amounting to more than Rs 755985 million (see, NABARD (2018), pages 6 and 7).

A typical Indian SHG consists of 10–20 women members from similar socio-economic backgrounds who usually meet once or twice a month to pool their savings and discuss matters that are of mutual interest. The pooled savings is deposited into a group bank account and can be used by group members in times of need. SHGs also receive loans from banks via the bank-linkage program. The groups are typically facilitated by NGOs or state appointed community mobilizers who also oversee their activities.

Participation in weekly or bi-weekly group meetings is a crucial part of being a member of an SHG. At these meetings women discuss their loan requirements, repayment obligations and difficulties, and other matters of mutual interest. They also have to advocate for their demands, give

reasons for their loan needs or repayment problems, and have to make judgments on the demands and reasons given by other group members.

In many parts of India, the gender context within which SHGs operate is adverse for women. The patriarchal nature of society and rules of marriage, like early marriage and village exogamy, combine to restrict women's freedoms and capabilities. In real life, this means girls marry as adolescents and move to their husband's village to join a family of strangers. This transition is typically followed by restrictions being placed on newly married women on their mobility, interactions with outsiders, and on their general freedom of association. Consequently, their ability to develop meaningful ties with other women or men that can benefit them in times of crises or help them mobilize in response to problems is severely limited. For the most part, their voices go unheard and their participation in the public sphere is negligible.

In such an adverse context, SHGs, which bring women together into a membership-based collective with an associational life, may have an important role to play. There is evidence that membership of SHGs can increase collective action by women in support of issues like prevention of domestic violence, abuse of women, alcoholism and dowry related conflicts, and also increase provision of women centric public goods (Jejeebhoy, et al. (2017)). Additionally, SHG membership can generate social capital among women by expanding their network ties and promoting trust and information access, leading to increased willingness to help each other and facilitating informal exchanges. Qualitative evidence by Sanyal (2009) and experimental evidence by Feigenberg, et al. (2013) show this to be the case for SHGs in an eastern state in India. Formal network analysis using rich social network information by Davidson and Sanyal (2017) show this to be the case in a Southern Indian state.

There is increasing literature on how SHGs are impacting the lives of women in rural India. Sanyal (2009) and Sanyal (2014) in a qualitative study of SHGs in West Bengal found that SHGs improve women's agency and their civic participation in village assemblies, and both changes are catalyzed through the associational rather than the financial mechanism. Desai and Joshi (2014) use data from a randomized control trial conducted in Rajasthan where randomly chosen villages with no prior SHG presence were exposed to SHGs. They found that compared to women in control villages,

women in treatment villages are more likely to engage in civic activities. Casini, et al. (2015), using survey data from Odisha, found that SHG members, by undertaking collective action and contributing to the local public good, incentivize local ward members (elected to the village council) to also do the same. Khanna, et al. (2015) evaluated SHGs under Tamil Nadu's Empowerment and Poverty Reduction or the *Pudhu Vaazhvu* project and found that the program had significant and positive impacts on both women's empowerment and agency, including a higher tendency to report issues of local service delivery and women's public safety; a significant increase in propensity to approach the local government to solve these problems; and a significant increase in their participation in village assemblies. Dutta (2015) using data from JEEViKA, a large scale rural livelihoods program using SHGs in Bihar, found that the program had significantly increased women's empowerment even though the effect on productive activities and accumulation of assets was weaker than expected. Prillaman (2017) using data from a natural experiment in Madhya Pradesh, which mobilized women into small credit cooperatives, found that women who participated in this network intervention were significantly more active in local politics, with large and statistically significant increases in attendance at local public meetings.

3. Data and Descriptive Statistics

We primarily use the 2006 Rural Economic and Demographic Survey (REDS) dataset compiled by the National Council of Applied Economic Research (NCAER). For additional, complementary analysis we use the Indian Human Development Survey (IHDS) data set from 2005 (IHDS1) and 2012 (IHDS2).

The REDS has been carried out since 1968, but only the most recent round (conducted in 2005–2006) asks household members about their village assembly attendance and about membership in different associations. The survey covers about 8,600 households across 242 villages spanning 17 major states of India.[6] The data we use in our analysis are collected using three different surveys: (i) a household survey with information about household assets, demographics, household members'

[6] The states are Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

education, occupation, voting behavior, attendance in the last four *gram sabhas*, benefits received from the GP; (ii) a village survey with data on stock of public goods in the village, street or neighborhood level construction of public goods under past three *panchayats*, information on local elections such as candidate characteristics and vote shares; (iii) a listing survey, which is a census of all households in each of the surveyed villages.

The IHDS is nationally representative, multi-topic survey of 41,554 households in 1,503 villages and 971 urban neighborhoods across India collected by NCAER and the University of Maryland. Around 83% of the households were re-interviewed for the second wave of data, and the response rates were more than 90% for both waves. The survey collected information about health, education, employment, economic status, marriage, fertility, gender relations, social networks, membership in groups and associations (including in SHGs), and political engagement. The information on social networks, membership of groups and associations, and political engagement is not particularly detailed.

Table 1. Descriptive Statistics

Variable	Mean	SD
Age	38.15	15.97
Scheduled Caste (SC) Household	0.15	0.36
Scheduled Tribe (ST) Household	0.07	0.26
Married	0.76	0.42
Years of Schooling	5.45	5.25
Land-holding (acres)	3.53	6.50
Turnout at village assembly	0.13	0.31
Turnout at village assembly by women	0.10	0.28
Turnout at village assembly by men	0.26	0.38
Turnout at village assembly by SC	0.12	0.29
Turnout at village assembly by non-SC	0.14	0.31
Turnout at village assembly by ST	0.17	0.35
Turnout at village assembly by non-ST	0.13	0.30
Member of SHG in previous GP	0.13	0.34
No. of other SHG members in household in previous GP	0.06	0.24
Total no. of SHG members in household in previous GP	0.10	0.32
Women to men attendees in village assembly	0.21	0.51
SHG exists in village	0.88	0.32
Any women preferred public good provided in current GP	0.68	0.47
Any men preferred public good provided in current GP	0.70	0.46

Notes: Authors' computations using the REDS data. Descriptive statistics based on estimating sample used in the regressions.

Using the village survey data from REDS, we can classify the different benefits villagers receive from the local government into two broad categories. The first group includes publicly funded

private goods, henceforth *household benefits*. These include subsidized benefits for the family or household (for example housing, household drinking water connection, toilet facility in the dwelling, and allocation of below poverty line or BPL cards). The second group includes community level public goods that benefit the whole community, such as neighborhood hand pumps (for drinking water), public sanitation and sewage facilities, roads, medical centers, schools, and investment in irrigation (canals).[7]

Table 1 presents selected descriptive statistics on some of the key variables in our analysis. The average age of respondents is 38 years; 15% belong to Scheduled Castes (SC); and 17% belong to Scheduled Tribes (ST). 76% of the survey respondents are married, and they have on average 5.5 years of schooling. On average households own 3.5 acres of land, though this is subject to considerable variation. Attendance rate in village assemblies is a low 13%, and there is considerable gender divide in attendance rates. While 10% of women report attending village assemblies in the year prior to the survey, 26% of men do so.[8] The average woman to man ratio of attendees at village assemblies is only 0.21. Therefore, for every woman present at a village assembly there are 5 men present, indicating that local politics in India is primarily a male domain. Attendance by disadvantaged groups (SC's and ST's) is no different from the overall average. Meeting attendance rates are lower compared to voter turnouts in elections.[9] One explanation might be that participating in a village assembly could be a costlier exercise than voting, as it may involve potential conflicts and arguments. Also, active participation requires speaking up in this public forum. Women and men who are not comfortable speaking in public might not see the worth of attending these meetings as silent spectators. 13% of women were members of a SHG under the previous GP and, on average, 10% of all respondents were enrolled in SHGs. Thus, in most cases, there was only one SHG member per household. 88% of survey respondents report that a SHG is present in the village.

[7] These are the 6 most demanded ones in the sample, as reported by the survey participants.
[8] These attendance rates are consistent with those from other countries with similar institutions (Das (2015)). These attendance rates (by gender) are also consistent with those reported by Banerjee, et al. (2004) and Besley, et al. (2012) using different data sets.
[9] Averages using the Indian Human Development Survey (IHDS) data show that the average attendance rates at village range from 25-33% for men and 6-11% for women across the different caste groups. Gender differences in participation out-weigh the corresponding differences by caste. Average proportion of voters that are women is close to 50%.

4. Reduced Form Analysis: SHG membership and women's political engagement

The first step in the analysis is to examine the link between SHG participation and political engagement. We use attendance in village assemblies as our primary measure of political participation. Since it takes time for the membership in SHG to facilitate political participation, we look at the effect of SHG membership under the previous GP regime (time $t-1$) on attendance in village assemblies under the current GP regime (time t). Our estimating equation is given by:

$$m_{ihvd,t} = \gamma_{w1} SHG_{ihvd,t-1} + X_{ihvd}\beta_{w1} + Y_{hvd}\beta_2 + \zeta_v + \epsilon_{ihd}, \forall i \in W \quad (1)$$

Here $m_{ihvd,t}$ denotes village assembly attendance by woman i in household h in village v in district d at time t; $SHG_{ihvd,t-1}$ is an indicator of SHG membership of woman i at time $t-1$. The regressions include a set of individual and household level controls (X_{ihvd} and Y_{hvd} respectively) and a set of village fixed effects (ζ_v) to control for observed and unobserved village characteristics.

The survey asks about attendance in the previous four village assemblies. Using this information, we construct two different measures of attendance: (i) the fraction of village assemblies (out of the last four) attended, and (ii) whether or not the individual attended any (of the last four) village assemblies.

Table 2: SHG membership and attendance in village assemblies

	Fraction Attended		**Any Attended**	
	(1)	(2)	(3)	(4)
Panel A: Women				
Member of SHG in Previous GP	0.0694**	0.0739**	0.0854**	0.0900**
	(0.0298)	(0.0331)	(0.0343)	(0.0380)
OSHG in Previous GP		0.0277		0.0276
		(0.0255)		(0.0301)
Average Dependent Variable	0.099	0.099	0.132	0.132
Sample Size	5,431	5,431	5,431	5,431
Panel B: Men				
Member of SHG in Previous GP	-	-	-	-
	-	-	-	-
OSHG in Previous GP		0.0448**		0.0188
		(0.0209)		(0.0240)
Average Dependent Variable	0.257	0.257	0.372	0.372
Sample Size		5,708		5,708
Individual and Household Controls	YES	YES	YES	YES
Village FE	YES	YES	YES	YES

Notes: Authors' computations using the REDS data. Regressions control for individual and household characteristics and village fixed effects. SHG refers to women's only SHG. OSHG denotes number of other household members who are SHG members in previous GP. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1.

The corresponding regression results are presented in columns 1 and 3 of Panel A of Table 2 for the two different measures of attendance. The results in column 1 show that the fraction of village assemblies attended is 7 percentage points higher for women who are SHG members; those in column 3 show that the likelihood of attending any village assembly is 8.5 percentage points higher for women who are SHG members. This is a large effect considering that, on average, 13 percent of women report attending any village assembly. Membership of SHGs increases the likelihood of attending any village assembly by almost 66%. Given the typical focus of SHGs on loans and savings, this effect is quite likely unintended.

4.1 Preliminary Evidence on Selection Bias

Selection bias at the individual and household levels could produce a spurious (positive) correlation between SHG membership and attendance in village assemblies. At the individual level this selection bias can arise from the fact that women who are more engaged, politically or socially, are likely to both become members of SHG and also attend village assemblies. At the household level as well, some households might be more proactive socially and politically; therefore, in such households we would expect to find greater SHG participation rate as well as greater political engagement. We use a number of methods to address this potential selection bias.

First, we consider the observables characteristics of women and test if the nature of selection on the observable characteristics across SHG membership and village assembly attendance is similar. The results presented in Table 3 show that the observable characteristics that affect SHG membership are systematically different from those that affect attendance in village assemblies. We find that while women from lower landowning households are more likely to become SHG members (consistent with the objective of the SHGs), we see no systematic relationship between attendance in village assemblies and landownership. On the social dimension, while women belonging to the SC community are less likely to become SHG members, they are in fact more likely to attend village assemblies. Similarly, younger and married women, and women from smaller households are more likely to become SHG members, while no such relationships exist for attendance in village assembly.

This gives us confidence that the result we find in Table 2 is not completely driven by selection, at least on observable characteristics.

Table 3: Selection on Observables at the Individual Level?

	Member of SHG (in Previous GP)	**Village assembly (Fraction Attended)**
	(1)	(2)
Land Owned	-0.00195***	-0.000685
	(0.000490)	(0.00122)
SC	-0.0260**	0.0242***
	(0.0130)	(0.00897)
OBC	-0.0149	0.0139
	(0.0106)	(0.00847)
ST	-0.0613***	0.0222
	(0.0218)	(0.0167)
Household Size	-0.00191*	0.000208
	(0.00108)	(0.000829)
Age	0.00118***	0.000192
	(0.000271)	(0.000179)
Years of schooling	-0.000659	0.000974
	(0.000979)	(0.000685)
Married	0.0840***	-0.00185
	(0.00997)	(0.00704)
Sample Size	5,431	5,431
Village FE	YES	YES

Notes: Authors' computations using the REDS data. Standard errors are clustered at household level. Significance: *** p<0.01, ** p<0.05, * p<0.1.

This, however, still leaves us with the problem of selection on unobservable characteristics driving our results. Suppose there are some household specific (unobserved) omitted variables that are positively correlated with both SHG participation and attendance in the village assemblies. For example, suppose the household is highly active in the social and political life of the village, because of the inherent nature of the household members. This is likely to affect both SHG membership and also attendance in village assemblies, for both male and female household members.

We estimate an extended version of equation (1) on the sample of males and females. We include the number of *other* women in the household who were members of a SHG in the previous GP ($OSHG_{ihvd,t-1}$).

$$m_{ihvd,t} = \gamma_{w1} SHG_{ihvd,t-1} + \gamma_{w2} OSHG_{ihvd,t-1} + X_{ihvd}\beta_{w1} + Y_{hvd}\beta_2 + \zeta_v + \epsilon_{ihvd,t}, \forall i \in W \quad (2)$$

$$m_{jhvd,t} = \gamma_{m2} OSHG_{ihvd,t-1} + X_{jhvd}\beta_{m1} + Y_{hvd}\alpha_2 + \zeta_v + \epsilon_{jhvd,t}, \forall i \in M \quad (3)$$

Where W is the set of women and M is the set of men in the sample. Note that in equation (3) $OSHG_{ihvd,t-1}$ captures the total number of women who were members of any SHG in the previous GP. If our results are driven by household level selection, then we expect $\gamma_{w2} > 0$ and $\gamma_{m2} > 0$.

The results are presented in columns 2 and 4 of Table 2, Panel A for the sample of women and Panel B for the sample of men. The coefficients for women are small in magnitude and not statistically significant. For men, however, the result is positive and statistically significant. The coefficient in column 2, Panel B of Table 2 shows, an increase in the total number of SHG members in the household is associated with a 5 percentage points increase in male attendance in the village assemblies. This translates to a 20% increase in the attendance for male members of the household. The coefficient for any attendance for men is, however, small and statistically not significant. Irrespective of whether or not they are statistically significant, the estimated values of γ_{w2} and γ_{m2} are always positive. We cannot, therefore, ignore the issue of selection on unobservables. We return to this in Section 5 below.

4.2 Additional Issues

Before proceeding further, we examine several additional issues within the reduced form framework.

Regional heterogeneity

Table 4: Regional Heterogeneity

	Women		**Men**	
	South India	**Rest of India**	**South India**	**Rest of India**
	(1)	**(2)**	**(3)**	**(4)**
Member of SHG in Previous GP	0.0404*	0.144*		
	(0.0232)	(0.0827)		
OSHG‡	0.00116	0.0891	0.0525**	0.0267
	(0.0172)	(0.0711)	(0.0217)	(0.0475)
Average Dependent Variable	0.165	0.047	0.423	0.219
Sample Size	2,299	3,132	2,328	3,380
Individual and Household Controls	YES	YES	YES	YES
Village FE	YES	YES	YES	YES

Notes: Authors' computations using the REDS data. Dependent Variable: Fraction of village assemblies attended. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual and household characteristics and village fixed effects. SHG refers to women's only SHG. ‡: OSHG denotes number of other household members who are SHG members in previous GP.

One reason for SHG membership to be correlated with attendance in village assemblies could be related to the role SHGs can play in shifting adverse gender norms to make them more favorable for

women. Adverse gender norms in many parts of India impose restrictions on women's interactions and physical mobility. These can greatly diminish their capacity for political and civic engagement. SHGs can make a difference by changing the normative environment. For example, Sanyal (2009), Sanyal (2014) and Sanyal, et al. (2015) argue that SHGs can change cultural norms to make them more permissive of an expanded role of women that goes beyond traditional wifely and motherly responsibilities and is more accepting of certain freedoms that might have been viewed as transgressions at an earlier time.

To examine whether SHG membership helps women over-ride discriminatory gender norms, we examine the association between SHG membership (in the previous GP) and attendance in village assemblies in different regions of India. The regions are characterized by variation in gender norms and how traditionally women have been viewed in the society. Southern India is characterized by significantly higher gender equality and is different from the rest of the country in this respect. We estimate equation (2) separately for households residing in the Southern states of the country (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) and the rest of the country.[10] Varshney (2000) argues that grass roots democracy is more entrenched in South India (compared to the north). Indeed, political engagement, as captured by attendance in village assemblies, is significantly higher for both men and women in the Southern Indian states: on average women in the Southern states report attending 16.5% of the previous 4 village assemblies, compared to the 4.7% reported by women in the non-Southern states. The corresponding averages for men are 42% and 22% for the Southern and non-Southern states, respectively. Given that gender norms are significantly less discriminatory in the Southern states, we expect the SHGs to have a lesser effect in changing the norm in those states (compared to non-Southern states), and hence a lesser effect in increasing women's political participation in those states. Therefore, we hypothesize that the association between SHG membership and attendance in village assemblies would be weaker in the Southern states compared to the rest of the country.

The results presented in Table 4 columns 1 and 2 show that our hypothesis is indeed validated. In the non-Southern states, SHG membership is associated with a 14-percentage point

[10] Andhra Pradesh has since been bifurcated into two states: Andhra Pradesh and Telangana.

increase in the fraction of village assemblies attended by women. The effect is only 4-percentage point in the Southern states.

The results presented in columns 3 and 4 show that in the Southern states, but not in the rest of the country, there is significant across gender spillover: an increase in the number of (other) females in the household who are SHG members is associated with an increase in male attendance in village assemblies. We suggest a possible explanation and offer an optimistic interpretation. It is possible that in Southern Indian societies, compared to the North, women have greater influence on men in their households. Historically, there have been substantial differences between the South and the rest of the country in kinship institutions and marriage alliances. These variations culminated in differences in women's property rights and bargaining power, with women in the South faring better (Fox (1967), Karve (1990), Dyson and Moore (1983), Agarwal (1994)). Although these differences in kinship and marriage norms have been narrowing with the decline of the Southern indigenous kinship system (Rahman and Rao (2004), Chakraborty and Kim (2010)), these cultural institutions have lasting influence on attitudes and behaviors. For example, regional differences in sex ratios in India (the south having a lower sex ratio than the north) have been ascribed to this historical legacy (Chakraborty and Kim (2010)).

The observed cross-gender spill over offer several positive implications. The smaller effect of SHGs in promoting women's village assembly attendance in the South is amplified by indirectly increasing men's attendance. It is also noteworthy that there are few other institutions whose primary focus and base is women but that have across gender influence on attitudes and behaviors, particularly within the civic and political realms. Being able to influence and engage men through engaging women may be a unique ancillary strength of SHGs.

Social network effects of SHGs

Sanyal (2014) points out that as women join SHGs, they form strong social bonds with other members of the group and hence, become a part of a larger social network. This gives them confidence to attend village assemblies and in general, facilitates collective action as they often participate jointly with fellow SHG members. However, the recent literature on the effect of social networks on a variety of

outcomes shows that the network size must be larger than some threshold value for the network effect to materialize (see for example, Munshi (2011), Chay and Munshi (2015), Munshi and Rozensweig (2016)). Hence, when network size is very small, being part of a network would not provide any additional benefit. The benefit, then, jumps discontinuously when the network size crosses a particular threshold.

We formally test this mechanism by defining the social network of a SHG member to be the other SHG members from her neighborhood (or *muhalla*). The SHG members from the same neighborhood are likely to belong to the same group, as physical proximity is often the dominant factor shaping group formation. Therefore, the number of SHG members from the same neighborhood is a good indicator of the size of social network that is effective in facilitating and enforcing collective action norms on the members in the neighborhood. The data at our disposal allow us to identify the neighborhoods within a village where the respondents live. We use this information and construct neighborhood specific SHG networks for all the SHG members. We aggregate the number of SHG members in a particular neighborhood and define it to be the network size of the SHG members living in that neighborhood.

Let $\bar{n}$ be the threshold for the social network size for the network to be effective, and let $I(\bar{n})$ be a neighborhood specific indicator that takes value 1 if the number of women in the neighborhood who are SHG members (in the previous GP) is greater than $\bar{n}$ and, 0 otherwise. We, of course, do not know what $\bar{n}$ and $I(\bar{n})$ are. So, we consider three possible measures of $\bar{n}$: 2, 6 and 10 and estimate the following equation, which is an extended version of equation (2)

$$m_{ihvd,t} = \gamma_{w1} SHG_{ihvd,t-1} + \gamma_{w2} OSHG_{ihvd,t-1} + \gamma_{w3} I(\bar{n}) + \gamma_{w4} \left(SHG_{ihvd,t-1} \times I(\bar{n}) \right) + \gamma_{w5} \left(OSHG_{ihvd,t-1} \times I(\bar{n}) \right) + X_{ihvd} \beta_{w1} + Y_{hvd} \beta_2 + \zeta_v + \epsilon_{ihvd,t}, \forall i \in W \quad (4)$$

The dummy variable $I(\bar{n})$ denotes that the network size is large. γ_{w4} (γ_{w5}) therefore denotes the benefit of being a SHG member (having other SHG members in the household) in a neighborhood with a "large" social network.

The regression results are presented in Table 5, columns 1, 2 and 3 for the three values of $\bar{n}$. A comparison of the results in these three columns suggests that network effects start playing an

effective role only when the network size is sufficiently large – in this case being defined by 10. The estimated γ_{w1} is positive and statistically significant, implying that even in neighborhoods where the SHG based social networks are small (i.e., the number of women in the neighborhood who were SHG members in the previous GP $\leq \bar{n}$), SHG members are significantly more likely to attend village assemblies than non-member women. The estimated γ_{w3} is negative (though statistically significant only when $\bar{n} = 10$), implying that in neighborhoods where the social networks are large, non-SHG women have a significantly lower village assembly attendance rate compared to peers in neighborhoods with smaller networks. Thus, larger SHG-based social networks appear to have a two-sided effect. They positively affect the village assembly attendance of women enrolled in SHGs but negatively affect the village assembly attendance of women not enrolled in SHGs.

Table 5: Threshold Effects of Social Network

	(1)	(2)	(3)
Member of SHG (in Previous GP)	0.0542*	0.0625**	0.0617**
	(0.0301)	(0.0257)	(0.0260)
OSHG‡	-0.00256	0.00294	0.0131
	(0.0206)	(0.0162)	(0.0172)
Number of SHG members in neighborhood > 2 $(I(2))$	-0.0223		
	(0.0289)		
Member of SHG $\times I(2)$/	0.0541		
Member of SHG $\times I(3-6)$	(0.0432)		
OSHG $\times I(2)$/OSHG $\times I(3-6)$	0.0695		
	(0.0476)		
Number of SHG members in neighborhood > 6 $(I(6))$		-0.0737	
		(0.0744)	
Member of SHG $\times I(6)$ / Member of SHG $\times I(7-10)$		0.0980	
		(0.103)	
OSHG $\times I(6)$ / OSHG $\times I(7-10)$		0.174	
		(0.108)	
Number of SHG members in neighborhood $>$ 10 $(I(10+))$			-0.289**
			(0.141)
Member of Women Only SHG $\times I(10+)$			0.283*
			(0.163)
OSHG $\times I(10+)$			0.354*
			(0.198)
Village Fixed Effect	YES	YES	YES
Sample Size	5,431	5,431	5,431

Notes: Authors' computations using the REDS data. Dependent Variable: Fraction of village assemblies attended. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual and household characteristics and village fixed effects. SHG refers to women's only SHG. ‡: OSHG denotes number of other household members who are SHG members in previous GP. In column 4 $I(3-6)$ denotes number of SHG members in neighbourhood $3-6$; $I(7-10)$ denotes number of SHG members in neighborhood $7-10$; $I(10+)$ denotes number of SHG members in neighbourhood > 10.

The difference-in-difference estimate γ_{w4} is positive and statistically significant. This implies that, in contrast to the pattern observed in the attendance rates for non-SHG women, the attendance rates of SHG members are higher in neighborhoods where the network size is large relative to where the network size is small. Interestingly, this is not driven by an increase in attendance in village assemblies by SHG members in neighborhoods with a larger social network. Rather, it is driven by a reduction in the attendance rate of non-SHG members in neighborhoods with a larger social network. A positive interpretation is that there is no free-riding by SHG members in neighborhoods with a larger SHG based social network. The SHGs appear to be playing an important role of enforcing norms, and this is independent of the size of the network.[11] The coefficient γ_{w5} also becomes statistically significant in column 3, signifying that above the same threshold of 10, the spillover effect of SHG membership on other household members becomes large.

Membership in alternative groups

Much of the social benefits associated with SHGs, like women's empowerment and expansion of social capital, appear to emanate from the importance of the *group* itself and the associational life that comes with participating in frequent group meetings (Sanyal (2014)). While SHGs are the predominant voluntary organization of women in the context of rural India (approximately 7% of women report themselves to be members of SHGs (see Table 1)), they are not the only form of group in which women participate in these villages. Does membership in other groups have a similar effect on attendance in village assemblies? We examine the effect of memberships in credit cooperatives and religious groups in the previous GP on attendance in village assemblies. Credit cooperatives are semi-formal institutions promoted by the government that facilitates access to credit to poorer sections of society. In that sense the credit cooperatives perform a role similar to SHGs. However, unlike the SHGs, memberships in these institutions do not require the women to engage with each other on a regular basis. Religious groups, on the other hand, could possibly facilitate regular interaction among members due to the regular rituals performed in the religious sites.

[11] An alternative interpretation of this result is that SHGs fail to raise the attendance of members beyond a point and that they may be crowding out the participation of women who are not enrolled in SHGs.

Table 6: Membership of other groups and attendance in village assemblies

	Fraction Attended		Any Attended	
	(1)	(2)	(3)	(4)
Member of Cooperative in Previous GP	-0.0182		-0.0441	
	(0.0366)		(0.0396)	
Member of Religious Group in Previous GP		0.164*		0.229**
		(0.0932)		(0.107)
Average Dependent Variable	0.257	0.257	0.372	0.372
Sample Size	5481	1738	5481	1738
Individual and Household Controls	YES	YES	YES	YES
Village FE	YES	YES	YES	YES

Notes: Authors' computations using the REDS data. Dependent variable: Village Assembly Attended. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1$. Regressions control for individual and household characteristics and village fixed effects.

We re-estimate equation (1) by replacing SHG membership with membership of credit cooperatives and religious groups. These results are presented in Table 6. The results in columns 1 and 3 imply that membership in credit cooperatives in the previous GP is not associated with an increase in the likelihood of attending village assemblies. On the other hand, membership in a religious group in the previous GP is associated with an increase in the likelihood of attending village assemblies. If anything, the results in columns 2 and 4 of Table 6 are stronger than the results presented in Panel A of Table 2. It is however important to bear in mind that only 1% of women in our sample report being members of a religious group in the previous GP.

Robustness using Alternative Data

Finally, we also examine the robustness of our results using alternate data. The results presented in Table A1 in the Appendix show the same results as those in Panel A column 3 of Table 2 using the IHDS data. We find that membership of SHGs in 2005 is associated with a 6-percentage point increase in attendance in village assemblies in 2011 by women. This is similar to the effect of 8.5-percentage points that we see in Table 2. The results are therefore broadly comparable using two different data sets with wide coverage.

5. IV Estimation Strategy and Results

The results presented in Section 4 show that SHG membership is associated with an increase in attendance in village assemblies. While it is unlikely that the results are driven by selection on observables, we cannot ignore the possibility that selection on unobservables might be driving some of the results.

Table 7: Total SHG membership in household and attendance in village assemblies

	Fraction Attended		Any Attended	
	Women	Men	Women	Men
	(1)	(2)	(3)	(4)
Panel A: OLS				
Total Number of Household Members in SHG in Previous GP (TSHG)	0.0697**	0.0175	0.0770**	-0.00507
	(0.0304)	(0.0250)	(0.0335)	(0.0229)
Average Dependent Variable	0.082	0.277	0.109	0.377
Sample Size	11,451	12,121	11,451	12,121
District FE	YES	YES	YES	YES
Panel B: IV (Continuous Instrument)				
Total Number of Household Members in SHG in Previous GP (TSHG)	1.032**	-0.569*	0.971*	-0.371
	(0.419)	(0.307)	(0.499)	(0.350)
Panel C: IV (Dummy Instrument)				
Total Number of Household Members in SHG in Previous GP (TSHG)	1.675**	0.165	1.933**	0.401
	(0.779)	(0.434)	(0.964)	(0.680)
Average Dependent Variable	0.082	0.277	0.109	0.377
Sample Size	9,810	10,512	9,810	10,512
District FE	YES	YES	YES	YES

Notes: Authors' computations using the REDS data. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual and household characteristics and district fixed effects. SHG refers to women's only SHG.

To provide a causal interpretation of the results, we use an instrumental variable approach. To operationalize the IV strategy, we need one variable that captures the effect of SHG membership for both men and women. Though men are not members of SHGs, results presented in Table 2, columns 2 and 4 show that the total number of SHG members in the household affects attendance rates in village assemblies for both men and women. Therefore, instead of estimating equations (2) and (3) we estimate the following regressions that will form the second stage equations in our IV analysis:

$$m_{ihvd,t} = \delta_w TSHG_{hvd,t-1} + X_{ihvd}\beta_{w1} + Y_{hvd}\beta_2 + \zeta_d + \epsilon_{ihvd,t}, \forall i \in W \quad (6)$$

$$m_{jhvd,t} = \delta_m TSHG_{hvd,t-1} + X_{jhvd}\beta_{m1} + Y_{hvd}\alpha_2 + \zeta_d + \epsilon_{jhvd,t}, \forall j \in M \quad (7)$$

where $TSHG_{hvd,t-1}$ is the *total* number of SHG members in household h in village v in district d, which is same for both the male and female members of the household. Note that henceforth we move

to a district fixed effects framework. The reason for this will be clear when we describe the instrument below.[12] The rest of the variables are as defined above. We hypothesize that $\delta_w > \delta_m$.

The results are presented in Panel A of Table 7. Columns 1 and 2 present the results for women, those in columns 3 and 4 present the results for men. These results are consistent with those presented in columns 2 and 4 in Table 2. Not surprisingly, an increase in the total number of SHG members in the household has a stronger effect on women's attendance in village assemblies.[13]

We now propose an instrument for the variable $TSHG_{hvd,t-1}$. A valid instrument should affect attendance in village assemblies only through its effects on SHG membership. We use supply side information on the presence of SHGs in the village (under the previous GP regime) as our instrument for membership in SHG. We use village level information about existence of SHGs. One caveat here is that the information on presence of SHGs is collected through responses of household members and not through a village or community survey. This means that survey responses do not always match within a village. We use two different measures of existence of SHGs in the village. The first is a continuous measure, defined by the proportion of survey participants within a village who report that a SHG is present and operational in the village. The second is an indicator variable which takes the value of 1 if even one survey respondent in the village reports the existence of an SHG in the village and, 0 otherwise. The continuous measure can be interpreted as the likelihood that a SHG is indeed present in the village. For exclusion restriction, we argue that typically SHGs are not *invited* into a village. Sociological and anthropological research on this issue points out that typically SHG formation is driven by government policies and programs. For example, the *Pudhu Vaazhu* program in Tamil Nadu, the *Velegu* program (or SERP) in Andhra Pradesh, the *Kudumbashree* program in Kerala and the *Stree Shakti* program in Karnataka were all implemented by the respective state governments following specific policy rules that promoted SHGs in villages with certain observable characteristics, such as poverty, landlessness etc. The *community mobilizers* that are often credited with facilitating the spread of SHGs and the enrolment of women into SHGs are typically not

[12] Table A2 shows that our primary results remain qualitatively (and even quantitatively) similar irrespective of whether we include district, village or neighborhood fixed effects.
[13] It is unlikely that the results are driven by multiple SHG members in the same household. There are only 61 households with 2 SHG members and 4 households with 3 members.

residents of the village. Often, they are outsiders (or agents) hired by the government to perform the task of mobilizing the community.[14]

One could still argue that the unobservable social and organizational capital that allows SHGs to function effectively within the village also encourages villagers to attend the assemblies. We address this potential criticism in the following manner. We test if the propensity of the villagers to attend village assemblies in period $t-1$ predicts entry of SHGs into the village between $t-1$ and t. If attendance in village assemblies is partly driven by unobservable village level social capital that also helps SHG formation, then we should expect villages with higher attendance in assemblies experiencing greater entry of SHGs subsequently. The REDS data however does not have information on attendance in village assemblies in the previous GP regime. Therefore, we instead use the IHDS data for this exercise: we regress the entry of SHGs into the village during the period 2005–2011 (between the two survey rounds of IHDS) on the proportion of households reporting in 2005 that at least one person from the household attended a village assembly in the one year prior to the survey. 413 of the 1419 villages in the sample report having no SHGs in 2005 but having one in 2011.The regression results presented in Table 8 show that the proportion of households reporting in 2005 that at least one person from the household attended a village assembly in the one year prior to the survey does not have a statistically significant impact on the entry of new SHGs into the village.

Table 8 Effect of Attendance in Village Assemblies on Entry of SHGs

	(1)
Share attended Village Assembly in 2005	0.015
	(0.043)

Notes: Authors' computations using the IHDS data. Dependent Variable: Entry of SHG into village. Significance: *** p<0.01, ** p<0.05, * p<0.1.

In the first stage of the IV strategy, we instrument $TSHG_{hvd}$ (the total number of SHG members in household h in village v in district d under the previous GP regime) by $PSHG_{vd}$, which

[14] In Table A4 in the appendix we examine which village level observables predict the existence of SHG in the village. With the exception of median land holding and median school years in the village, none of the additional village level observables have a statistically significant effect on the presence of SHGs in the village. This is consistent with the description of how the government implements SHG related programs. We therefore control for all the observable village characteristics in our 2SLS estimation.

measures the existence of a SHG in village v in district d under the previous GP regime. The regression equation is given by:

$$TSHG_{hvd,t-1} = \gamma PSHG_{vd} + X_{ihvd}\beta_{w1} + Y_{hvd}\beta_2 + Z_{vd}\beta_3 + \zeta_d + \epsilon_{ihvd,t}$$

where Z_{vd} is a vector of village level controls. Table A3 in the Appendix presents the first stage regression results for both the continuous and dummy treatments. Existence of SHG in a village does affect membership in SHG at the household level positively and statistically significantly. We show the result for the samples of men and women separately, even though our endogenous variable is defined at the household level. We do this since our second stage specification is carried out separately for men and women (equations (6) and (7)).

The IV regression results are presented in Panels B and C of Table 7 for the continuous and dummy instrument, respectively. These results suggest that an increase in the total number of SHG members in the household has no impact on the likelihood of men attending village assemblies. The only exception is column 2 in Panel B, but even here the estimated coefficient is negative. The effect on attendance in village assemblies by women is large, positive and highly statistically significant. An increase in the total number of SHG members in the household by one results in a close to 100% increase in the fraction of village assemblies attended by women.

Table 9: Effect of existence of SHG in village on gender composition of attendees at village assemblies

	(1)
Existence of SHG in the Village (under previous GP regime)	0.120*
	(0.0684)
Average Dependent Variable	0.205
	(0.512)
Sample Size	191

Notes: Authors' computations using the REDS data. Dependent Variable: Women/Men Attendance in village assemblies. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for village characteristics and district fixed effects.

The IV regression results in Table 7 imply that the existence of a SHG in the village leads to an increase in women's attendance in village assemblies but no change in men's attendance. This essentially implies that there is a significant change in the gender composition of attendees due to presence of SHGs in the village. We confirm this fact using a village level regression where we regress the ratio of the number of women to men attendees in assemblies on our continuous measure

of SHG existence in the village. The results, reported in Table 9, show that existence of SHG in the village increases the sex ratio of attendees by 0.12, a large effect considering the sample average is 0.21. We use this regression as the first stage in estimating the effect of attendance in village assemblies on provision of public goods.

6. Effect on Provision of Public Goods

Table 10: Attendance in village assemblies and household benefits received

	Toilet	Water Supply	Housing	BPL Card
	(1)	(2)	(3)	(4)
Panel A: Women				
Fraction of village assemblies attended	-0.0241	-0.330	-0.0128	0.709
	(0.398)	(0.293)	(0.210)	(0.434)
Average Dependent Variable	0.034	0.137	0.021	0.392
	(0.182)	(0.343)	(0.142)	(0.488)
Sample Size	6,482	3,772	8,566	9,655
Panel B: Men				
Fraction of village assemblies attended	-0.218	1.407	-0.0348	-1.716
	(0.334)	(1.253)	(0.130)	(1.179)
Average Dependent Variable	0.036	0.139	0.019	0.387
	(0.185)	(0.346)	(0.138)	(0.487)
Sample Size	6,932	3,988	9,158	10,355
Individual and Household Controls	YES	YES	YES	YES

Notes: Authors' computations using the REDS data. Dependent variable: Whether the household received any of these benefits. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual and household characteristics and district fixed effects. IV regression results presented. Presence of SHG in village in previous GP used as the instrument.

We now examine the effect of women's increased participation in village assemblies on the mix of household benefits and community level public goods provided by the village council. The results presented in Table 10 show that increase in attendance in village assemblies (by males or females) does not have a statistically significant effect on the kinds of household benefits received. This is possibly because it is difficult to argue that preferences for household benefits are gendered.

To examine the effects on the composition of village level public goods, we proceed in the following steps. We first observe that the presence of SHGs in the village changes the gender composition of attendees at village assemblies (Table 9). We then examine whether the change in gender composition of attendees at village assemblies (induced by presence of SHGs) in turn affected the provision of village level public goods. Our primary outcome of interest in this case is the composition of public goods provision. Prior evidence suggests that there is considerable divergence

in the kind of village level public goods preferred by men and women (Chattopadhyay and Duflo (2004a) and Chattopadhyay and Duflo (2004b)). This is borne out in our data as well.

Table 11: Observables to Preferences: Gendered preference for public goods

	Water	Sanitation	Roads	Health	School	Irrigation
	(1)	(2)	(3)	(4)	(5)	(6)
Woman Preferred	0.0134*	0.0391***	-0.0628***	0.0496***	-0.0307***	-0.0831***
	(0.00684)	(0.00734)	(0.00709)	(0.00740)	(0.00775)	(0.00663)
Constant	0.610***	0.541***	0.580***	0.503***	0.645***	0.369***
	(0.0121)	(0.0128)	(0.0125)	(0.0131)	(0.0136)	(0.0115)
Sample Size	20,833	19,614	20,048	19,219	18,151	15,514

Notes: Authors' computations using the REDS data. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual characteristics and district fixed effects.

In the survey, each participant was asked to list three of their most preferred public good items (from a list of 12 items) in which the GP should invest resources. We created dummies for the 6 most preferred public goods in the sample; the dummies take value one if the respondent mentions that public good in their top 3 choices. Those dummies are regressed on the gender of the individual and other individual characteristics. Table 11 reports the corresponding regression results. It shows that women systematically report preference for greater investment in water, sanitation, and health, while men prefer greater investment in roads, schools, and irrigation facilities.

The IV regression results presented in Table 12 show that this changed gender composition, specifically the increase in the ratio of women/men attendees, leads to a statistically significant increase in the provision of community level public goods preferred by women. There is no effect on the provision of community level public goods preferred by men.[15]

Table 12: Gender composition of village assemblies and provision of village level public goods

	Women Preferred	Men Preferred
	(1)	(2)
Women to Men attendance ratio in village assemblies	1.500*	0.397
	(0.828)	(0.786)
Average Dependent Variable	0.680	0.697
	(0.467)	(0.460)
Sample Size	191	191

Notes: Dependent variable: Any Construction of Men/Women preferred Public Goods in Village. Women preferred public goods: Water, Sanitation, Health. Men preferred: Roads, School, Irrigation (see Table 9). Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual and household characteristics and district fixed effects. IV regression results presented. Presence of SHG in village in previous GP used as the instrument.

[15] The first stage estimates are presented in Table A5 in the Appendix.

7. Effect on long term political engagement

Finally, we examine whether SHG membership leads to long term political engagement, separate from the effect on attendance in village assemblies. Specifically, we examine the effect of SHG membership on two different measures of long term political engagement: participation in political party activities and membership in village level political committees. We estimate a slightly different version of equations (6) and (7):

$$p_{ihvd,t} = \delta_w TSHG_{hvd,t-1} + X_{ihvd}\beta_{w1} + Y_{hvd}\beta_2 + \zeta_v + \epsilon_{ihvd,t}, \forall i \in W \quad (8)$$
$$p_{jhvd,t} = \delta_m TSHG_{hvd,t-1} + X_{jhvd}\beta_{m1} + Y_{hvd}\alpha_2 + \zeta_v + \epsilon_{jhvd,t}, \forall i \in M \quad (9)$$

where $p_{ihvd,t}$ is a measure of political engagement. The rest of the variables are as defined previously.

The IV results are presented in columns 3 and 4, Panel A of Table 13.[16] We find that SHG membership leads to increased participation by women in political party-activities. The IV estimates of an increase in the total number of SHG members within the household results in a statistically significant increase in women's participation in political party activities (a 36-percentage point increase, starting from a base of 2 percent). There is no corresponding effect on men's engagement in political party activities. To the extent that participation in political party activities is a measure of long-term political engagement, this implies that SHG membership results in a significant increase in women's long term political engagement.

The IV results presented in columns 3 and 4, Panel B of Table 13 show that women who are members of SHGs are significantly more likely to choose to become members of village level political committees.[17] This again suggests that women who are members of SHGs choose to become more engaged in the political life of the village.

This is important because it provides an organic channel for women to become leaders. When women grow into leadership positions through participating in grassroots democracy (e.g., becoming more engaged in village governance and more active in political parties), they are more likely to be socially accepted, particularly in environments where male identity is closely linked to being in

[16] The OLS regression results, presented in columns 1 and 2 of Table 12 are quite different to the IV results.
[17] The dependent variable measures the number of village level political committees that the individual was a member of in the previous GP out of the 4-formal village level political bodies, namely- village development committee, village tribal development agency, village education committee, and village committee on irrigation or water use.

positions of power and leadership. Ultimately, this is likely to result in the kind of social change envisioned by affirmative action policies.

Table 13: SHG Membership and Political Engagement

	OLS		IV	
	Women	**Men**	**Women**	**Men**
	(1)	**(2)**	**(3)**	**(4)**
Panel A: Participation in Political Party Activities				
Total Number of Household Members in SHG in Previous GP (TSHG)	0.0247	0.0642**	0.356*	0.611
	(0.0161)	(0.0314)	(0.199)	(0.502)
Average Dependent Variable	0.019	0.116	0.019	0.116
Sample Size	6,859	7,343	6,859	7,343
District FE	YES	YES	YES	YES
Panel B: Participation in Village Political Committees				
Total Number of Household Members in SHG in Previous GP (TSHG)	0.0281	0.0469**	0.144*	0.356***
	(0.0201)	(0.0194)	(0.0735)	(0.121)
Average Dependent Variable	0.006	0.024	0.006	0.024
Sample Size	10,567	11,294	9,810	10,512
District FE	YES	YES	YES	YES

Notes: Authors' computations using the REDS data. In Panel A, the dependent variable is a participation dummy for Political Party Activities. In Panel B, the dependent variable is a participation measure for Village level political committees. This is the number of village level political committees that the individual was a member of in the previous GP out of the 4-formal village level political bodies, namely, village development committee, village tribal development agency, village education committee, and village committee on irrigation or water use. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual and household characteristics and district fixed effects. Presence of SHG in village in previous GP is used as the instrument for TSHG in the IV regressions (in columns 3 and 4).

Interestingly, while SHG membership results in women's increased attendance in village assemblies and participation in political party activities, we do not find any evidence that SHG members are more *vocal* in village assemblies (where being vocal is measured by the incidence or frequency of speaking up).[18] The coefficients, while positive, are not statistically significant. The major effect of SHG membership, therefore, seems to be in bringing women into village assemblies and not in making them more vocal at these meetings. Sanyal, et al. (2019) using data from South India find that SHG members are not any more likely to *speak* at these village assemblies, but, their quality of speech differs from non-SHG members. Most recently though Parthasarathy, et al. (2018) find that SHGs were successful in inducing women's civic speech and frequency of women's speech (both SHG members and non-members) in Tamil Nadu village assemblies. The state's PVP SHG

[18] These results are available on request.

intervention not only doubled women's attendance in village assemblies, it raised the frequency of female speech by 17 percentage points from a baseline rate of 38% (representing a 57% increase). It also increased women's length of speech by fifty words on average. In our case, the REDS survey question only asks whether respondents spoke in the assembly or not. We are, therefore, unable to examine the effects on the length and quality of speech.

8. Discussion and Conclusion

We examine whether SHG membership improves women's participation in Indian village assemblies and their longer term political engagement and identify the mechanism behind the effects. We find that women's membership in SHGs, with time, promotes their attendance in village assemblies and, as a result, improves the gender composition of village assemblies in women's favor. Considering that village assemblies, which are the prime public sphere institution in rural India, tend to have a skewed gender composition in favor of men all over the country, changing the gender composition towards integrating more women is, by itself, a significant achievement. Moreover, we show that improved gender composition of village assemblies changes the composition of public goods provision in favor of women. We also find that SHG members are significantly more likely to be engaged in local activities of political parties and various village level political committees. This is important because this provides a pathway for women to become effective leaders in future, without the state having to introduce policies that assign women to leadership positions. That SHGs contribute to these positive changes is a mark of their wider role in improving the social, political and civic lives of women in contemporary rural India. It is essential that we take this into consideration for a holistic evaluation of SHGs. This is particularly salient if we subscribe to the view that development in its fullest sense is about expanding freedoms and enhancing capabilities (Sen (1993), Sen (1999)).

In understanding how SHGs have these remarkable positive effects that are unrelated to their immediate economic anti-poverty goals, our research shows that it is through the formation of networks, i.e., bringing women together into group-based networks. Sociological research by Sanyal (2014) has shown that forming women into self-help groups organized around microcredit and requiring them to engage in regular face-to-face interactions often facilitates social network formation

among women and is generative of social capital, trust, intimacy, and the capacity for cooperation and collective action (see also Davidson and Sanyal (2017)). The mechanisms through which SHGs facilitate social networks and social capital fall outside the purview of this paper, but have been discussed in sociological research on SHGs (Sanyal (2009), Sanyal (2014)). Although, based on our research, we cannot identify specifically how developing social networks promotes village assembly attendance, we can make some plausible suggestions drawing on sociological research on SHGs and collective action. Being part of a social network, women can show up together in village assemblies, reducing the individual fear of being sanctioned by household members or by the community. Strength in numbers might provide courage to engage in an action that defies and deviates from conventional gender norms. Being part of a network might also raise women's collective consciousness about their civic role.

Recent experimental evidence suggests that the economic impact of microcredit on the lives of the poor have been somewhat ambiguous (Banerjee (2013)), in spite of some positive experience documented by others (see, for example Morduch (1999), Islam and Maitra (2012)). The present research suggests that to fully understand the contributions of microcredit groups and SHGs, one must adopt a broader view of their benefits. Much of their consequential impacts seem to lie in the effect on the civic and political realms of women's lives.

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Table A1: Past SHG Membership explains Current Gram Sabha Attendance: IHDS data

	Any Household Member Attended	Woman Attended
	(1)	(2)
Household had SHG Member in 2005	0.073***	0.060***
	(0.016)	(0.016)
Average Dependent Variable	0.362	0.085
Sample Size	23,383	22,293
Individual and Household Controls	YES	YES
Village FE	YES	YES

Notes: Authors' computations using the IHDS data. Dependent Variable: Attendance in Village Assemblies in 2011Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual and household characteristics and district fixed effects.

Table A2: SHG membership and attendance in village assemblies: varying comparison groups

	(1)	(2)	(3)	(4)
Member of SHG in Previous GP	0.0567*	0.0694**	0.0736**	0.0465
	(0.0302)	(0.0298)	(0.0333)	(0.0336)
Fixed Effect	District	Village	Neighborhood	Household
Sample Size	4,690	5,431	5,431	5,431

Notes: Authors' computations using the REDS data. Dependent variable: Fraction of Village Assemblies Attended. Regressions control for the village characteristics for the district FE regressions, for household characteristics for all specifications except household FE, and individual characteristics for all specifications. SHG refers to women's only SHG. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1.

Table A3: Existence of SHG in village and total SHG membership in the household. First stage regression results

	Continuous Instrument		Dummy Instrument	
	Women	Men	Women	Men
	(1)	(2)	(3)	(4)
SHG Existed in Village in Previous GP	0.107***	0.0940***		
	(0.0254)	(0.0245)		
SHG Existed in Village in Previous GP			0.0744***	0.0611**
			(0.0284)	(0.0266)
SC Proportion in Villages	0.0385	0.0338	0.0595	0.0496
	(0.0668)	(0.0610)	(0.0699)	(0.0632)
ST Proportion in Villages	0.374***	0.383***	0.337***	0.353***
	(0.105)	(0.102)	(0.113)	(0.110)
OBC Proportion in Villages	0.107**	0.122**	0.101*	0.119**
	(0.0522)	(0.0498)	(0.0538)	(0.0521)
Women Proportion	-0.163	-0.191	-0.276	-0.281*
	(0.166)	(0.151)	(0.168)	(0.150)
No. of households in 2006	4.51e-06	3.84e-06	3.47e-06	2.81e-06
	(5.98e-06)	(6.06e-06)	(5.15e-06)	(4.89e-06)
Median landholding	0.0312	0.0412*	0.0297	0.0396
	(0.0256)	(0.0238)	(0.0267)	(0.0250)
Median schooling Years	0.00520*	0.00352	0.00439	0.00292
	(0.00283)	(0.00261)	(0.00277)	(0.00254)
SC Household	-0.00708	-0.0102	-0.00437	-0.00747
	(0.00991)	(0.00877)	(0.0101)	(0.00889)
OBC Household	-0.00470	-0.00331	-0.00291	-0.00219
	(0.00863)	(0.00803)	(0.00863)	(0.00804)
ST Household	-0.0120	0.00750	-0.00987	0.0101
	(0.0209)	(0.0244)	(0.0210)	(0.0245)
Household Size	0.000417	7.55e-05	0.000479	0.000198
	(0.000677)	(0.000730)	(0.000674)	(0.000725)
Landholding	-0.00248***	-0.00228***	-0.00260***	-0.00234***
	(0.000687)	(0.000595)	(0.000676)	(0.000603)
Age	8.13e-05	8.53e-05	0.000127	0.000132
	(0.000202)	(0.000162)	(0.000202)	(0.000164)
Years of schooling	0.000905	0.00134*	0.00110	0.00153**
	(0.000905)	(0.000775)	(0.000905)	(0.000773)
Married	-0.0107	0.0196***	-0.00999	0.0195***
	(0.00747)	(0.00689)	(0.00749)	(0.00690)
First Stage F	17.79	14.74	6.86	5.28
Average Dependent Variable	0.214	0.218	0.214	0.218
Sample Size	9,810	10,512	9,810	10,512
District FE	YES	YES	YES	YES

Notes: Authors' computations using the REDS data. Dependent variable is $TSHG$. Median Landholding measures the median amount of land owned by households in a village. Median schooling years measures the median years of schooling of the individuals in the village. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1.

Table A4: Village Level Determinants of Existence of SHGs

	Continuous (Proportion) (1)	Dummy (2)
Median Landholding	-0.0796*	-0.121***
	(0.0474)	(0.0448)
Median Schooling Years	0.00372	0.0231**
	(0.0114)	(0.0108)
Distance to Nearest Town (Km.)	-0.00879**	-0.00559
	(0.00372)	(0.00362)
Total No. of HHs	1.94e-05	-8.97e-06
	(6.00e-05)	(5.92e-05)
SC Population Share	0.345	0.0576
	(0.248)	(0.242)
ST Population Share	0.0176	0.379
	(0.269)	(0.255)
OBC Population Share	0.286	0.240
	(0.187)	(0.181)
Women Population Share	-0.933	0.335
	(0.806)	(0.801)
Village Council Head Women Reserved	-0.0494	-0.0428
	(0.0617)	(0.0605)
Village Council Head SC Reserved	0.121	-0.0364
	(0.0760)	(0.0733)
Village Council Head ST Reserved	-0.150	-0.181
	(0.132)	(0.125)
Joint Significance (p-value)	0.19	0.07
Village Fixed Effect	YES	YES
Sample Size	200	217

Notes: Authors' computations using the REDS data. Dependent Variable: Presence of SHG in village under the previous GP. Median Landholding measures the median amount of land owned by households in a village. Median schooling years measures the median years of schooling of the individuals in the village. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Existence of SHG in the village and women's attendance in village assemblies: First stage

	Women (1)	Men (2)
SHG Existed in Village in Previous GP	0.111**	-0.0535*
	(0.0447)	(0.0287)
Average Dependent Variable	0.082	0.277
	(0.253)	(0.402)
Sample Size	9,810	10,512

Notes: Authors' computations using the REDS data. Dependent Variable: Fraction of village assemblies attended. Standard errors are clustered at village level. Significance: *** p<0.01, ** p<0.05, * p<0.1. Regressions control for individual characteristics and district fixed effects.