

Strength in Numbers: How Women’s Groups Close India’s Political Gender Gap

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Abstract

In India there persists a striking gender gap in political participation. Women’s political participation is important both on normative grounds of inclusion and because when women do participate, politics changes. I present a theoretical model of women’s political behavior arguing that women’s lack of political participation is the result of constraints on political coordination, particularly outside the household. I then evaluate the effects of expanding women’s social networks by leveraging a natural experiment that created as-if random variation in access to women’s credit collectives. Women who participated in this program were significantly more active in local politics - women’s attendance at local public meetings doubles. I show evidence of three possible mechanisms underlying this network effect: (1) increased capacity for collective action, (2) information, and (3) civic skills. These findings contribute to our understanding of how social networks affect individual political behavior and underlie gendered inequalities in political participation.

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Ghoda Dongri block of Madhya Pradesh exemplifies women's political behavior in India. Only 9% of women have ever contacted their local leader and even fewer - 3% - have made a claim on that leader. Most women are uninformed about their rights as citizens and are conditioned by norms to believe politics to be the man's space. Women rarely run for election except when the seat is reserved for a woman, and even then most female leaders act as a facade for the real political leader, their husbands. However, in neighboring Kesla block women have become a political force to be reckoned with. In the most recent local elections in 2015, 22 of 28 elected positions were won by women, despite only one half of these seats being reserved for women. The women of Kesla have submitted over 1,900 applications for government services to local officials and have succeeded in over 70% of these applications. Women not only attend village assembly meetings but are active, coordinated, and engaged participants, often relegating their male counterparts to the back of the room. Yet, Kesla looks the same as Ghoda Dongri in terms of demographic and economic indicators.

Even after de jure enfranchisement, the barriers to women's political participation seem insurmountable, particularly in places where gender-biased social norms persist. Women are underrepresented in positions of elected office, in the bureaucracy, women rally at lower rates, and make fewer demands on government than men (Burns, Schlozman, and Verba 2001; Chhibber 2002; Kruks-Wisner 2011; Karpowitz and Mendelberg 2014). Today, women account for only 22% of members of parliament across the globe, up from 10% in 1995 (Interparliamentary Union, *Women in National Parliaments*, 2016). In India, this picture looks even bleaker. Only 12% of members of parliament are women. Figure 1 depicts this stark gender gap.¹ In this sample of men and women from rural Madhya Pradesh, on average men were 50 percentage points more likely to say that they had attended a village assembly meeting and 30 percentage points more likely to have contacted the local leader. Even more, this gender gap in political behavior is orders of magnitude larger than the caste gap in political behavior, which has been the focus of much research. Representative survey data from all of India shows that the average attendance rates at village assembly meetings range from 25-33% for men and 6-11% for women across five caste sub-categories (Desai, Vanneman, and Applied Economic Research New Delhi 2011), revealing that participatory differences across caste are much less distinct than differences across gender.

Yet in many countries, like the U.S., the descriptive gender gap in political participation has all but disappeared (Karpowitz and Mendelberg 2014). While many models of women's

¹Data for this figure comes from an original survey of 5,371 women and 2,399 men in rural Madhya Pradesh in 2016 described below.

political behavior have been developed (Burns, Schlozman, and Verba 2001; Chhibber 2002; Barnes and Burchard 2012; Karpowitz and Mendelberg 2014), each focuses on a particular constraint to participation in isolation but fails to consider how these constraints interact to create a self-sustaining equilibrium where men engage in politics and women do not. As a result, we continue to see women not showing up or speaking up in politics even after particular constraints have been removed. We further see some women, like those in Kesla, showing up to participate despite poverty, low education, disempowerment in the household, and gender-biased social norms.

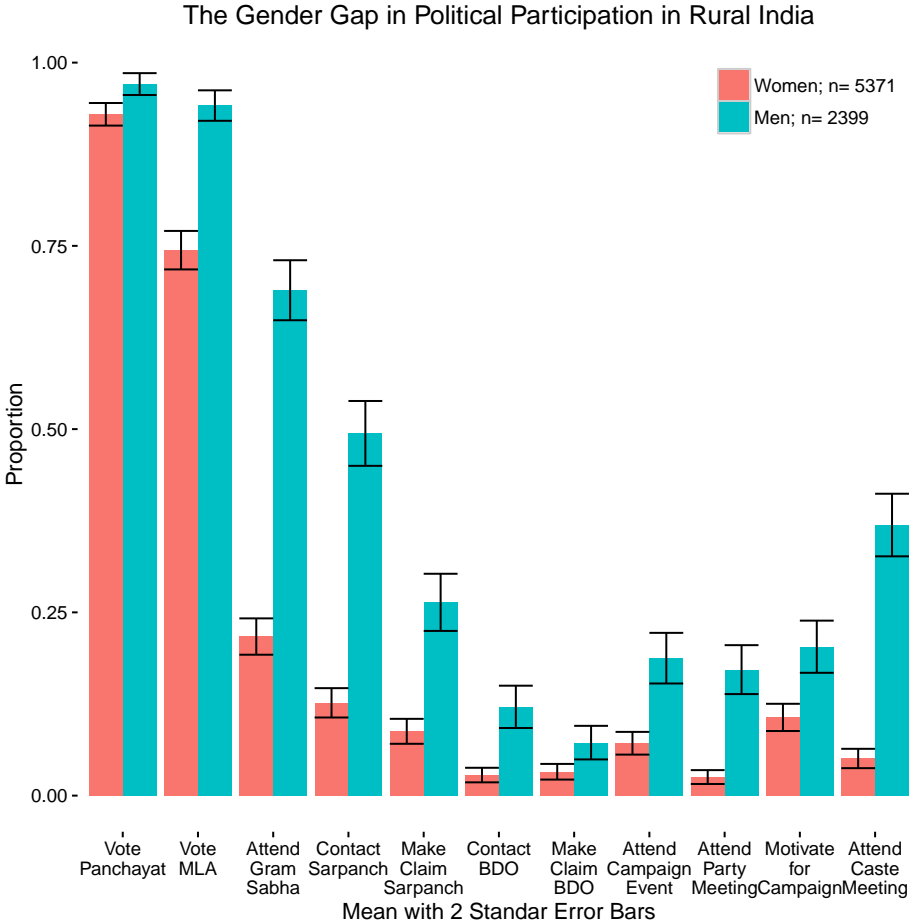


Figure 1: The Gender Gap in Political Participation (in Pure Control Villages)

Women’s low representation in politics matters not only from the standpoint of inclusion but because it has important policy and welfare consequences. As Wantchekon 2003 poignantly states “rural women might be systematically excluded from the most common forms of clientelist redistribution, and those groups might therefore be more responsive to a platform of public goods. This would imply that initiatives to promote women’s participation in the

political process at all levels of government are likely to help improve the provision of public goods.” We know that when women are represented in politics, policy changes. In the U.S., women’s representation increased the size of the state (John R. Lott and Kenny 1999) and in India, women have been shown to shift policy towards the provision of public goods (Chattopadhyay and Duflo 2004).

To explain this observed gender-exclusionary equilibrium, I propose a theoretical model centered on the household and the nature of political coordination in patrilocal and patriarchal societies, arguing that most households coordinate their political behavior and behave as unitary actors. As a result of the household division of labor and gender-biased norms, men act as the political agent of the household and vocalized household preferences skew in favor of men’s interests. Over time, men’s participation in politics facilitates their accumulation of political skills and information, further cementing their position as the household’s political actor. I name this system of political behavior “family-centered political coordination”. Women coordinate their political behavior with the household because the degree and nature of women’s social connectedness limits their agency and inhibits their capacity to coordinate their political behavior outside the household. This results in an under-provision of women’s preferences and persistent gender-based political inequalities.

I then present one channel through which we may observe a shift towards a gender-inclusive equilibrium: access to women’s groups. I argue that participation in networks of other women presents women with the opportunity to collectively act outside the household and shift the structure of political organization. I argue that under certain circumstances, these networks can be activated into political networks, leading to the mobilization of women demanding greater representation in political spaces. I show that this can happen even when social norms and household dynamics continue reinforce women’s exclusion from local politics. Furthermore, I suggest that there are three possible mechanisms underlying this network effect: (1) increased capacity for gender-based collective action, (2) transfer of political information and skills within the network, and (3) development of civic skills and confidence in network discussions and meetings.

I leverage a natural experiment to test the hypothesis that access to economic networks of other women can increase women’s political participation. For the last 15 years, the NGO Pradan has worked in Madhya Pradesh² to mobilize rural women into self-help groups

²This study is focused in the state of Madhya Pradesh. Madhya Pradesh is geographically the second largest state in India and is located in the central belt of the country. One-third of the state’s population

(SHGs). SHGs are informal associations of 10 to 20 women from the same village that act as informal savings and credit institutions. SHGs meet frequently and non-members are not allowed at these meetings. As a result, SHGs give women access to economic networks of only other women - a first for many women in rural India. In its implementation Pradan used an arbitrary boundary to determine which villages were treated with this intervention - only villages within a set radius of Pradan field offices were eligible to receive the intervention. On one side of this boundary women have been mobilized into SHGs; on the other side women remain disconnected. I leverage this arbitrary boundary to pair-match and compare villages receiving the intervention with those just outside of the range of treatment to identify the impact of access to women's groups on political behavior. To estimate this impact, I collected data from 2,250 women and 1,125 of their husbands across 150 villages in rural Madhya Pradesh. I further conducted more than 200 interviews with women in these villages to elucidate the underlying mechanisms.

Results are clear and robust - when women have access to networks of other women they are more likely to participate in politics. Women that had participated in the SHG intervention were twice as likely to attend village assembly meetings or make a claim on local leaders. Data, along with corroborating interview evidence, suggests that this positive effect is largely the result of women's coordinated collective action to jointly demand representation and combat backlash from men. This is supported by evidence that the SHG intervention had limited effects on household and economic empowerment. There is also evidence that SHG participation helped to build women's political knowledge, confidence, and civic skills by providing them with a space to experiment with their political voice.

India is not only the largest democracy in the world but it has for the most part maintained democratic institutions for nearly 70 years. Yet we continue to see large swaths of the population excluded from politics. We have learned a lot from the study of the exclusion of lower caste citizens and ethnic minorities in India (Dunning and Nilekani 2013; Jensenius 2013), but as shown previously the gender gap in participation persists even when the caste

of 72 million lives in poverty. Women, like in the rest of India, are economically disadvantaged with an average female labor force participation rate of 25% and average female wages in 2012 of 825 Rs. or \$15 per week, on par with national averages. Of its 230 state representatives, only 27 are women and female voter turnout is slightly lower than the national average at 57%. Furthermore, Madhya Pradesh is home to over forty different formally recognized Tribes and Caste groups. Its 51 districts exhibit significant variation in economic and social conditions related to women's empowerment. Hence, Madhya Pradesh encapsulates much of the diversity of India. Madhya Pradesh is both a manifestation of the broader social and economic processes of much of India but also poses a difficult and conservative case in which to find positive effects on women's political participation. This is not to say that the experiences of women in Madhya Pradesh are representative of all women in India.

gap has diminished. This paper seeks to draw attention to the role of gender in local politics in India and begin to unpack the underlying causes of the political gender gap. While there are many factors that have contributed over time to women's exclusion from politics, and many possible paths to political inclusion, this paper highlights one possible channel to political empowerment: gender-based economic networks. As a result, this paper contributes to our understanding of women's political participation in India (Chhibber 2002), but may also present an opportunity to shed light on the future of political inclusion in newer developing democracies by elucidating some of the key binding constraints to women's political engagement. This research questions individualistic models of political behavior and instead demonstrates the importance of social ties, social capital and civic networks in explaining political behavior and understanding local politics (Putnam 1993; Krishna 2002; Varshney 2003). Finally, this paper contributes to our understanding of women's role in moderating the relationship between the state and economic development (John R. Lott and Kenny 1999; Chattopadhyay and Duflo 2004; Wantchekon 2003).

1 Defining Political Participation in India

Indian democracy is fundamentally participatory. The cornerstone of political decision-making is the village assembly meeting, which institutionalizes citizen participation. While we often puzzle about why anyone would participate in politics given its high cost and low benefit, in India the benefits to local participation are direct and observable. It is therefore even more puzzling that women remain absent from these spaces. Regions of India also exemplify a puzzling and yet common feature of women's political behavior: women turn out to vote at almost equal rates to men but are less present in other public spaces.

In 1992, India amended its Constitution to create a three tier structure of local governance. Within each State there would be governing bodies in the district, the block and the village (Gram Panchayat). These local institutions bear the responsibility of allocating development and public works projects, establishing schools and health centers, and determining eligibility for government schemes. The Gram Panchayat is governed by a body of between 7 and 17 elected representatives, called Panches. One of these representatives is selected to be the Sarpanch, which is the head of the Gram Panchayat. Several times a year, each Gram Panchayat holds a village assembly meeting (Gram Sabha) to make decisions on issues relating to local governance. These meetings were intended to represent self-rule and direct democracy and all eligible voters are permitted to attend and participate.

By political participation, I therefore hearken back to Verba, Scholzman, and Brady 1995 and think broadly about the ways in which citizens interact with and express their voices to the state. I include of course the most fundamental and studied form of political expression — the vote. But gender gaps are often more pronounced in non-voting political behavior. I therefore include as political participation the variety of ways that citizens engage with local political institutions. Specifically, I focus on participation in deliberative spaces, such as village assembly meetings; via contact with local elected officials; via claims-making for goods and services; via participation in electoral campaigns, either as a mobilizer or by attending campaign events; and by engagement with political parties.

2 A Network-based Theory of Women’s Political Participation

Traditional models of political behavior broadly and more specifically in patronage democracies focus on the incentives of individuals (Downs 1957; Riker and Ordeshook 1968). But individuals are social beings embedded in complex social networks, comprised of different groups representing varying components of their individual identity (McAdam and Paulsen 1993).

A growing body of evidence documents how social networks affect individual political participation (Leighley 1990; Sinclair 2012). These models have focused on two principal ways in which social networks shape political behavior: through the spread of political information and through social pressure (Sinclair 2012).

In addition to this, social networks form the basis for political organization, setting the constraints on whom people are able to coordinate their political behavior with. Where social networks are the set of individuals with whom you have social connections, political networks are the subset of individuals with whom you discuss politics. However, of all with whom you discuss politics, you are likely to align your political behavior with some but not others. Political coordination, as defined in this paper, is the process of aligning political behavior with the interests of a particular group. Individuals will coordinate their political behavior with a subset of their networks to optimize their net benefits from political engagement. And this coordination is often reinforced by strategic mobilization of groups by political elites (Rosenstone, Hansen, and Reeves 1993). At its extreme, political coordination is the active coordination of political behavior through collective action, where all members of the

group take direct political action together. Political coordination, however, can be more passive, reflecting the alignment of interests and demands of network members and imposed by social pressure. Political coordination by this definition therefore encompasses the social pressure mechanism linking networks to political behavior but broadening the scope of the mechanism to provide a framework for understanding which groups from many in a network influence behavior. ³

Given the multitude of groups with which people engage, *which* do they politically coordinate with? First, coordination is only possibly with those with whom you are already connected. Second, coordination is a function of the closeness of political interests and the costs of coordination (Huckfeldt and Sprague 1991; Mutz 2002). Huckfeldt and Sprague (1988, p.467) argue that rational citizens choose with whom to discuss politics, and therefore include in their political network, based on a “compromise between individual political preference and socially structured discussion opportunity.”⁴

In short, I argue that gender disparities in political participation are the outcome of systems of political coordination. At the lowest level, most people coordinate their political behavior within the household. This is the result of household-based political interests and relative ease of coordination via political discussion and social pressure. This household-based coordination often undercuts the possibility of larger-scale, gender-based political coordination given often competing gender-based interests within the household. Larger scale political coordination thus centers around identities generally shared across the household. As a result of inequalities in resources, the economic division of labor, and patriarchal norms, women are less able than men to exercise agency over intra-household political decisions and are less likely to act as the household’s political agent. In these contexts, women’s preferences are underrepresented and women’s political participation is low.

³In the rational turnout framework, this builds on the idea of group-based mobilization, which explains positive turnout, because of collective benefits and electoral influence (Uhlener 1989). In the ethnic voting framework, political coordination is often used to explain ethnic voting, where severe information constraints for both citizens and elites increase the efficiency of identity-based mobilization (Chandra 2007).

⁴Political preferences are also shaped by networks and discussion. Preference alignment is the result of both homophily (the tendency to associate with like-minded people) and socially induced conformity (Sinclair 2012).

2.1 The Gender-Gap Equilibrium: Family-centered Political Coordination

The case of rural India is best understood as operating under a system of “family-centered political coordination.” The relevant political decision-making unit is not the individual, but instead the household. Given proximity and regularity of interaction, the coordination costs for members of the same household are low. Household members also share political interests because many political benefits are conferred directly on the household (as with ration cards) or within proximity of the household (as with water pumps). Note that this does not mean that all household members have the same political preferences⁵ (Manser and Brown 1980; Iversen and Rosenbluth 2006). It could be that individual household members’ preferences are more closely aligned with a different identity group, but limited social access or high coordination costs may inhibit political coordination.

Women in particular are likely to coordinate their political behavior with the household for two reasons. First, women in rural India have fewer social ties than men. This is in part a function of patrilocal institutions of marriage⁶, constraints on mobility, and the gender division of labor, which are in turn reinforced by and reinforce gender-biased social norms. Second, under patriarchal social norms where women’s identity is tied to the household, women face high costs to coordinating outside of the household. These costs come in the form of social and economic pressure applied by the household and even threats and acts of violence. This is particularly likely when gender-based interests stand in direct opposition to the interests of male household members. According to data from the Indian Human Development Survey (Desai, Vanneman, and Applied Economic Research New Delhi 2011), 86% of rural women report that they must ask permission to travel a short distance by train or bus and only 50% stated that they would be able to do so alone. While there may be other groups with whom women would more closely share political interests, the second-best option of household coordination is efficient under these conditions.

Women’s lack of agency and social connections in contexts with patriarch social and economic norms generate a system of household-based political coordination. Household mem-

⁵While many political benefits may accrue to the household, they do not necessarily accrue equally to all household members. For example, given a strong division of labor, where men work outside the household and women care for household responsibilities, the benefits of public employment accrue disproportionately to men. On the other hand, women have a greater stake in the provision of water or fuel given their role in its collection.

⁶Many women migrate at the time of marriage to their husband’s natal village (78% of women from the survey in Madhya Pradesh had migrated away from their natal village as compared to only 9% of men)

bers therefore decide on whom to support and which broader group/party to vote with. Given the high costs to participation, households are also likely to decide who will act as the political agent and represent the household's interests in political spaces. In an agriculturally-based economy with patriarchal norms, a strong division of labor has led to women's primary responsibilities lying in the home (Chhibber 2002; Gochhayat 2013). As a result, men often have more decision-making power, more social ties, and more resources (money and education) than women. They are therefore more likely to emerge as the political agent for the household.

This becomes a self-perpetuating system as men's continued political participation leads to their entrenchment in political networks and development of political skills. In acting as the political agent of the household, men become embedded within broader political networks and accumulate important political skills and information (McClurg 2003). To make political demands and hold politicians accountable, men actively participate in more time-intensive and public forms of political participation, such as by attending local meetings and making claims on politicians (Giné and Mansuri 2011). However, given the lower cost to voting⁷, we would expect to see all eligible household members vote to maximize support for preferred candidates (Giné and Mansuri 2011).

Politicians observe this coordination and respond strategically, first minimizing their mobilization costs by efficiently targeting critical nodes within these groups and second by mobilizing support across broader identities (Cox, Rosenbluth, and Thies 1998; Brady, Schlozman, and Verba 1999; Rosenstone, Hansen, and Reeves 1993). Given that the household behaves as a unitary actor, politicians need only to mobilize the head of the household to ensure the support of the rest of the group. As Huckfeldt and Sprague 1992 highlight, there is a ripple effect of mobilization and mobilizers are strategic in efficiently seeking out citizens that will lead to the greatest ripple. This creates a system of political coordination where women stay at home and remain inactive in political spaces while men actively participate in political networks and participate in politics.

2.2 Towards a Gender-based Political Coordination Equilibrium

I now consider what happens when one key constraint on women's participation is loosened - women's access to networks outside of the household. If increasing women's social ties leads

⁷If the household is aligning their electoral support, individuals do not have to incur a cost to information acquisition.

to extra-household political coordination, then women's political participation may increase even when women lack household bargaining power, political skills, and economic resources. I thus ask: When women are given access to womens groups, do they shift their political coordination away from the household and does womens political participation increase?

First, increasing the density of women in women's social networks removes the binding constraint of social access and creates the opportunity for gender-based political coordination (Baybeck and Huckfeldt 2002). In systems where women lack agency, access to womens only groups provides institutional space likely to foster political discussion⁸, can create solidarity among women and a recognition of shared interests, and provides the critical support to counteract social norms, constraints on mobility, and threats of violence and backlash. This creates greater capacity for gender-based collective action, as women will have both the networks to act and knowledge that other women will act at the same time.

Once the constraints to extra-household coordination, women as a group will politically coordinate when these social groups become political (i.e. involving political discussion) and when the net benefits to gender-based coordination exceed the benefits of household-based coordination. Increasing womens joint social ties is necessary but not sufficient to altering their political behavior and significant variation among women will persist following a restructuring of womens social networks. That said, first, repeated interaction over long periods of time in favorable institutional settings is likely to generate political discussion (Mansbridge 1999; Karpowitz and Mendelberg 2014). Discussion of the social, particularly the shared social experiences of women, is likely to become political and may even inherently be political. Second, there is significant evidence that women share political preferences and interests (John R. Lott and Kenny 1999; Wantchekon 2003; Chattopadhyay and Duflo 2004; Miller 2008), and these are likely to be underprovided under household-based coordination. Gender-based interests are a function of both preference alignment and a desire to contest gender-based inequalities and patriarchal norms. Many gender-based preferences are rooted in the division of labor, where women bear the responsibility of caring for the house and collecting public goods such as water and fuel. Gender-based preferences in India as elsewhere, are rooted in shared fears and experiences of gender-based violence. At present, in India, this has generated a political movement for the prohibition of alcohol (John R. Lott and Kenny 1999; McCammon et al. 2001; Katzenstein 1989).⁹ Even when women's shared,

⁸As opposed to informal conversation occurring in passing.

⁹Since 1992, consumption of alcohol in India rose at a higher rate than every other country except two and alcoholism, especially among men, is on the rise (OECD 2015).

gender-based preferences do not supersede other preferences, women can still share a common interest in mobilizing against gender-based inequalities and subordination (Teele 2017). Women may seek social and political inclusion, status elevation, or increased bargaining power in the household and gender-based political coordination may be both an ends and a means to achieve these goals.

Second, this gender-based political coordination will necessitate large-scale political participation among women to combat intra-household pressures and attempted restraints, to ensure women’s voices and demands are likely to influence political outcomes, and to protect from community backlash. Men can respond to women’s political coordination through resistance or acceptance. If men’s political preferences align more closely with the interests promoted by women’s networks or if they feel marginalized by the current structure of politics, they may join in support of women. If, as is more common, men see women’s political coordination as a threat to their political interests, they will mobilize against women’s participation, either informally - outside of electoral politics - such as by attempting to exert control over wives or in public spaces and with the use of violence or formally through the formation of a political coalition in opposition to the women’s coalition.

To optimize their likelihood of affect political outcomes and to credibly challenge male networks and resistance, women must respond by politically participating in large numbers. Collective action among women is therefore critical to overcome the challenges of broad, outsider mobilization (McClendon 2014). The value of womens groups therefore lies in both increasing womens social ties and providing a structure to facilitate the collective action critical for women to exercise agency in political spaces. While many other factors will determine whether this reorganization of political networks becomes a stable, long-run political equilibrium, this highlights the role of access to social networks in shaping women’s political behavior and reducing the gender gap in political participation.

3 Research Design and Data

To examine the effect of women’s access to women-based networks, I estimate the impact of participation in Self-Help Groups (SHGs) on women’s political behavior. Since the implementation of the SHG intervention was bounded geographically, I leverage this arbitrary boundary to identify the effect of this program using a geographic regression discontinuity approach. Control villages were selected using a pair-matching algorithm to further ensure

continuity across the boundary. The details of this methodology are discussed below and further sensitivity analyses are presented in the final robustness section.

3.1 Treatment: Pradan’s SHG Intervention

Villages are considered treated if they have received the SHG intervention implemented by the NGO Pradan.¹⁰ An SHG is a group of 10 to 20 women from the same village that act as informal savings and credit institutions. SHGs are composed only of women and meet weekly. SHGs provide women with informal financial services including savings and loans taken from SHG finances for personal enterprises, unexpected household expenses, or larger household purchases.¹¹

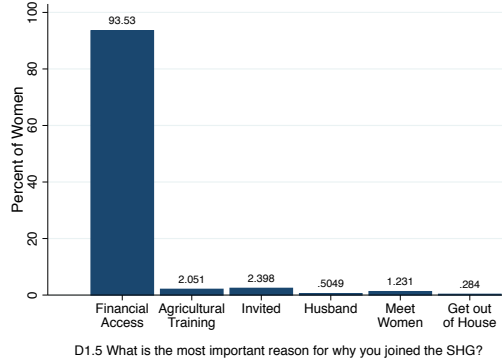
The NGOs role is principally to create and sustain SHGs and establish procedures of informal savings and credit. To begin, Pradan professionals enter a village and invite all women to join an SHG. According to survey data of SHG members, 94% of women stated that they joined SHGs because of a need for financial access (see Figure 2). Often women must seek permission to participate in an SHG, and qualitative interviews suggest that women are allowed to join because these groups are expected to generate access to capital and economic benefits for households. As a result, SHG members are often from the poorest households. This further suggests that the success of this intervention may be in part because of its economic origins. In the sampled villages, on average 41% of women in a village are in an SHG, with an average number of 66 SHG members per village spread across 5 SHGs. Since the treatment does not encompass all women in a village and instead is an elected choice of women, treatment is assigned at the village level.

While SHGs focus on financial access, the requirement of regular group meetings provides women with an institutionalized, gender-based social network. Regular participation in credit groups has been shown to increase women’s social capital (Feigenberg, Field, and Pande 2010). Often these meetings turn into group discussions of personal and community concerns following the formal procedures. Subsequent analyses will aim to disentangle the

¹⁰In Madhya Pradesh, Pradan began mobilizing women into SHGs more than 15 years ago, creating variation in when each village was first treated. The average duration of treatment across the sample is 6 years. This longer duration is important as it suggests that these networks have been fostered over time.

¹¹In addition to informal finances and economic networks, some Pradan SHGs are provided with livelihoods training. Livelihoods training is the provision of education and information to rural women about farming and agricultural practices so as to promote micro-enterprises that can generate income. Its aims are to help women enhance productivity in agriculture, diversify into new crops, set up irrigation systems, and institute entirely new ways of managing the natural resource base.

Figure 2: Reasons Cited for Joining an SHG



effect of SHGs as an economic versus social institution.

3.2 Identification Strategy

To identify the impact of women’s participation in SHGs on political participation, I exploit plausibly exogenous variation in access to SHGs resulting from an arbitrary boundary used to determine which villages received the SHG intervention (Dell 2010). I combine this geographic regression discontinuity design (GRD) with pair matching of villages across the boundary to estimate the causal effect of participation in SHGs (Keele, Titiunik, and Zubizarreta 2015; Ferraz and Finan 2008).

Given that the implementation of the SHG intervention was bounded geographically, random assignment of SHGs is approximated using a border design. This arbitrary boundary allows for the assumption of continuity and no unobserved bias across treated and control villages. The SHG intervention was implemented at the village-level and villages were selected based on their location to the Pradan field office - only villages within a set kilometer radius were eligible for the intervention due to daily travel constraints for the field implementers¹². While the location of Pradan field offices is not arbitrary, the boundary of implementation is unlikely to be correlated with indicators of women’s empowerment or with the density of networks and therefore is arguably as-if random. This allows for the assumption that villages close to either side of this border were comparable pre-treatment and can be used as counterfactuals.

¹²Eligible villages were all villages within a set radius of the field office. The specific distance varied by Pradan field office and was a function of the terrain and road quality. The average distance for the travel radius was 30 km.

Not all villages within the catchment area received this intervention, however, Pradan sought to saturate all villages over time. At present, over 60% of the villages in the catchment areas have received the intervention. Furthermore, the villages receiving the intervention are not substantively different than those that have not received the intervention (see Appendix). Given that the boundary of implementation was fuzzy and treatment did not cover 100% of villages in the implementation area, control villages were selected via pair-matching. This ensures balance across treated and control villages on observable village-level covariates and provides additional support for the assumption that control villages were comparable to treated villages pre-treatment. The combination of matching strategies with border designs has been shown to improve balance while maintaining the assumptions necessary for causal inference (Keele, Titiunik, and Zubizarreta 2015). Pair matching occurred as follows:

1. For each district, all villages that had received the intervention were geo-located.
2. A circular boundary was drawn around these villages, with the radius equal to the distance to the furthest village.
3. All villages in the same district but outside of this boundary were identified, leaving a 1 km gap from the radius given the fuzzy nature of the boundary.
4. All treated villages within the boundary were pair-matched to control villages outside the boundary using coarsened exact matching on district, population size, female population proportion, and tribal population proportion.
5. Geographic distance was then minimized to identify the best matches.

The sample includes 152 villages - 76 treated with the SHG intervention and 76 control. These 152 villages represent the best matches from the above approach. Figure 3 geographically plots the villages that were selected for the study.

3.3 Sampling and Survey Data

A principal reason behind our lack of understanding of women’s political behavior in India is the lack of data, particularly for rural women. To overcome this gap in our knowledge, I conducted an original survey of women and their husbands in the 152 sampled and matched villages. This survey took place from May-July 2016. Roughly 15 women and half of their husbands were sampled per village, creating a total sample of 2,152 women. In treated villages, female respondents were randomly sampled from lists of SHG members. This creates

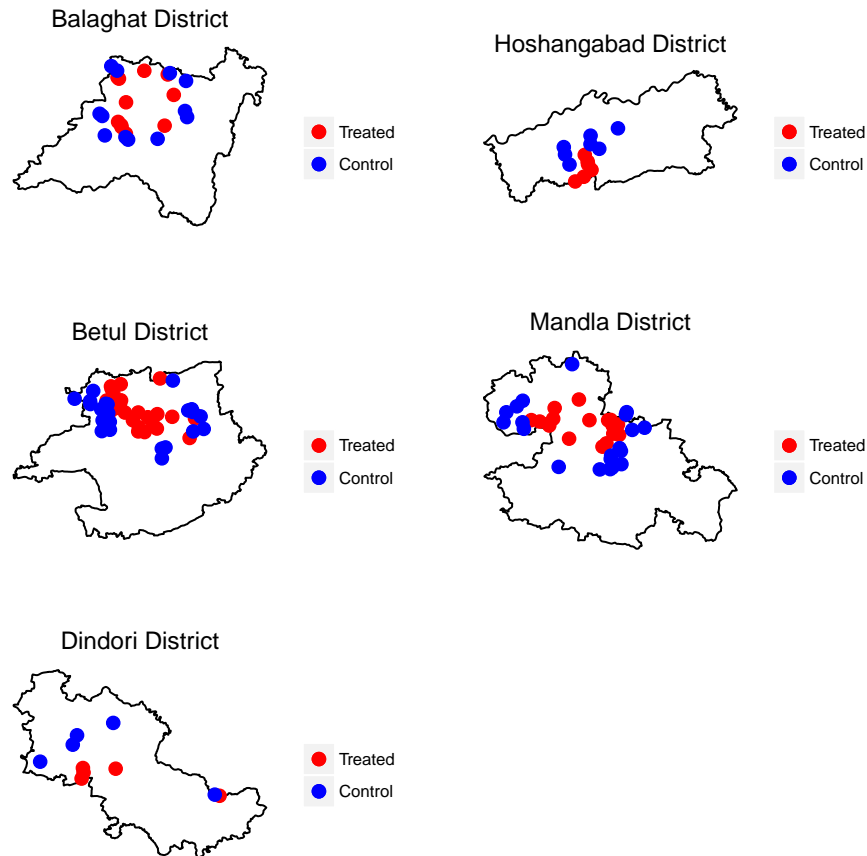


Figure 3: Treated and Control Study Villages by District

selection concerns as the data covers only treated women in treated villages. In control villages, person-level census data collected in 2011 and 2012 from the government of Madhya Pradesh was used to randomly sample women, subsetting to only adult, ever-married women to match the eligibility criteria for SHGs.

The differing sampling procedures raise concerns of selection bias as only treated women in treated villages were surveyed. If those who select into treatment are different from those sampled in control areas, then observed effects could be the result of these underlying differences and not the intervention itself. I address these concerns in two ways.

First, qualitative interviews and survey evidence suggest that selection into the treatment is primarily a function of economic need not political participation: women want access to informal credit and their household's support their joining for the same reason (see Figure 2). This suggests that conditional on economic need, treated women should be similar on

unobservables to control women. I therefore match women from control villages to women in treated villages on pre-treatment indicators of economic position to identify which control women would most likely have selected into treatment had they had the opportunity. This was done using genetic matching on the land ownership, age, education level, marital status, and scheduled tribe/ scheduled caste status. The results are robust to alternative matching strategies (see Appendix). The amount of land owned is used as a proxy for economic need as the purchase of land is bureaucratically difficult and this measure is likely to represent pre-treatment economic need. All results presented using the entire sample of 152 villages use this matched sample, which discarded 367 control observations and 2 treated observations.

Second, women from a sub-sample of 40% of treated villages were re-surveyed using the identical sampling strategy as control villages; they were randomly sampled from census lists of all adult, ever-married women. As a result, this resample includes both treated and untreated women in treated villages. Data from this resurvey are pooled with data from the original survey to ensure sufficient representation of treated women in the sample as only 68 treated observations were randomly sampled using this sampling frame (see Appendix for unpooled results). The results from this subsample of villages are presented alongside the full 152 village sample, estimating both at intent to treat effects and complier average treatment effects.

All data was collected in-person by trained surveyors using tablets to record responses. Given the sensitive nature of the questions and concerns of social desirability bias, all female respondents were surveyed by female surveyors and male respondents were surveyed by male surveyors. All surveys were conducted in complete privacy. Data quality was insured through four mechanisms: (1) back-checks of 10% of surveys, (2) audio-recording audits of in-field surveys, (3) random field-checks, and (4) daily testing of survey data for abnormalities.

3.4 Empirical Specification

To estimate the effect of treatment, I employ two estimation strategies. First, I use the village pair-matches to estimate the within-pair effect of treatment. This matched-pair specification utilizes a parametric model with matched-pair fixed effects, and does not include geographic indicators or village level covariates.¹³ Second, following Dell’s (2010) empirical modeling strategy for multi-dimensional regression discontinuities, I model estimate the effect of

¹³The pair-matching estimating equation is therefore:

$$Y_{k,i} = \gamma D_{k,i} + \beta X_i + \alpha_p + \epsilon_{k,i},$$

treatment using a cubic functional form with latitude and longitude as the multi-dimensional forcing variables (see Appendix for nonparametric and naive specifications). Including both latitude and longitude accounts for both the village’s distance to the boundary as well as its relative position in geographic space Keele, Titunik, and Zubizarreta 2015.¹⁴ The results are presented for two different bandwidths: the entire sample and villages within 10 km of the boundary. All models include as covariates at the individual-level the respondent’s years of formal education, the acres of agricultural land owned by the household, Scheduled Tribe status, whether the respondent is Hindu, the respondent’s age, whether the respondent is married, and the number of children living with the respondent. RDD specified models additionally include village-level covariates including the total population, the female proportion of the population, the proportion of the population belonging to a Scheduled Tribe, the literacy rate, and the female literacy rate. These village-level covariates are not included in the matched pair specifications as they are subsumed in the village matched pair fixed effects.

For parsimony, results present from the resample utilize the pair-matched fixed effects model. For these, I report the intent to treat (ITT) effect - when both treated and untreated women in treated villages are included - and the complier average treatment effect (CATE) by instrumenting for individual-level treatment take-up with village-level assignment to treatment, estimating the treatment effect for those who took-up treatment.¹⁵

3.5 Falsification Tests

The key identifying assumption for the border design is continuity. Table 1 compares the balance in village-level *pre-treatment* measures from the 2001 census across treatment and control using the empirical specification described above. Table 1 shows that village-level covariates are statistically identical across treated and control villages, with the exception of literacy rates. Control villages appear to have had higher pre-treatment literacy rates than treated villages. Since education is positively correlated with political participation,

where D is the treatment status of individual i in village k , X is the matrix of individual-level covariates, and α_k are matched-pair fixed effects. γ is the estimate of the impact of treatment on Y .

¹⁴The RDD estimating equation is therefore:

$$Y_{k,i} = \gamma D_{k,i} + \alpha_1 A^3 + \alpha_2 A^2 + \alpha_3 A + \alpha_4 B^3 + \alpha_5 B^2 + \alpha_6 B + \alpha_7 A^2 B + A \alpha_8 B^2 + \beta X_i + \tau W_k + \alpha_d + \epsilon_{k,i},$$

where D is the treatment status of individual i in village k , A represents latitude, B represents longitude, X is the matrix of individual-level covariates, W is the matrix of village-level covariates, and α_d are district fixed effects which couple as border fixed effects since the border varies by district. γ is the estimate of the impact of treatment on Y .

¹⁵Individuals are not matched in the resample analysis.

this would suggest the effect of treatment would be biased downwards. Additionally, Table 1 reveals little difference between treated and control villages in regards to terrain, as there are similar levels of road access and forest land. This further validates that while the boundary of treatment program implementation was set based on feasible travel distance, the boundary does not coincide with major geographic barriers that would create substantial differences between treated and control villages. Importantly, there is also no significant difference in the distance between treated and control villages to the nearest towns, demonstrating that while the location of Pradan field offices may not have been arbitrary, the relative distance to towns is similar across treatment and control.

Table 2 compares the balance in person-level measures using the survey data and includes only covariates which are unlikely to have changed as a result of treatment. Table 2 shows that most individual-level covariates are statistically identical across treated and control villages. Women in the control villages are shown to be on average older than women in treated villages in the matched pair specification. Women in treated villages may also be more likely to be from a Scheduled Tribe. When examining the resample data where selection into treatment is not as large a concern, there is greater imbalance across treated and control villages. This suggests that the relevant covariates may be correlates of selection into treatment. These covariates are included in all analyses to further account for any possible confounding.

4 Does access to women’s groups change women’s political behavior?

Table 3 estimates the impact of the SHG intervention on eleven measures of political participation and an additive non-voting participation index. Political participation is measured by whether a respondent voted in the most recent local and state elections or has in the past year attended a village assembly meeting, contacted a Panchayat official for help in getting a government benefit, submitted an application for services to a Panchayat official, contacted a Block official for help in getting a government benefit, submitted an application for services to a Block official, attended a campaign rally, campaigned door-to-door, attended a political party meeting, or attended a Caste Council meeting. An index of non-voting political participation measures the total number of non-voting activities in which a woman has participated in the past year.

Table 1: Balance Test of Treatment Effects on Pre-Treatment Village Data

Dependent Variable:	RDD Specification		Matched Pair
	Full Sample	< 10 km of Boundary	Fixed Effects Full Sample
Population	-11.987 (117.944)	187.734 (161.103)	-34.947 (57.223)
Female Population %	-0.001 (0.003)	-0.005 (0.005)	-0.001 (0.003)
Scheduled Tribe Population %	0.002 (0.038)	-0.048 (0.059)	0.012 (0.013)
Literate Population %	-0.028 (0.018)	-0.007 (0.023)	-0.037* (0.016)
Literate Female Population %	-0.043* (0.018)	-0.016 (0.023)	-0.05* (0.016)
Working Female Population %	0.03 (0.023)	-0.022 (0.031)	0.01 (0.025)
Distance to Town	8.52 (5.921)	4.797 (3.168)	10.171 (5.764)
Area	30.56 (44.385)	43.419 (69.902)	22.434 (28.948)
Forest Land	6.233 (19.956)	19.646 (30.501)	7.908 (18.644)
Non-cultivable Land	-7.786 (12.717)	-17.295 (22.268)	-8.934 (12.755)
Access via Paved Road	0.049 (0.08)	0.243* (0.114)	0.026 (0.07)
Access via Mud Road	-0.114 (0.065)	-0.294* (0.092)	-0.079 (0.059)
Has Education Facility	0.027 (0.041)	0.101 (0.057)	0.026 (0.032)
# Primary Health Center	-0.016 (0.016)	-0.037 (0.032)	-0.013 (0.023)
Has Drinking Water	-0.014 (0.014)		-0.013 (0.013)
Has Power Supply	0.045 (0.047)	0.028 (0.064)	0.053 (0.041)
N Villages	152	78	152

Note: Village clustered standard errors in parentheses. * significant at $p < .05$ and † significant at $p < .1$. Each row is a dependent variable and each column is a different model specification. Each cell is the estimated coefficient on the treatment indicator. All models include person-level covariates. RDD models include village-level covariates and district fixed effects. Matched pair models include match-pair fixed effects. Some coefficients are missing for boundary models due to perfect singularity.

Table 2: Balance Test of Treatment on Pre-Treatment Respondent Data

Dependent Variable:	Original Sample			Selection Resample	
	RDD Specification		Matched Pair	Matched Pair	
	Full Sample	< 10 km of Boundary	Fixed Effects Full Sample	Local ITT	Local CATE
Age	-0.889 (0.541)	-1.168 (0.677)	-1.168* (0.364)	-0.503 (0.696)	-1.313 (1.818)
Years of Education	0.417 (0.231)	0.612 (0.313)	0.34* (0.145)	-0.529* (0.2)	-1.382* (0.526)
Married	0.009 (0.016)	0.003 (0.024)	0.01 (0.012)	0.041* (0.018)	0.108* (0.048)
Hindu	-0.006 (0.006)	0 (0.009)	-0.006 (0.005)	0.001 (0.006)	0.003 (0.016)
Scheduled Tribe	0.023 (0.04)	0.023 (0.054)	0.053* (0.021)	-0.061* (0.027)	-0.161* (0.072)
Scheduled Caste	0.003 (0.022)	-0.024 (0.028)	-0.01 (0.017)	0.096* (0.023)	0.251* (0.065)
Years Living in Village	-0.493 (0.836)	-1.634 (1.069)	-0.993 (0.65)	0.763 (0.864)	1.993 (2.261)
Amount of Land	0.422 (0.483)	0.321 (0.261)	0.616 (0.358)	34.862 (47.688)	91.112 (124.874)
Number of Children	0.165 (0.11)	0.069 (0.134)	0.16 (0.088)	0.754* (0.136)	1.97* (0.373)
N Respondents	1796	958	1796	1332	1332
N Villages	152	78	152	62	62

Note: Village clustered standard errors in parentheses.* significant at $p < .05$ and † significant at $p < .1$. Each row is a dependent variable and each column is a different model specification. Each cell is the estimated coefficient on the treatment indicator. RDD models include district fixed effects. Matched pair models include match-pair fixed effects.

Table 3 estimates that the SHG intervention had a robust, positive impact on nearly all measures of non-voting political participation. Women who had received the SHG intervention were 17 percentage points more likely to attend a village assembly meeting, 10 percentage points more likely to make a claim on the Panchayat, and 4 percentage points more likely to make a claim on the Block. Both the size and significance of these effects hold across all model specifications including the estimates from the resample. These effect sizes are substantively meaningful as they suggest almost a 100% increase in political activity for women in treated villages as compared to control villages (control averages shown in the last column of Table 3). These effects are attenuated in the ITT model using the resample likely due to the inclusion of untreated women in treated villages.

The effect of treatment on voting is less robust; there is no discernible effect on voting in local elections and a positive effect on voting in state elections only in the resample specifications. In part, this may be because voter turnout is high, particularly in local elections, making it less likely that networks would have a marginal impact on the small set of women who were not previously turning out to vote. Additionally, while the effects of treatment on voting in state elections are not significant in the original sample models, the coefficients are positive and still indicate a roughly 2 percentage point increase in voter turnout.

5 Why Groups Matter: Disentangling Mechanisms

5.1 Resources and Intrahousehold Decision-making Power

The above results confirm that the SHG intervention increases women’s presence in political institutions. But is this the result of women gaining greater empowerment in the household or through changes to women’s social networks? Table 4 estimates the effect of treatment on household economic resources, household decision-making, domestic violence against women, and internalized gender attitudes.

First, it could be that the SHG intervention is not impacting women’s political behavior through networks at all, but instead that the access to savings, credit, and agricultural trainings are *directly* raising women’s income and financial security, which then provides them with the resources to participate in politics (Brady, Verba, and Schlozman 1995). Table 4 provides robust evidence that any impact of the SHG intervention on political behavior is unlikely to directly result from increased financial resources. Table 4 estimates the impact

Table 3: Effect of the SHG Intervention on Political Participation

Dependent Variable:	Original Sample			Selection Resample		Control Mean
	RDD Specification		Matched Pair	Matched Pair		
	Full Sample	< 10 km of Boundary	Fixed Effects	Fixed Effects	Fixed Effects	
			Full Sample	Local ITT	Local CATE	
Voted in Local Election	-0.004 (0.01)	-0.014 (0.016)	-0.005 (0.008)	0.007 (0.014)	0.017 (0.035)	0.947
Voted in State Election	0.029 (0.026)	-0.002 (0.032)	0.018 (0.02)	0.051* (0.023)	0.129* (0.059)	0.75
Non-Voting Participation Index	0.629* (0.085)	0.769* (0.138)	0.601* (0.061)	0.138† (0.076)	0.353† (0.191)	0.687
Attend Village Assembly Meeting	0.167* (0.024)	0.179* (0.036)	0.153* (0.021)	0.083* (0.025)	0.213* (0.064)	0.207
Contact Panchayat for Gov't Benefit	0.09* (0.018)	0.105* (0.026)	0.091* (0.013)	0.056* (0.02)	0.142* (0.049)	0.112
Submit Application to Panchayat for Services	0.103* (0.019)	0.115* (0.029)	0.1* (0.016)	0.046* (0.018)	0.118* (0.044)	0.093
Contact Block for Gov't Benefit	0.055* (0.011)	0.06* (0.014)	0.051* (0.006)	0.012 (0.011)	0.032 (0.027)	0.022
Submit Application to Block for Services	0.043* (0.012)	0.053* (0.017)	0.034* (0.009)	0.004 (0.01)	0.009 (0.025)	0.032
Attend Campaign Event	0.06* (0.015)	0.105* (0.025)	0.058* (0.01)	-0.045* (0.013)	-0.116* (0.033)	0.061
Motivate for Campaign	0.066* (0.021)	0.106* (0.037)	0.061* (0.015)	-0.029* (0.015)	-0.075* (0.038)	0.097
Attend Party Meeting	0.021* (0.01)	0.018 (0.014)	0.022* (0.005)	0.006 (0.007)	0.016 (0.018)	0.018
Attend Caste Council Meeting	0.025* (0.012)	0.028 (0.019)	0.029* (0.009)	0.005 (0.012)	0.014 (0.03)	0.046
N Respondents	1796	958	1796	1328	1328	
N Villages	152	78	152	62	62	

Note: Village clustered standard errors in parentheses. * significant at $p < .05$ and † significant at $p < .1$. Each row is a dependent variable and each column is a different model specification. Each cell is the estimated coefficient on the treatment indicator. All models include person-level covariates. RDD models include village-level covariates and district fixed effects. Matched pair models include match-pair fixed effects.

of the SHG intervention on seven economic indicators, including an index of durable asset ownership, an index of food consumption, monthly household expenditures, whether the household had enough income to meet their needs, whether anyone ever had to cut meals because of a lack of food, the amount of time it would take to save 400 Rs. (on a 7 point time scale), and whether the respondent had worked for pay in the past year. There is a positive effect of the SHG intervention on household expenditures in the full sample RDD specification and on the ability to save in the full sample matched pair specification, but these effects disappears in all other specifications. Additionally, there is no robust impact of the SHG intervention on all other indicators for income and economic security. While the main purpose behind SHG mobilization and participation is access to financial instruments, there is no clear effect of SHG participation on economic outcomes. This does not mean that SHGs have no economically beneficial effect; SHGs still provide women with access to loans and savings which may help with consumption smoothing. What this does show is that there is no shift in the households economic equilibrium (long-term income growth) that has resulted from the SHG intervention. Given this, the evidence indicates that improvements to women's financial resources is not the mechanism through which women became more politically active.

Second, it could be that women's lack of agency and power in the household constrain their political behavior. Previous scholarship has even suggested that this is a key constraint to women's political participation (Chhibber 2002; Burns, Schlozman, and Verba 2001) and the proposed theory further suggests that given household-based political coordination bargaining power is a key factor in determining who in the household engaged in politics. To measure this women were asked about their role in a series of common household decisions, including how much money to spend on food and clothing, what to do if they fell sick, their daily tasks, their children's education levels, their daughters' marital prospects, whom to vote for, whether to attend a village assembly meeting, and whether to buy land. These responses were then dichotomized into measures of whether or not the female respondent participated in each decision and added together into an index of household decision-making. Table 4 reports a positive and significant relationship between the SHG intervention and this index as well as the component measure related to participation in village assembly meetings. Further, Table 4 reports a positive and significant effect of SHG participation on the likelihood that a woman has a bank account but no effect on whether she owns land or holds cash. This suggests that participation in the SHG intervention may increase women's agency in the household, potentially driving her increased participation in politics. It should be noted, however, that a high proportion of women report that they are included in household deci-

sions even in control villages (when given the option of choosing multiple decision-makers) and these results do not allow us to evaluate whether internal household agency is the binding constraint for women or a function of their social empowerment.

Third, women were asked whether their husband had ever humiliated them in public, threatened to hurt them, insulted them, slapped them, punched them, or forced them to have sex without consent.¹⁶ The dichotomous answers to these questions were aggregated into an index of domestic violence. Table 4 demonstrates that the SHG intervention did not have a robust effect on domestic violence. Women in treated villages report nearly identical rates of domestic violence as women in control villages. While there is often concern of under-reporting of these statistics due to their sensitive nature, nearly 20% of respondents across both samples reported that their husband had slapped them suggesting sincere responses from a non-negligible sample of women.

Finally, in the proposed theory, social norms set the context for how politics operates and who act as political agents. While gender-biased social norms likely generated the conditions limiting women's political engagement and reinforce their continued exclusion, I argue that women can become active political participants even in the presence of gender-biased social norms. To evaluate whether shifts to gender norms/attitudes are necessary for the observed increases in women's political participation, nine measures of gender attitudes were collected from *women and men*, including whether the respondent believes that women should take care of household duties, men should help with chores when women are employed, men perform better in school, men are more entitled to employment, women's employment leads to independence, men are more entitled to education, men are better political leaders, women have the same rights as men, and women should be locally elected. These were aggregated into an index with positive values indicating a shift towards more *gender-equal* beliefs. Table 4 reports the treatment effect on the gender attitudes index for both men and women in the sample and shows no robust effect of treatment on women's or men's broad gender biases in the full sample models. There is, however, a strong positive correlation in the models using the resample data. Decomposing the index, women in treated villages were more 6-18 % points more likely than women in control villages to report that women have the same political rights as men and that women should be elected to office, suggesting some shift in women's gender attitudes in the political space. Men responded to treatment by shifting

¹⁶To reduce concerns of measurement bias due to the sensitive nature of these questions, complete privacy for the entire survey, but especially for these questions, was required. Additionally, these questions were placed at the end of the survey.

their views regarding women’s role in the household, but not in politics. Men in treated villages were roughly 10 percentage points less likely than men in control villages to state that women should take care of most of the household duties. These findings show that while there are some changes in gender attitudes for men and women, broad social norms appear to remain relatively unchanged, suggesting that SHGs increased political participation even under similar conditions of gender-biased social norms. Changes in norms, however, move slowly, so further study is needed to evaluate whether these changes had taken hold.

5.2 Social Networks

The proposed causal model argues that SHGs increase women’s social networks and this social network expansion generates opportunities for political participation. Table 5 provides robust evidence for this argument by comparing the social connections of treated and control women. Table 5 estimates the impact of the SHG intervention on six indicators of women’s social connections, including the number of friends and female friends they have in the village, the number of people they discuss important matters with, the number of people they visit in their free time, whether they would go to friends when they need support, and whether they discuss politics with their friends at least semi-regularly. It also evaluates whether they discuss politics with their family semi-regularly.

The results show that participating in the SHG intervention substantially increases women’s social connections. Women in treated villages reported significantly more friends, specifically female friends. They also report having significantly more people that they discuss important matters with and visit in their free time. Women in treated villages also report that they turn to their friends when in need significantly more often than women in control villages, suggesting that SHG participation not only creates more connections for women but also helps to deepen those connections. Last, women in treated villages were more likely to discuss politics with the friends they have on a semi-regular basis than women in control village. When looking at the original complete sample, there is also evidence that the nature of women’s political discussion within the household does not change as a result of the intervention, even though the nature of their political discussion outside of the household does.

I further test whether SHGs increase women’s mobility looking specifically at the effect of treatment on an additive index of whether the respondent does the food shopping for the household, whether they have left the village in the last month, and whether they are allowed to visit the local health center, the home of relatives or friends, the local market, a local

Table 4: Effect of the SHG Intervention on Resources and Intrahousehold Decision-making

Dependent Variable:	Original Sample			Selection Resample		Control Mean
	RDD Specification		Matched Pair	Matched Pair		
	Full Sample	< 10 km of Boundary	Fixed Effects	Fixed Effects	Local ITT	
Assets Index	-0.074 (0.084)	0.104 (0.1)	-0.072 (0.055)	-0.196* (0.077)	-0.502* (0.201)	1.587
Consumption Index	0.001 (0.103)	-0.027 (0.142)	0.041 (0.075)	0.012 (0.099)	0.03 (0.253)	3.977
Monthly Household Expenditure	340.521* (139.573)	276.502 (174.617)	150.516 (109.073)	-84.453 (162.8)	-216.218 (416.997)	3275.128
Income Sufficiency	0.009 (0.025)	0.016 (0.033)	0.01 (0.019)	0.075* (0.028)	0.192* (0.073)	0.574
Food Security	-0.006 (0.023)	-0.011 (0.029)	0.002 (0.017)	0.036 (0.026)	0.093 (0.067)	0.245
Time to Save 400 Rs.	0.145 (0.128)	0.202 (0.19)	0.284* (0.091)	-0.141 (0.121)	-0.36 (0.31)	
Employed in Past Year	0.046 (0.034)	0.058 (0.044)	0.026 (0.024)	-0.007 (0.029)	-0.018 (0.073)	0.507
Decisions Index	0.408* (0.162)	0.573* (0.191)	0.361* (0.126)	1.05* (0.151)	2.68*7 (0.422)	7.752
Decide: Whom to Vote For	0.016 (0.019)	0.004 (0.023)	0.013 (0.015)	0.088* (0.02)	0.225* (0.054)	0.826
Decide: Village Assembly Meeting Attendance	0.038 [†] (0.022)	0.06* (0.029)	0.033 [†] (0.018)	0.131* (0.022)	0.336* (0.06)	0.773
Woman Owns Land	0.001 (0.015)	-0.022 (0.019)	0.004 (0.011)	0.015 (0.017)	0.04 (0.044)	0.09
Woman Holds Cash	-0.005 (0.024)	0.005 (0.033)	-0.018 (0.019)	0.059* (0.028)	0.152* (0.073)	0.481
Woman has Bank Account	0.107* (0.028)	0.131* (0.042)	0.102* (0.02)	0.135* (0.026)	0.346* (0.069)	0.617
Domestic Violence Index	-0.085 (0.076)	-0.196 (0.121)	-0.033 (0.054)	-0.114 (0.078)	-0.292 (0.2)	0.76
Women's Gender Attitudes Index	0.112 (0.102)	-0.054 (0.163)	0.192* (0.077)	0.502* (0.092)	1.284* (0.25)	4.729
Men's Gender Attitudes Index	0.212 (0.151)	0.562* (0.195)	0.178 [†] (0.102)			5.119
N Respondents	1799	960	1799	1328	1328	
N Villages	152	78	152	62	62	

Note: Village clustered standard errors in parentheses. * significant at $p < .05$ and [†] significant at $p < .1$. Each row is a dependent variable and each column is a different model specification. Each cell is the estimated coefficient of the treatment indicator. All models include person-level covariates. RDD models include village-level covariate and district fixed effects. Matched pair models include match-pair fixed effects.

public meeting, or a short distance by train or bus on their own. Table 5 reports the effect of treatment on the mobility index and shows a robust, positive impact of the SHG intervention on women’s mobility.

Table 5: Effect of Treatment on Social Connectedness and Mobility

Dependent Variable:	Original Sample			Selection Resample		Control Mean
	RDD Specification		Matched Pair	Matched Pair		
	Full Sample	< 10 km of Boundary	Fixed Effects	Fixed Effects	Local ITT	
# Friends in Village	0.469* (0.173)	0.446† (0.233)	0.618* (0.128)	0.917* (0.158)	2.347* (0.429)	2.205
# Female Friends in Village	0.452* (0.166)	0.415† (0.222)	0.604* (0.123)	0.843* (0.15)	2.16* (0.404)	2.172
Would go to Friends for Support	0.078* (0.025)	0.055† (0.032)	0.075* (0.019)	0.156* (0.028)	0.399* (0.077)	0.537
# Discuss Important Matters With	0.159* (0.07)	0.201* (0.078)	0.199* (0.052)	0.429* (0.106)	1.099* (0.282)	1.355
# People Visit in Free Time	0.178* (0.068)	0.213* (0.091)	0.2* (0.052)	-0.45* (0.055)	-1.152* (0.166)	1.201
Discuss Politics with Family	0.012 (0.022)	0.006 (0.03)	0.018 (0.015)	0.063* (0.024)	0.162* (0.063)	0.249
Discuss Politics with Friends	0.041 (0.026)	0.006 (0.033)	0.027† (0.016)	0.077* (0.024)	0.198* (0.061)	0.233
Mobility Index	0.39* (0.115)	0.445* (0.17)	0.308* (0.078)	0.594* (0.124)	1.521* (0.325)	3.854
N Respondents	1799	960	1799	1328	1328	
N Villages	152	78	152	62	62	

Note: Village clustered standard errors in parentheses.* significant at $p < .05$ and † significant at $p < .1$. Each row is a dependent variable and each column is a different model specification. Each cell is the estimated coefficient on the treatment indicator. All models include person-level covariates. RDD models include village-level covariates and district fixed effects. Matched pair models include match-pair fixed effects.

6 The Network Mechanism

Social networks can shape political behavior in a variety of ways. I evaluate three mechanisms that could explain why participating in the SHG positively impacted political participation via social networks: (1) coordination/collective action, (2) information, and (3) civic skills. While it is not possible with this design and data to identify the exact causal pathway linking network participation and political engagement, the findings presented below provide suggestive evidence that these three mechanisms contributed to women’s greater political participation.

6.1 Coordination and Collective Action

Interviews with SHG members highlighted the importance of coordinated action - women gained access to politics as a group. Qualitative interviews and focus groups with over 200 women provide evidence that women leveraged the other SHG members to jointly gain access to political institutions. SHGs would discuss upcoming village assembly meetings and then plan to attend the meetings together. Women stated that they would go door-to-door before a village assembly meeting to collect all of the SHG members and enter the meeting as a group. While not all groups collectively acted to demand political representation (as supported by the evidence in Table 3 that even after treatment only 50% of women participated in politics), solidarity among group members continued to surface as a common characteristic of those that did. In one interview a woman stated:

“We have done many things in the village. We have solved issues for children in the village. We have also fought for the prohibition of alcohol. A new team from our SHG has been formed on the issue of intoxication. If women are being beaten or harassed by men, then we help them. We go to the Panchayat *together*. Wherever is any issue *all we sisters go there collectively*.”

Collectively acting as a group was critical to provide the necessary bargaining power to secure agency to leave the house, to ensure women’s voices and demands were heard in spaces where they were typically absent or silenced, and to protect from community-level backlash. First, women shared that they were only allowed out of their homes because they would travel as a group, either because their household feared for their safety in acting alone or because they actively denied women permission. In these latter instances, group members provided protection against these threats and allowed women to exercise autonomy. Second, it is well documented that women’s voices are less likely to be heard and addressed in public spaces, particularly when men dominate positions of political authority (Parthasarathy, Rao, and Palaniswamy 2017; Karpowitz and Mendelberg 2014). In interviews, women reported both fear of speaking alone and the expectation that their demands would not be heard unless they entered with a critical mass and provided a united front. This stemmed not only from their being women but from their being political outsiders with limited political networks and even more limited political clout. Collective participation ensured that they would be seen as politically relevant. Finally, women reported numerous incidences of backlash from men. At its most innocuous, this took the form of relegating women to the back of the room in community meetings. At its most egregious, this took the form of direct verbal threats and physical violence towards women attempting to participate in these community spaces.

Women's strength in numbers was imperative to combat this potential backlash.

To test these qualitative claims, I descriptively model the correlates of political participation in *treated* villages. I include the traditional correlates of political participation - education, income and consumption, free time, and demographics - as well as measures of whether or not the SHG acted as a unit, with the intent of understanding *which* groups and women in SHGs are most politically active. Specifically, women were asked about whether the SHG discussed village issues in SHG meetings, whether the SHG petitioned the Panchayat as a collective, whether the SHG members met outside of SHG meetings and if so whether these meetings were social or political. Table 6 presents the relationship between these covariates and individual attendance at village assembly meetings in treated villages using data from the original sample.

Whether treated women discuss village issues in SHG meetings is positively correlated with attendance at village assembly meetings as is whether an SHG has collectively petitioned the Panchayat. Women who met with other SHG members outside of meetings were descriptively more likely to attend village assembly meetings, furthermore this positive correlation only holds when these meetings were for political and not social reasons. These descriptive correlations further suggest the importance of coordinated action for women's political participation. Additionally all measures of income, loans, and savings are uncorrelated with attendance at village assembly meetings *in treated villages*.

It is important to note that it is difficult to discern whether this collective action effect is driven by group members initiating collective action and political participation on their own or whether the NGO sparked and encouraged this behavior or whether . Three things though can be said. First, the NGO's role was merely to facilitate SHG coordination and not to promote particular ideologies or behaviors. Second, even in treated villages there is substantial variation in terms of political participation. If this were coerced behavior, then we would expect even higher rates of women's political participation. Finally, even if it were the case that the NGO in part drove this behavior, it is still the case that the way that women leveraged their collective strength to gain entry into political spaces. This does not undermine the observed effects but may suggest that an additional condition to women's political participation is external influence. Further research is needed to disentangle whether this is a necessary condition.

Table 6: Determinants of Political Participation in Treated Villages
Attend Village Assembly Meeting

	(1)	(2)	(3)	(4)	(5)
Discuss Village with SHG		0.10*	0.20*	0.11*	0.10
		(0.05)	(0.08)	(0.05)	(0.05)
Petition Pacnahayat with SHG		0.19*	0.18*	0.21*	0.20*
		(0.05)	(0.06)	(0.04)	(0.05)
Meet SHG outside Meetings		0.08*		0.08	0.05
		(0.04)		(0.04)	(0.04)
Meet SHG: Social			0.01		
			(0.07)		
Meet SHG: Political			0.26*		
			(0.09)		
Totals Loans from SHG				0.00	0.00
				(0.00)	(0.00)
Total Savings from SHG				0.00	0.00
				(0.00)	(0.00)
Agricultural Training from SHG					0.12*
					(0.04)
Years of Education	0.03*	0.02*	0.02	0.02*	0.02*
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Monthly Household Expenditure	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Acres Land Owned	-0.00	-0.00*	0.01	-0.00	-0.00
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
Flooring Quality in House	-0.00	0.00*	0.00*	0.00*	0.00*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Employed	0.14*	0.16*	0.12*	0.19*	0.17*
	(0.03)	(0.04)	(0.06)	(0.04)	(0.04)
Scheduled Tribe	0.01	0.01	0.03	0.03	0.03
	(0.03)	(0.04)	(0.07)	(0.05)	(0.05)
Children at Home	0.00	0.01	0.02	0.03	0.03
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Time Spent on Work/House	-0.01	-0.00	0.00	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Hindu	-0.04	-0.14	-0.16	-0.13	-0.10
	(0.11)	(0.14)	(0.26)	(0.15)	(0.15)
Age	0.01*	0.01*	0.01*	0.01*	0.01*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Married	-0.19*	-0.23*	-0.21*	-0.25*	-0.25*
	(0.05)	(0.06)	(0.08)	(0.07)	(0.07)
N Respondents	1060	669	340	573	573
N Villages	76	76	76	76	76

Note: Village clustered standard errors in parentheses. * significant at $p < .05$. All models include district fixed effects. Data for these models comes from the original sample in all 76 treated villages.

6.2 Information

Networks can also allow for the transfer of information and political skills among members. Political information can lower the costs to political participation (Brady, Verba, and Schlozman 1995). In heterogeneous groups, women can pool political information. Table 7 reports the effect of the SHG intervention on measures of subject and objective women’s political information (all measures are subjective except for whether they knew the day limit for NREGA). There is a positive effect of treatment on political information across nearly all indicators. Women in treated villages were more likely to report without verification that they knew who were the political leaders and that they know how to make a claim, but also reported more objective political information, such as correctly identifying the day limit for NREGA (a large welfare scheme). The only exception is regarding knowledge of the Panchayat reservation: women in treated villages were no more likely to know of the Panchayat reservation. Overall, this suggests that participation in SHGs may increase women’s access to political information and potentially also increase women’s perception of their political information.

6.3 Civic Skills

In speaking with SHG members, the most commonly cited benefit to membership in SHGs was increased confidence. Many women described themselves as afraid and incapable of speaking with strangers and therefore petrified of public meetings prior to entering the SHG. Through regular and institutionalized interaction with women in the SHG, they described the process of developing their voice and the corresponding confidence. In this sense, SHGs acted as laboratories for political participation, providing an opportunity to experiment with political voice and civic engagement. Women noted that they had never shared or even evaluated their political preferences, beliefs, and opinions. In these meetings, women explored alternative preferences, practiced deliberation, developed confidence and authority, and as a result to strengthened their civic skills.

Table 8 reports the effect of treatment on seven indicators of confidence and civic skills, including whether the respondent would feel comfortable speaking up, considers themselves qualified to participate in politics, feels they could do a good job as Sarpanch, is confident, could confidently speak to strangers, and could confidently speak in front of a group. Participation in the SHG demonstrably increases women’s confidence and civic skills. Women in treated villages were 10 percentage points more likely to state that they would speak up at the village assembly meeting. Furthermore, women in treated villages were significantly

Table 7: Effect of the SHG Intervention on Political Information

Dependent Variable:	Original Sample			Selection Resample		Control Mean
	RDD Specification		Matched Pair	Matched Pair		
	Full Sample	< 10 km of Boundary	Fixed Effects Full Sample	Fixed Effects Local ITT	Fixed Effects Local CATE	
Information Index	0.416* (0.077)	0.501* (0.104)	0.411* (0.061)	0.655* (0.091)	1.677* (0.244)	4.555
Knows who is the Sarpanch	0.026* (0.011)	0.031* (0.013)	0.022* (0.008)	0.016 (0.014)	0.04 (0.037)	0.952
Knows who are the Panches	0.07* (0.026)	0.078* (0.035)	0.06* (0.02)	0.122* (0.028)	0.312* (0.073)	0.55
Knows who is the MLA	0.05* (0.023)	0.096* (0.035)	0.057* (0.016)	0.127* (0.024)	0.325* (0.064)	0.203
Knows Women can be Panchayat Members	0.046* (0.022)	0.037 (0.029)	0.042* (0.015)	0.103* (0.024)	0.264* (0.062)	0.74
Knows Women can be Sarpanch	0.044* (0.018)	0.05* (0.023)	0.052* (0.013)	0.089* (0.02)	0.229* (0.051)	0.845
Knows of Panchayat Reservation	-0.002 (0.021)	0.005 (0.024)	-0.001 (0.014)	0.08* (0.023)	0.205* (0.061)	0.177
Knows how to make Claim	0.078* (0.023)	0.1* (0.032)	0.077* (0.018)	0.077* (0.024)	0.197* (0.061)	0.18
Stated Vote is Private	-0.045 (0.029)	-0.024 (0.038)	-0.042* (0.019)	-0.135* (0.026)	-0.345* (0.069)	0.743
Correctly said NREGA day limit	0.15* (0.028)	0.126* (0.039)	0.144* (0.021)	0.176* (0.024)	0.45* (0.064)	0.165
N Respondents	1796	957	1796	1328	1328	
N Villages	152	78	152	62	62	

Note: Village clustered standard errors in parentheses.* significant at $p < .05$ and † significant at $p < .1$. Each row is a dependent variable and each column is a different model specification. Each cell is the estimated coefficient on the treatment indicator. All models include person-level covariates. RDD models include village-level covariates and district fixed effects. Matched pair models include match-pair fixed effects.

more likely to state that they felt confident speaking to a group.

Table 8: Effect of the SHG Intervention on Civic Skills

Dependent Variable:	Original Sample			Selection Resample		Control Mean
	RDD Specification		Matched Pair	Matched Pair		
	Full Sample	< 10 km of Boundary	Fixed Effects Full Sample	Fixed Effects Local ITT Local CATE		
Confidence Index	0.322* (0.083)	0.463* (0.116)	0.337* (0.057)	0.501* (0.079)	1.282* (0.212)	3.581
I would Speak up at Gram Sabha	0.108* (0.027)	0.149* (0.031)	0.107* (0.019)	0.185* (0.027)	0.473* (0.073)	0.512
I am Qualified to Participate in Politics	0.04 (0.026)	0.015 (0.038)	0.041* (0.02)	0.071* (0.028)	0.182* (0.072)	0.318
I could do as good a Job as Sarpanch	0.048 [†] (0.025)	0.086* (0.03)	0.057* (0.017)	0.027 (0.028)	0.07 (0.072)	0.355
I am Confident	0.056* (0.027)	0.089* (0.036)	0.065* (0.021)	0.124* (0.026)	0.318* (0.07)	0.651
I am Confident to Speak to a Stranger	0.018 (0.015)	0.044 [†] (0.025)	0.023* (0.011)	0.03* (0.014)	0.076* (0.036)	0.917
I am Confident to Speak to a Group	0.051* (0.022)	0.079* (0.03)	0.045* (0.016)	0.06* ₃ (0.018)	0.163* (0.048)	0.827
N Respondents	1796	957	1796	1328	1328	
N Villages	152	78	152	62	62	

Note: Village clustered standard errors in parentheses. * significant at $p < .05$ and [†] significant at $p < .1$. Each row is a dependent variable and each column is a different model specification. Each cell is the estimated coefficient on the treatment indicator. All models include person-level covariates. RDD models include village-level covariates and district fixed effects. Matched pair models include match-pair fixed effects.

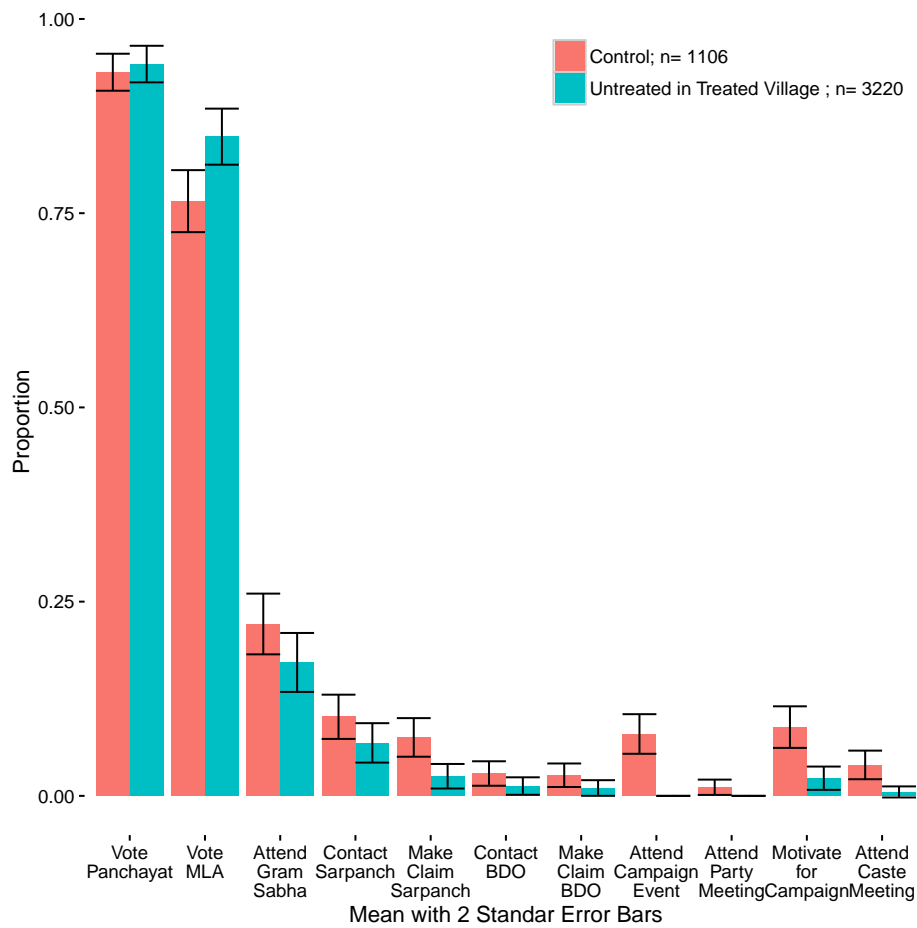
7 Robustness: Dealing with Selection Concerns

Because only treated women were originally sampled in treated villages, there are concerns of selection bias. The main concern is that the women who select into treatment are more participatory than sampled women in control villages. I address concerns of selection bias in four ways. First, I estimate the intent to treat effect and the complier average treatment effect on political participation using a subset of villages where sampling procedures across treated and control were identical (as shown in the main text). I show the effects persist even when treatment was not a condition of sampling. Second, I conduct a placebo test to evaluate the effect of treatment on untreated women in treated villages to show that treated villages are not inherently more participatory than control villages. Third, I conduct a placebo test to evaluate the effect of treatment on husbands to show that treated households are not inherently more participatory than control households (and plausibly therefore that treated

women are not inherently more participatory than control women). Finally, I demonstrate the robustness of the findings for villages with high rates of saturation, and therefore less selection concern.

Figure 4 compares the average rates of political participation of untreated women in treated villages and control women. Differences are minimal and largely insignificant. This provides suggestive evidence that treated villages were not more participatory than control villages. It also highlights that even within treated villages there are no spillover effects on untreated women’s political participation.

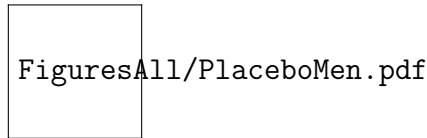
Figure 4: Placebo Test: Untreated Women



Additionally, Figure 5 shows that men in treated villages have similar levels of political participation to men in control villages. If one is willing to assume that husband’s and wives’ political behavior is correlated, then this provides suggestive evidence that the households that opted into the intervention were no more participatory than those that did not and that

treated and control villages are similar in terms of baseline levels of participation.

Figure 5: Placebo Test: Men



Finally, I show that the results are robust after subsetting the sample to only those villages and their matched pairs that had greater than the mean level of treatment program saturation (40% of women) (reported in the Appendix).

8 Conclusion

While the gender gap in political participation is clear, the reasons behind women's persistently low levels of political participation in rural India remain murky. This paper takes a first step at disentangling these factors and presenting a theory of political participation tailored to the context of many developing democracies. I argue that women's access to economic networks can empower them politically, even when they remain poor and constrained by gender-biased social norms.

This paper exploits exogenous variation in access to an NGO economic mobilization - SHG - intervention to test the impact of women's networks on women's political participation. I document that participation in SHGs leads to significantly more political participation - women's likelihood of attending the village assembly meeting nearly doubled. I additionally show that this intervention increased women's reported decision-making and free mobility outside of the household but did not substantially improve household's economic positions or reduce domestic violence. I instead provide evidence that networks may increase political participation by incentivizing gender-based coordination and collective action, by imbuing political information, and by developing women's civic skills. Together, this suggests that women's political empowerment is likely rooted in their capacity to generate meaningful political networks to demand representation.

The age-old adage may be true: there is strength in numbers. The women of Kesla differed not because of greater resources or empowerment in the household but because they were

better connected to other women. These findings have major implications for the design and evaluation of development interventions targeted at women, particularly if an aim is to better incorporate women into political institutions (Kohli 1987). In recent decades, there has been a continuing trend of targeting women as the beneficiaries of economic development programs and vast numbers of women have received economic transfers from state and non-government actors with the aim of economic empowerment. While this does not mean that these programs do not have important impacts on the lives of women, the results from this study do call to question whether income transfers alone will usher women into political spaces. Instead, women's political empowerment may occur when women become embedded within networks, particularly networks of other women. Ultimately, these findings suggest that we should not take as given the link between economic growth and political participation for women in the developing world.

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