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The Gender-Differentiated Potential of Group-Based Approaches in Bangladesh

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ABSTRACT

Group-based approaches have received a lot of attention in the recent past due to their possible role in securing household welfare in the presence of adverse events. Using detailed household survey data from Bangladesh, the present paper tests this potential by first examining the factors associated with men's and women's participation in different types of groups. Subsequently, we investigate the relationship between social and political capital and welfare among agricultural households in the presence of shocks, addressing the inherent endogeneity with the help of instrumental variables estimation and allowing for differences by gender, both in group membership and in asset ownership. The data suggest that household heads and their spouses are members of different groups overall: while the former mainly participate in farmer groups, the latter are mainly active in credit groups. Furthermore, there is evidence for a positive association of social and political capital with household-level welfare, mainly driven by social capital and particularly with consumption expenditure of the household and asset holdings of the household head. Interestingly, our results suggest that this effect is not driven by the mere participation in groups, but also by other aspects of social capital such as informal networks, of both household heads and their spouses.

Keywords: Group based approaches, social capital, political capital, gender, welfare, Bangladesh

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PROTECTING ASSETS AND ENHANCING WELFARE

The Gender-Differentiated Potential of Group-Based Approaches in Bangladesh

Muntaha Rakib and Julia Anna Matz¹

1. INTRODUCTION

Social capital generated through group membership is an important tool of risk management in developing countries. In particular, group based approaches, which consist of the participation in social groups and political parties (Verba, Nie, and Kim 1978), can serve to increase risk awareness and to offer coping strategies for different types of risk to rural households (Bhattamishra and Barrett 2008), for example related to climatic risk. While studies on the relationship between group participation and household welfare (Grootaert 1999; Narayan and Pritchett 1999; Quisumbing, McNiven, and Godquin 2008) and on the role of gender in social capital (Pandolfelli, Meinzen-Dick, and Dohrn 2008; Godquin and Quisumbing 2008; Quisumbing 2009) exist, the fact that the social capital of men and women may have different impacts on household welfare has not been of large interest to the field to the best of our knowledge (Quisumbing and Kumar 2011 provides an exception), a gap this paper attempts to contribute to filling. To be precise, the current study first identifies factors associated with participation in typically male and typically female groups using household survey data from Bangladesh, a country highly vulnerable to climate change in general and to climatic shocks due to its densely populated coastal areas and half of the population living below the poverty line.² Subsequently, it investigates the gender-differentiated impact of social and political capital on household welfare, as well as on the welfare of household heads and their spouses within households in the presence of shocks, paying particular attention to addressing the endogeneity inherent in the relationship. The results suggest that social and political capital is positively associated with household welfare in general and particularly so with consumption expenditure of households and assets of household heads, social capital mainly being responsible for the result. Breaking the latter down, the results suggest that the effect is not merely driven by the participation in groups but also by other aspects of social capital such as networks.

Group membership offers a way of building capital for those who do not possess or have access to physical and natural capital, or those with low levels of human capital (Anderson, Locker, and Nugent 2002). To be precise, participation increases social capital (Godquin and Quisumbing 2008) and some groups provide credit and training that may be used as collateral to invest in other forms of capital. Membership in groups may also be a way of managing natural capital by offering information and technology, of strengthening human capital through trainings and information, and of increasing financial capital, thereby increasing income and, in turn, wealth. Group-based

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² An external event, also called a shock, is defined as a 'realization of the state of the world whose risk may or may not have been recognized beforehand' (Dercon 2010:16), which means that it is an unanticipated event that may have positive or negative implications.

microfinance programs, for example, often increase the earnings of group participants by investing in assets necessary for small-scale income generating activities, such as livestock, sewing machines, and looms (Anderson, Locker, and Nugent 2002). Furthermore, groups are a means of sharing risk. To be specific, risk uniformity among group members allows participants to share ex ante measures and information (Stiglitz 1990), whereas asset rich and asset poor members in the same group may pool risk better ex post by offering financial support within groups if needed (Zeller 1998).

As the relationship between economic well-being and social and political capital is likely to be characterized by endogeneity due to confounding factors and reverse causality, we employ an instrumental variables approach using the household's relative engagement in groups and trust in strangers as instruments. Interestingly, the results suggest that group membership is not a sufficient determinant of social capital in explaining the positive association of social capital with welfare, but other aspects such as personal networks also matter.

The paper is structured as follows: the existing literature on the relationship between social and political capital and household welfare is reviewed in the following section and the household survey data used here presented in Section 3. The empirical strategy, including discussions of the endogeneity inherent in the relationship and of the results, is presented in Section 4. Section 5 concludes.

2. RELATION OF THE STUDY TO THE EXISTING LITERATURE

Even though there is broad consensus on the concept, there are different definitions of social capital. For Coleman (1990), social capital is given by the mutual relationship between individuals that enables them to achieve common goals. Similarly, Putnam (1995) sees it as a collective form of capital enhancing the collective benefit, while Lin (1999) takes a more individualistic view and defines it as an asset helping individuals to reach their personal goals. Both Coleman (1990) and Putnam (1995) stress trust, personal relations between group members, and social norms as important elements of social capital. In line with this, Putnam (1993) states the importance of considering the nature of participation, and group structure and density. Narayan and Pritchett (1999) combine group density at the village level, the heterogeneity of groups with respect to income and kin, and the degree of effective group functioning into a social capital index. Grootaert (1999) extends the definition by Narayan and Pritchett (1999) by adding the costs of participation and the degree of orientation of groups towards community interests.

Besides membership in social groups disseminating knowledge or information on strategies to cope with shocks and to adapt to climate change as mentioned above and by, for example, Adger (1999), Aker (2005), and Schoon (2006), frequent interactions and close physical proximity between group members enable the identification of the most vulnerable among them, which improves targeting of assistance (Bhattamishra and Barrett 2008). In addition, Putnam (1995) mentions that group activities often act to increase trustworthiness within and the well-functioning of groups, and groups and informal networks are seen to be positively associated with poverty reduction (Di Gregorio et al. 2008), which is related to the hypothesis underlying the current study.

A concept that is related to social capital is that of political capital (Verba, Nie, and Kim 1978), which may complement social capital in strengthening resilience to adverse events. Booth and Richard (1998) define political capital as the commitment to

democratic norms, including holding and exercising voting rights, participating in campaigning and activism, and contacting public officials. Birner and Wittmer (2003) take a very similar but slightly broader point of view and define political capital to include electoral power, the ability to organize demonstrations and public rallies, to lobby decision makers and administrative officials, and to influence or create ideologies that may influence public opinion and attract international support. The participation in groups often works as a stimulator to these factors, for example by reinforcing the knowledge of citizen's rights.

However, existing social and cultural factors may complicate the accumulation of social capital through group membership. Different levels of power within groups may, for example, hamper the accumulation of social capital, and as Ostrom (1990) argues, if there is a lack of communication and trust or disagreement about the common interest among members, group-based approaches may fail. Similarly, Meinzen-Dick, Bernier, and Haglund (2013) mention that power structures inherent in communities may be translated to groups, thereby excluding the already marginalized also from benefits accruing from group membership and Bhattamishra and Barrett (2008) point out that the poor, women, and members of ethnic minorities are often excluded from participating in groups and the resulting benefits. In line with this, Quisumbing, McNiven, and Godquin (2008) find that poor people participate in fewer groups and have smaller networks than households with more human and physical capital in the Philippines. Furthermore, groups involve costs, which may contribute to the poor not participating. Besides the direct costs accruing to members in the form of fees, Weinberger (2000) mentions costs for organizations associated with communication among group members, processes for arriving at group consensus, and cooperation. These costs would vary based on the size of the group and its heterogeneity. The size of group and their heterogeneity matter.

A more general concern is that investment in adaptive measures may also be discouraged through strong networks with neighbors and friends due to the dissemination of conflicting or confusing information (Di Falco and Bulte 2013). Furthermore, the ability of group-based approaches to influence individual adaptation strategies is limited because of their focus on the encouragement of group-based and collectively-oriented adaptation strategies (Agrawal and Perrin 2008; Nam 2011). In addition, social funds are often spent on coping with challenges related to, for example, population growth, increasing mobility, and frequent climatic shocks, rather than on ameliorating community-based risk (Bhattamishra and Barrett 2008).

When it comes to factors associated with participation, much of the literature has focused on characteristics of the household rather than the individual (for example, Grootaert 1999; Bandyopadhyay et al. 2004; Aker 2005; Quisumbing, McNiven, and Godquin 2008). Bandyopadhyay et al. (2004), for example, find different indicators of economic wellbeing and human capital, the participation rate within the village, and the loss of livestock through wild animals to be positively associated with the participation in community conservation programs. Weinberger (2000), on the other hand, focuses on individual characteristics, such as age, education, and a within-household bargaining power index, besides household-level ones such as wealth and household size, when investigating group membership.

Paying attention to gender-differences is of importance due to the different roles and responsibilities, and thereby different drivers of group membership, of men and women. With respect to formal groups in the Philippines, Godquin and Quisumbing

(2008) find wealth and human capital to be positively associated with group membership in general, and, to be more specific, education to have a particularly positive effect on the membership of women in groups and relatively poor men to be less likely to participate in productive groups. Furthermore, exposure to shocks tends to increase female participation. Quisumbing (2009) supports the latter finding of the positive effect of shocks for female participation with data from Bangladesh, but also finds that shocks are negatively associated with male participation. In contrast to the findings of Godquin and Quisumbing (2008) in the Philippines, she also finds poor households, on average, to be more likely to be group members in Bangladesh, and for education and land ownership to positively impact on the participation rates of household heads. In addition, Quisumbing (2009) states that there are more female participants in formal groups founded by non-governmental organizations (NGOs) in Bangladesh. This, however, may be due to the fact that the data were based on an impact evaluation of the activities of NGOs that often target women, which limits the generalizability of the findings and is one area where this paper aims to contribute.

Relating social capital to household welfare, Miller et al. (2004) state that group membership may lead to households exiting poverty and becoming more resilient to shocks (cited in Bradshaw 2007). Similarly, Narayan and Pritchett (1999) find a positive association between social capital measured by an index combining the frequency of interactions with groups and characteristics relating to their structure, and household welfare in Tanzania.

Grootaert (1999) adds to these results by disaggregating social capital into a list of characteristics of groups and participants, for example the number of groups a household participates in, the internal heterogeneity of groups participated in, and the frequency with which meetings are attended. Grootaert (ibid) states that social capital benefits household welfare in the long run through access to credit and an increase in asset accumulation; the author finds, however, that when membership is voluntary, rather than mandatory as stipulated by governments, the welfare benefits are greater. Zeller et al. (2002) look at Bangladesh, focusing on group-based financial institutions and find positive associations of membership with welfare, specifically through better nutrition, health, and children's education. Yet, Olawuyi and Oladele (2012) find trust among group members to be important for the positive effects on household food and non-food expenditure in Nigeria.

Paying attention to gendered effects, Pitt and Khandker (1998) investigate the effects of membership in group-based credit programs in Bangladesh and find more positive effects of female than male participation on household welfare, while Khandker (2005) finds a positive effect on poverty reduction in the same households investigated by Pitt and Khandker (1998), especially when the participant is female. Similarly, Hashemi, Schuler, and Riley (1996) and Pitt, Khandker, and Cartwright (2003) find positive associations between programs providing credit to rural women in Bangladesh and female empowerment. Furthermore, Quisumbing and Kumar (2011), in a study looking mainly at the welfare effects of new agricultural technologies in Bangladesh, find that female social capital has positive effects on household welfare; new agricultural technologies have a larger positive impact on female asset holdings compared to male ones when they are disseminated through women's groups. In this current paper, we adopt a more direct approach to investigating the relationship between social and political capital with household welfare measured by per capita consumption expenditure and asset holdings in a representative sample.

3. DATA

This study uses household survey data collected in 2012 among 800 agricultural households in 31 of the 64 districts of Bangladesh, covering all agroecological zones categorized by the Bangladesh Centre for Advanced Studies. While data collection for this round was conducted by one of the authors with the Center for Development Research (ZEF) of the University of Bonn as an additional collaborator, the survey was based on previous data collection by the International Food Policy Research Institute (IFPRI) and Data Analysis and Technical Assistance Limited (DATA), who were also involved in this second round of data collection. The earlier round of data from 2010 is not used for this study, however, due to the absence of crucial information for this investigation such as details on the participation in groups and on social and political capital.³ The data collected in 2012, on the other hand, includes information on individual membership in groups as well as individual asset ownership besides the rather standard questions on, for example, household structure and characteristics.

Basic summary statistics of the characteristics of the households in the sample are presented in Table A1 in the appendix. In the remainder of this section we focus on presenting the variables related to group membership and social and political capital, all other variables used in the estimation are presented when the empirical strategy is discussed. Note that the sample investigated in this study exclusively consists of households with male, married heads. We restrict the analysis to married household heads as we pay specific attention to relative asset holdings within households, and to male heads to ensure comparability as households with a female married head are likely to be inherently different from those with male married heads. That the findings may not be extended to female-headed households should be kept in mind when interpreting the results.

3.1 Group membership

Household heads and their spouses were directly asked about their membership and extent of participation in formal and informal groups, and in both voluntary associations and those that one is required to join, for instance because of customary rules. As an example of the latter, one would automatically become a member of the group in a local mosque if one visits it for prayers. Formal groups generally have specific membership rules and are partly formed by NGOs, which is especially the case for credit groups targeted at women in this setting.

Furthermore, respondents were asked detailed questions about the activities, characteristics, costs, and benefits of the two most important groups they participate in. Household heads participate in one to two groups on average, while their spouses are only involved in one on average as presented in Table A1 in the appendix. Table 1 displays group membership rates of household heads, spouses, and any household member in different types of groups. It is obvious that farmer groups, credit groups, and religious groups are the most important ones in terms of relative participation, and that the nature of participants differs greatly. While farmer groups appear oriented towards male participation (indicated by 46 percent of household heads being members), credit

³ Please note that our results are qualitatively robust to using lagged values of the explanatory variables other than the key ones relating to social and political capital and to shocks. The results are not reported but available from the authors upon request.

groups are much more important for women with 30 percent of the spouses of household heads being members. The latter is expected because of the large prevalence of credit groups targeted at women, because of these groups having been established, in most cases, by NGOs in Bangladesh, and because women's assets are highly vulnerable to depletion in the presence of adverse events (Rakib and Matz 2014) and women, thus, possibly feeling a stronger need for financial assets to protect themselves against shocks in other ways than by selling assets. In general, group membership is widespread with 78 percent of household heads and 43 percent of their spouses being members of at least one group.

Table 1: Group membership rates of household heads, their spouses, and any household members

Type of group	HH heads	Spouses	Any household member
Farmer group	46.1	0.3	46.4
Credit group	5.3	30.2	34.7
Religious group	13.6	2.8	16.4
Women's group	0	5.0	5.1
Political group	5.1	0.2	5.3
Community group	2.8	0.8	3.6
Any group	78.0	43.3	89.4

Source: Authors' calculations based on the survey data.

Note: All figures are percentages.

Costs of group membership for participants accrue both in the form of cash (registration and membership fees and contributions to group funds measured in Bangladeshi taka), and in labor contribution to group activities (measured in hours per week).⁴ While a larger proportion of female respondents pay registration fees, household heads pay more in registration fees (albeit at lower rates) (see Table 2). With respect to the monthly obligatory payment, female respondents are slightly more likely to pay these, but they report very similar amounts as their husbands, while the mostly voluntary yearly contribution is higher for household heads, who are also much more likely to pay. On the other hand, household heads are less likely to contribute labor to group activities but, if they do, they spend more time on this than their wives.

⁴ One US-dollar corresponded to 81 Bangladeshi Taka in September 2012 (International Monetary Fund 2012).

Table 2: Costs of participation in the most important group

Type of costs	HH heads			Spouses		
	Percentage of heads paying/contributing	Mean	Std. Dev.	Percentage of spouses paying/contributing	Mean	Std. Dev.
Registration fees (Taka)	14	339.6	769.8	54	73.2	129.6
Monthly payment (Taka)	26	97.5	175.8	38	107.0	98.9
Yearly contribution (Taka)	18	5,248.1	41,192.9	7	640.2	433.5
Weekly labor hours	51	1.4	1.7	78	1.0	0.9

Source: Authors' calculations based on the survey data.

Table 3 presents the main perceived benefits of group membership in the two most important groups as reported by household heads and spouses. More than 40 percent of household heads who participate in groups find the most important benefit of group membership is to improve household welfare, while less than 16 percent of spouses mention this. For female respondents, on the other hand, group membership appears to be more important to cope with shocks, as more than a quarter of them state this as the main benefit of one of their two most important groups. Other main advantages of groups are that they are sources of information and benefit the community; these benefits were mainly mentioned by male respondents.⁵

Table 3: Reported benefits of group membership

Type of benefit	Most important group		2nd most important group		Combined	
	HH heads	Spouses	HH heads	Spouses	HH heads	Spouses
Improve current household livelihood	31.15	13.86	9.03	1.87	40.18	15.73
Important in times of shocks	16.67	24.14	8.26	3.74	24.93	27.88
Source of information	15.26	4.36	4.36	0.78	19.62	5.14
Benefits the community	13.24	1.87	9.03	0.47	22.27	2.34
Enjoyment or recreation	2.65	1.4	2.34	0.47	4.99	1.87
Other benefits	1.09	0.62	0.78	0.16	1.87	0.78

Source: Authors' calculations based on the survey data.

Note: All figures are percentages.

*p < .10. **p < .05. ***p < .01.

3.2 Social and political capital

To measure social and political capital, we combine several characteristics of groups and the nature of group membership into three indices using a principal component analysis: separate indices for social and political capital each, and a combined one for social and

⁵ Note that benefits are not mutually exclusive as respondents were asked to mention the main benefit each from membership in their two most important groups.

political capital.⁶ To be precise, the nature of the respondent's network⁷, the payment of membership costs, labor contributions to the group, whether a member is actively involved in making decisions within the group, and whether he/she attends meetings regularly, whether the individual participates in community-based activities, whether he/she generally has trust in neighbors and fellow villagers, and whether groups participated in are homogeneous with respect to wealth are components of the social capital index. Information on whether a respondent votes in national elections, attends local council meetings and protests, engages with politicians, mentions local problems to the police, and whether he/she believes his/her opinions and decisions are considered and valued by elites, forms the political capital index. Both indices as well as the combined one are normalized to range between zero and one for household heads and their spouses separately.

Table 4 presents mean values of the social and political capital indices for different categories of individuals and households. It shows, for example, that the aggregate index of social and political capital takes a value of 0.66 for literate household heads and a value of 0.41 in the case of illiterate ones. Furthermore, it is apparent that there is a positive relationship with age for household heads, while it is negative for their spouses. Interestingly, having experienced climatic or other negative shocks is associated with higher social and political capital, which may be due to negatively affected household relying relatively strongly on group-based approaches in coping with adverse events.⁸ Furthermore, while male social and political capital increase with wealth measured by consumption expenditure, even if not linearly, this does not appear to be the case for spouses. While Table 4 is indicative of correlations between social and political capital and socio-economic characteristics, it should be noted that values may not be compared between household heads and spouses as they are normalized within type of "owner", that is, for household heads and spouses separately. Furthermore, due to the rather crude nature of the indices, the variability of the indices is rather small.

⁶The social and political capital indices are computed using the following formula: $C_{ijt} = \sum_{k=1}^K w_t^k a_{ijt}^k$ for individual j in household i in time period t with capital C made up of type- k components as in Rakib and Matz (2014). The choice of components to be included is supported by both the Kaiser-Meyer-Olkin and Bartlett's test, and the weight w of each component is based on a principal components analysis following Filmer and Pritchett (2001). The components of the indices are listed again in Table A2 in the appendix. Besides the separate indices for social and political capital, we construct a combined index for social and political capital. Note that all indices are normalized, with larger values implying larger social and political capital but only within "owner".

⁷Indicator variables including whether there are close friends and neighbors the respondent can borrow from in times of need, whether somebody would mind the respondent's children if necessary, and whether other people seek help from the respondent if necessary give information on the respondent's informal network.

⁸The category "non-climatic negative shocks" comprises death or illness of family members and dowry payments. Remittances, inheritances, and the receipts of dowries are classified as "positive shocks". Please see Rakib and Matz (2014) for more detail on the nature of shocks and their effects on asset holdings of household heads and their spouses.

Table 4: Values of the social and political capital indices for household heads and their spouses by binary individual and household characteristics

	Aggregate social and political capital		Social capital		Political capital	
	HH heads	Spouses	HH heads	Spouses	HH heads	Spouses
Literacy of respondents						
Literate	0.66	0.61	0.63	0.59	0.58	0.54
Illiterate	0.41	0.41	0.43	0.43	0.48	0.48
Age of respondents						
25 and below	0.62	0.43	0.63	0.50	0.53	0.43
26 to 40	0.63	0.42	0.60	0.48	0.56	0.44
41 to 55	0.64	0.41	0.61	0.48	0.57	0.43
56 and above	0.64	0.40	0.63	0.47	0.56	0.43
Prevalence of shocks						
Affected by climatic shocks	0.64	0.43	0.62	0.59	0.57	0.48
Not affected by climatic shocks	0.61	0.39	0.44	0.40	0.54	0.48
Experienced non-climatic negative shocks	0.64	0.41	0.62	0.44	0.57	0.48
Not experienced non-climatic negative shocks	0.63	0.41	0.59	0.40	0.55	0.48
Experienced positive shocks	0.64	0.43	0.62	0.45	0.56	0.49
Not experienced positive shocks	0.63	0.41	0.61	0.42	0.56	0.48
Quintile of household consumption expenditure per capita						
1 st quintile	0.58	0.41	0.57	0.44	0.52	0.47
2 nd quintile	0.63	0.42	0.61	0.43	0.55	0.49
3 rd quintile	0.62	0.40	0.60	0.41	0.55	0.48
4 th quintile	0.66	0.43	0.63	0.45	0.59	0.48
5 th quintile	0.68	0.40	0.65	0.42	0.60	0.48

Source: Authors' calculations based on the survey data.

Note: All figures are mean values of the respective index.

4. EMPIRICAL FINDINGS

This section begins by examining the factors associated with group membership in general and of male and female respondents separately. We continue by investigating the relationship between group membership, social and political capital, and household welfare measured by per capita consumption expenditure and asset holdings, and discuss and address the inherent endogeneity. Throughout, we allow for gender-differentiated effects by separating social and political capital, as well as asset holdings, of household heads and spouses.

4.1 Correlates of participation in groups

We investigate factors associated with group membership with the help of a probit specification in which the dependent variables are binary for household-level membership of the household head or his spouse, or for each of them separately at the individual level.

The marginal effects corresponding to this exercise are presented in Table 5, where columns (1) and (2) investigate household-level participation and columns (3) and (4) look at group membership of household heads and their spouses, respectively. We find that education of the household head is positively associated with their likelihood of participating in groups, which is in line with the findings of Bandyopadhyay et al. (2004), while this is not the case for membership at the household level or of spouses. On the other hand, the results indicate that women who are engaged in off-farm employment are more likely to be group members, while the coefficient on the corresponding variable for household heads is statistically insignificant. Furthermore, we find a negative correlation between age and membership for both the household head and his spouse in two out of four columns, which is in contrast to Weinberger (2000). Household size is negatively and statistically significantly associated with group membership in three out of four columns, which may be due to larger families demanding more time being spent on providing for the family and less time being available for other activities.

Interestingly, the results indicate that the experience of any type of shock, both positive and negative, is positively associated with group participation, but especially so for women.⁹ To be precise, having experienced a climatic shock in the past two years is associated with an increase in the likelihood of a household head's spouse being a group member by 11 percent, with the impact of other negative and positive shocks being of similar or larger magnitude. It appears likely that information on coping strategies and support provided by a group is most needed and availed of in times of distress as suggested by the reported benefits of groups presented in Table 3. In line with this, a household's value of asset holdings is negatively related to female group membership, which may be due to less need for coping mechanisms induced by group membership the more assets are available within the household. These results, which are stronger for female participation, and with women being most likely to be members of credit groups, may suggest that women join these groups in order to cope with shocks with the help of financial tools rather than by selling assets, a coping strategy identified by Rakib and Matz (2014).

After investigating the factors associated with membership in any type of group, we now turn to household-level membership in the most important groups according to participation rates in our sample in Table 6: farmer groups (columns (1) and (2)), credit groups (columns (3) and (4)), and religious groups (columns (5) and (6)). Recall the gender differences in group participation: farmer groups, for example, mainly have male members, while credit groups mainly have female ones as discussed above.

⁹Note that the results are largely robust to using variables indicating that a household has experienced a severe positive or non-climatic negative shock rather than any positive or non-climatic negative shock, with severe shocks being defined as shocks in which the ratio of the amount gained or lost, respectively; to total consumption expenditure is larger than the median value in the sample. Furthermore, note that climatic adverse events are classified as "shocks" only if more than one village of a union was affected.

Table 5: Marginal effects of factors associated with participation in groups by gender

	Participation of households (1)	Participation of heads (2)	Participation of heads (3)	Participation of spouses (4)
Years of schooling of HH head	0.002 (0.003)		0.009** (0.005)	
Years of schooling of spouse		0.004 (0.004)		-0.004 (0.007)
Age of HH head	- 0.002** (0.001)		0.000 (0.002)	
Age of spouse		-0.001 (0.001)		-0.006** (0.003)
HH head employed off-farm	0.004 (0.035)		-0.019 (0.051)	
Spouse employed off-farm		0.033 (0.062)		0.230* (0.142)
Household size	- 0.011** (0.006)	-0.011* (0.006)	-0.030*** (0.009)	0.002 (0.012)
Male-to-female ratio	0.012 (0.013)	0.012 (0.013)	0.014 (0.020)	-0.018 (0.025)
Household dependency ratio	-0.066 (0.080)	-0.082 (0.079)	-0.016 (0.113)	-0.271* (0.148)
Log of total plot size (square meters)	-0.002 (0.004)	-0.002 (0.004)	0.008 (0.005)	-0.004 (0.007)
Total livestock (TLU)	0.003 (0.034)	0.018 (0.039)	0.032 (0.049)	-0.067 (0.063)
Log of total value of assets	-0.001 (0.005)	0.000 (0.005)	0.010 (0.007)	-0.021** (0.010)
Access to television by HH head	0.007 (0.024)		0.042 (0.034)	
Access to television by spouse		- 0.000 (0.026)		0.048 (0.044)
HH ownership of mobile phone	0.018 (0.027)	0.020 (0.026)	0.031 (0.036)	0.016 (0.045)
Affected by climatic shocks	0.030 (0.025)	0.033 (0.025)	-0.008 (0.033)	0.111*** (0.042)
Affected by non-climatic negative shocks	0.044* (0.023)	0.041* (0.023)	0.004 (0.035)	0.115*** (0.043)
Affected by positive shocks	0.043* (0.023)	0.044** (0.023)	0.017 (0.036)	0.174*** (0.046)
Pseudo R-squared	0.060	0.065	0.051	0.063
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Table 6 adds some interesting insights to the discussion of factors influencing group membership. Education of the household head, for example, is negatively associated with household-level membership in farmer and credit groups, possibly due to less guidance and credit needed, while the education of the household head and spouse are positively correlated with membership in religious groups. Furthermore, the negative association of age in Table 5 appears to be driven by the participation in credit groups, whereas higher age appears to be positively associated with the likelihood of

participating in religious groups. The negative coefficient on household size is only found for the participation in farmer groups in columns (1) and (2), while a high dependency ratio reduces the likelihood of group membership in credit groups as presented in columns (3) and (4).

Table 6: Marginal effects of factors associated with household-level participation in groups by group type

	Participation in farmer groups		Participation in credit groups		Participation in religious groups	
	(1)	(2)	(3)	(4)	(5)	(6)
Years of schooling of HH head	-0.012** (0.005)		-0.011** (0.005)		0.009** (0.004)	
Years of schooling of spouse		0.000 (0.007)		-0.009 (0.007)		0.009* (0.005)
Age of HH head	-0.003 (0.002)		-0.007*** (0.002)		0.004*** (0.001)	
Age of spouse		-0.003 (0.002)		-0.008*** (0.002)		0.006*** (0.001)
HH head employed off-farm	-0.062 (0.060)		0.042 (0.058)		0.043 (0.049)	
Spouse employed off-farm		-0.377*** (0.078)		0.172 (0.139)		0.196 (0.133)
Household size	-0.040*** (0.012)	-0.033*** (0.012)	0.006 (0.011)	0.004 (0.012)	0.008 (0.008)	0.004 (0.008)
Male-to-female ratio	0.029 (0.025)	0.027 (0.025)	-0.013 (0.023)	-0.010 (0.023)	0.000 (0.018)	0.004 (0.018)
Household dependency ratio	-0.010 (0.137)	-0.130 (0.144)	-0.435*** (0.131)	-0.385*** (0.137)	0.027 (0.094)	0.085 (0.096)
Log of total plot size (square meters)	0.005 (0.007)	0.003 (0.007)	-0.005 (0.006)	-0.006 (0.006)	0.006 (0.005)	0.007 (0.005)
Total livestock (TLU)	0.039 (0.059)	0.056 (0.058)	-0.086 (0.059)	-0.087 (0.059)	0.032 (0.040)	0.031 (0.041)
Log of total value of assets	0.011 (0.010)	0.006 (0.010)	-0.014 (0.009)	-0.015 (0.009)	-0.003 (0.007)	-0.003 (0.007)
Access to television by HH head	0.024 (0.043)		-0.018 (0.041)		-0.001 (0.032)	
Access to television by spouse		0.046 (0.044)		0.006 (0.042)		0.006 (0.032)
HH ownership of mobile phone	-0.053 (0.045)	-0.098** (0.045)	0.088** (0.043)	0.083** (0.042)	-0.013 (0.034)	0.003 (0.032)
Affected by climatic shocks	-0.053 (0.042)	-0.064 (0.042)	0.017 (0.040)	0.018 (0.040)	0.046 (0.028)	0.051* (0.028)
Affected by non-climatic negative shocks	0.065 (0.043)	0.064 (0.043)	0.055 (0.041)	0.046 (0.041)	-0.008 (0.030)	-0.002 (0.030)
Affected by positive shocks	0.035 (0.046)	0.030 (0.046)	0.170*** (0.045)	0.165*** (0.045)	0.024 (0.033)	0.031 (0.033)
Pseudo R-squared	0.035	0.041	0.070	0.066	0.050	0.055
N	642	642	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

In addition, we find some evidence for a negative association between ownership of a mobile phone and participation in farmer groups, but evidence of the reverse case for credit groups. Interestingly, having been affected by climatic shocks is positively related to the likelihood of participating in religious groups, while positive shocks, such as the receipt of remittances, are positively associated with participation in credit

groups, possibly due to more collateral becoming available in response to a positive shock.

4.2 Group membership, social and political capital, and welfare

When investigating the welfare effects of group-based approaches, we begin with a naïve approach that assumes all explanatory variables to be exogenous. To be specific, we estimate the following equation using Ordinary Least Squares (OLS) with heteroskedasticity-robust standard errors:

$$\ln(Y_i) = \alpha + \beta \text{ Social capital}_{ij} + \gamma \text{ Political capital}_{ij} + \delta \text{ Human Capital}_{ij} + \rho \text{ Other Physical Capital}_i + \mathbf{Z}_i\boldsymbol{\theta} + \mathbf{X}_i\boldsymbol{\sigma} + \epsilon_{ij} \quad (1)$$

where we use two dependent variables to measure the economic wellbeing of household i : the logarithmic value of total consumer and agricultural assets, including, for example, consumer durables, agricultural goods, jewelry, and vehicles, and the logarithmic value of total monthly per capita expenditure on food and non-food items. While we follow Grootaert (1999), Narayan and Pritchett (1999), and Aker (2005) in choosing consumption expenditure, both asset holdings and expenditure are often used measures of economic wellbeing, as income is difficult to measure and not necessarily representative of the economic well-being of agricultural households.

The main explanatory variables are different sets of capital: social and political, and human capital, and land and livestock holdings, which are other physical capital apart from those physical assets used as one of the dependent variables. The types of capital are indexed by j for either being held by the household head or his spouse apart from other physical capital due to the vast majority of land and livestock in households being held by household heads (Rakib and Matz 2014). To be specific, social and political capital is measured by the aggregate index introduced above, human capital is measured by years of schooling, and other physical capital is given by the logarithmic value of the household's total plot size in square meters and total livestock holdings measured in tropical livestock units (TLU). $\mathbf{Z}$ is a vector of individual characteristics of the household head or his spouse, such as age and a binary variable for off-farm occupation, and $\mathbf{X}$ is a vector of household-level characteristics, including household size, the male-to-female ratio, the dependency ratio, and measures for the exposure to climatic, other negative, and positive shocks. The error term is represented by ϵ_{ij} .

A rather obvious challenge with respect to endogeneity arises from this exercise. Firstly, there may be reverse causality or simultaneity between physical wealth and social and political capital, an issue we discuss and address in the following section. Secondly, even though existing studies include physical capital when investigating the effect of social capital on consumption expenditure (Grootaert 1999; Narayan and Pritchett 1999; Grootaert 2001), land and livestock holdings may be subject to similar concerns. Note that the results described in the following are largely robust to the exclusion of these variables.

Table 7 presents the results of estimating equation (1) with a combined index for social and political capital, while we use separate ones in Table A3 in the appendix.¹⁰ It is

¹⁰Note that the variability in the political capital of spouses is quite low as presented in Table 4, which means that the results for this variable should be interpreted with care and in conjunction with the results

interesting to see that, while the combined social and political capital of household heads is associated with consumption expenditure in a statistically significant and positive way (column (3)) but not with physical capital (column (1)), the coefficients on the index for the social and political capital of their spouses are statistically insignificant (columns (2) and (4), respectively) for both physical capital and consumption expenditure being the dependent variable. Education of both the household head and his spouse yield a statistically significant and positive coefficient in all columns, household size is negatively associated with per capita consumption expenditure, and livestock holdings positively with asset holdings. Surprisingly, having been affected by a climatic shock in the past two years yields a statistically significant and positive coefficient on consumption expenditure, possibly due to disaster relief and the need to buy more food items than usual and to replace lost physical items. Similarly, while having experienced non-climatic negative shocks yields a negative and statistically significant coefficient for asset holdings, there is some evidence for a positive association with per capita consumption expenditure, which may also be explained by coping mechanisms such as the sale of assets to enhance consumption.

Investigating the results in Table A3 in the appendix, it is obvious that the positive association of the aggregate index of social and political capital of household heads is driven mainly by their social capital. A further disaggregation is presented in Tables A4 and A5 in which the key explanatory variables are central components of social capital: group membership and informal networks, respectively.¹¹ It is interesting to see that group membership is statistically significantly and positively related to economic well-being for the household head only when economic well-being is measured by asset holdings, not when it is measured by per capita consumption expenditure, which indicates that there is more to social capital than simply the membership in groups. Furthermore, group membership of the spouse yields a statistically significant and negative coefficient with asset holdings and consumption expenditure per capita. Investigating Table A5, on the other hand, we find the informal network of both household heads and their spouses to be associated with household welfare as the coefficients on the informal network are statistically significant and positive in three out of four columns.

using the combined index for social and political capital. To be specific, the political capital index of 85 percent of the women in our sample lies between 0.41 and 0.49.

¹¹ Group membership is given by an indicator variable, the network is measured with an index computed with the help of a principal component analysis and on the basis of the indicator variables describing networks mentioned in Section 3.2.

Table 7: Aggregate social and political capital and economic well-being: OLS results

	log of total assets		log of per capita consumption expenditure	
	(1)	(2)	(3)	(4)
Social and political capital of HH head	0.795 (0.510)		0.611*** (0.146)	
Social and political capital of spouse		-0.456 (0.596)		-0.280 (0.187)
Years of schooling of HH head	0.084*** (0.017)		0.037*** (0.006)	
Years of schooling of spouse		0.146*** (0.023)		0.052*** (0.008)
Age of HH head	-0.014* (0.008)		0.010*** (0.002)	
Age of spouse		-0.003 (0.010)		0.016*** (0.002)
HH head working off-farm	0.046 (0.199)		0.026 (0.061)	
Spouse working off-farm		-0.516 (0.629)		-0.089 (0.150)
Household size	0.037 (0.045)	0.048 (0.047)	-0.072*** (0.014)	-0.073*** (0.014)
Male-to-female ratio	-0.185* (0.108)	-0.165 (0.108)	0.016 (0.030)	0.026 (0.030)
Household dependency ratio	0.415 (0.601)	0.042 (0.638)	0.144 (0.147)	0.112 (0.159)
Log of total plot size (square meters)	0.048* (0.027)	0.046* (0.027)	0.003 (0.008)	0.004 (0.008)
Total livestock (TLU)	1.089*** (0.335)	1.149*** (0.330)	-0.054 (0.065)	-0.012 (0.063)
Affected by climatic shocks	-0.197 (0.169)	-0.170 (0.164)	0.070 (0.048)	0.094** (0.048)
Affected by non-climatic negative shocks	-0.414** (0.186)	-0.404** (0.185)	0.060 (0.048)	0.081* (0.049)
Affected by positive shocks	-0.037 (0.172)	-0.027 (0.172)	0.029 (0.050)	0.044 (0.052)
R- squared	0.106	0.116	0.187	0.163
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

4.2.1 Addressing the endogeneity

As briefly mentioned above, social and political capital are likely to be endogenous in equation (1). To be specific, membership in groups is not randomly assigned but individuals choose to participate, which may be influenced by economic wellbeing, our dependent variable, or other factors that influence both the membership in groups and wealth, for example education.

In order to address this endogeneity, we use instrumental variables (IV) in a two-stage least squares estimation, the instruments used being the relative participation of a household in groups and trust in strangers. In the following we argue in favor of the validity of each of these instruments.

The relative participation in groups is measured as the ratio of the number of groups a household participates in to the number of groups existing in the village the household resides in. As shown in Table A1 in the appendix, this variable ranges from 0 to 0.39 with a mean value of 0.09, which implies that, on average, households are members of about a tenth of the groups existing in the village. While a positive association between this variable and social capital is obvious with social capital being built through the interaction with other individuals, we believe that there is no direct and causal relationship with economic wellbeing. The paper rests on the idea that group membership is beneficial to economic wellbeing, but we fail to see why the *relative* participation in groups should impact on household welfare, making this variable a valid instrument in our opinion. This would not be the case for the absolute number of groups a household has members in as NGOs often set up groups for specific purposes, such as credit groups for women. While we are unable to provide evidence for this, it appears likely that areas with people in need, for example regions hit by climatic shocks or exhibiting less favorable economic conditions in general, would therefore exhibit a larger number of groups. Similarly to the instrumental variable used here, Bandyopadhyay et al. (2004) use the village-level proportion of participants as an instrument and argue that it is related to household-level participation, but not causally to welfare.

In line with much of the existing literature (Narayan and Pritchett 1999; Yusuf 2008; Grootaert 2001; Grootaert and Van Bastelaer 2001), we also use the respondent's individual trust as an instrument for social capital. To be specific, we use self-reported trust in strangers that is measured with the help of a scale ranging from one to five, with one denoting "To a very small extent" and five denoting "To a very large extent". Generally trusting individuals are likely to have closer ties with other individuals and, therefore, higher social capital. Further, trust in people in general increases the chance of ties outside of the village, thereby possibly also increasing social and political capital. On the other hand, we fail to see how trust in strangers could be causally related to welfare. Even though one's economic well-being may have been influenced by the success of cooperation with, and by the reliance on, friends and relatives, Narayan and Pritchett (1999) also argue that trust towards outsiders is a different and more general trait.

Table 8 displays the results of the first stage, which regresses the aggregate index for social and political capital on the instruments and additional explanatory variables. It is reassuring to see that there appears to be a strong relationship between the instruments and the endogenous variable as all coefficients on the instruments are statistically significant, especially for household heads (column (1)) and as, according to expectation, they are positive.

Table 8: The first stage

	Social and political capital of (1)	Social and political capital of (2)
Relative participation in groups	0.626***	0.195**
Trust in strangers of HH head	0.020***	
Trust in strangers of spouse		0.009*
Years of schooling of HH head	0.005***	
Years of schooling of spouse		0.001
Age of HH head	0.000	
Age of spouse		0.000
HH head employed off-farm	-0.039**	
Spouse employed off-farm		-0.021
Household size	0.002	-0.001
Male-to-female ratio	0.016**	-0.002
Household dependency ratio	0.097**	-0.023
Log of total plot size (square	0.001	-0.001
Total livestock (TLU)	0.039**	0.005
Affected by climatic shocks	0.023**	0.029***
Affected by non-climatic negative	0.004	-0.001
Affected by positive shocks	-0.001	0.020*
First stage F-statistic	36.35	5.27
R- squared	0.179	0.045
N	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

However, the F-statistic is smaller than 10, the conventional threshold, in column (2) when the variables of the spouse of the household head are used, but significantly larger than that in the case of using individual variables of the household head in column (1), thereby indicating that the instruments are sufficiently correlated with the endogenous regressor, the aggregate index of social and political capital, at least in the case of household heads.¹² In support of our argumentation for the validity of the instruments above, the Sargan statistic of the test for over-identification is statistically insignificant, meaning there is no evidence of our instrumental variables being correlated with the error term of the second stage.

¹²Note that the F-statistic for the strength of the instrumental variables is larger than the conventional threshold of 10 also for spouses when the informal network is the endogenous explanatory variable in the instrumental variables approach (results presented in Table 10).

Table 9: Aggregate social and political capital and household welfare: IV results

	Log of total assets		Log of per capita consumption expenditure	
	(1)	(2)	(3)	(4)
Social and political capital of HH head	2.086 (1.770)		1.187** (0.473)	
Social and political capital of spouse		8.352 (5.743)		3.982** (1.897)
Years of schooling of HH head	0.075*** (0.024)		0.033*** (0.006)	
Years of schooling of spouse		0.133*** (0.032)		0.046*** (0.010)
Age of HH head	-0.014** (0.007)		0.010*** (0.002)	
Age of spouse		0.000 (0.009)		0.018*** (0.003)
HH head employed off-farm	0.091 (0.258)		0.046 (0.069)	
Spouse employed off-farm		-0.281 (0.620)		0.025 (0.205)
Household size	0.036 (0.047)	0.058 (0.054)	-0.073*** (0.013)	-0.068*** (0.018)
Male-to-female ratio	-0.206** (0.108)	-0.152 (0.117)	0.006 (0.029)	0.033 (0.039)
Household dependency ratio	0.294 (0.594)	0.245 (0.685)	0.090 (0.159)	0.210 (0.226)
Log of total plot size (square meters)	0.046* (0.027)	0.052* (0.031)	0.002 (0.007)	0.008 (0.010)
Total livestock (TLU)	1.026*** (0.256)	1.075*** (0.274)	-0.082 (0.068)	-0.048 (0.091)
Affected by climatic shocks	-0.232 (0.179)	-0.440* (0.262)	0.055 (0.048)	-0.037 (0.086)
Affected by non-climatic negative shocks	-0.428** (0.178)	-0.411** (0.198)	0.054 (0.048)	0.078 (0.066)
Affected by positive shocks	-0.042 (0.187)	-0.226 (0.246)	0.027 (0.050)	-0.052 (0.081)
R- squared	0.099	0.136	0.169	0.598
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

The results of estimating the relationship with the help of an instrumental variables technique as outlined above are presented in Table 9 and are partly in line with but stronger than the results of the OLS specification presented in Table 7.¹³ Thus, our findings support the idea of a positive relationship between social and political capital brought about by group-based approaches and the economic wellbeing of households to some extent and are in line with Narayan and Pritchett (1999), Grootaert (1999), Aker (2005), and Yusuf (2008).

¹³ Note that the results for the logarithmic value of asset holdings are replicated with an index of asset holdings. The findings are stronger with this alternative measurement as presented in columns (1), (3), and (4) of Table A6 in the appendix. We still use the logarithmic value of asset holdings and not the asset index in our main specification, however, as our key explanatory variables, social and political capital, are also measured by indices. Furthermore, note that the results are robust to only using trust in strangers as the instrument as presented in Table A7 in the appendix.

Table 10: Informal network and household welfare: IV results

	Log of total assets		Log of per capita consumption expenditure	
	(1)	(2)	(3)	(4)
Informal network of HH head	1.839 (4.158)		3.931*** (1.217)	
Informal network of spouse		5.466 (4.496)		4.208*** (1.332)
Years of schooling of HH head	0.086** * (0.022)		0.034*** (0.006)	
Years of schooling of spouse		0.143*** (0.027)		0.050*** (0.008)
Age of HH head	- 0.015** (0.007)		0.010*** (0.002)	
Age of spouse		-0.004 (0.008)		0.015*** (0.002)
HH head employed off-farm	0.033 (0.251)		0.038 (0.074)	
Spouse employed off-farm		-0.462 (0.537)		-0.049 (0.159)
Household size	0.035 (0.047)	0.048 (0.048)	-0.078*** (0.014)	-0.073*** (0.014)
Male-to-female ratio	-0.173* (0.103)	-0.185* (0.106)	0.025 (0.030)	0.012 (0.031)
Household dependency ratio	0.457 (0.570)	0.010 (0.601)	0.133 (0.167)	0.086 (0.178)
Log of total plot size (square meters)	0.046* (0.028)	0.049* (0.027)	-0.003 (0.008)	0.007 (0.008)
Total livestock (TLU)	1.124** * (0.239)	1.084*** (0.247)	-0.030 (0.070)	-0.062 (0.073)
Affected by climatic shocks	-0.191 (0.175)	-0.237 (0.179)	0.054 (0.051)	0.045 (0.053)
Affected by non-climatic negative shocks	- 0.408** (0.176)	-0.371** (0.179)	0.062 (0.051)	0.108** (0.053)
Affected by positive shocks	-0.048 (0.188)	-0.080 (0.190)	0.000 (0.055)	0.005 (0.056)
R-squared	0.112	0.094	0.019	0.026
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

As expected, education is positively related to economic wellbeing, while age is positively associated with consumption, possibly due to dissaving, but negatively with asset holdings in one column. Land and livestock holdings are, unsurprisingly, positively related to wealth, but do not yield a statistically significant coefficient when per capita consumption is the dependent variable. Household size is negatively associated with the latter, while climatic and non-climatic negative shocks partly yield a negative coefficient for asset holdings being the dependent variable.

Table A8 in the appendix presents the results of replicating the main findings reported in Table 9 with the separate indices for social and political capital rather than the combined one. The results support and enrich the main ones in Table 9: the effects of social and political capital found in the main results appear to be mostly driven by social capital and for consumption expenditure being the dependent variable.

To dig more deeply into the effects of social capital, we investigate the effects of group membership in any type of group and informal networks on household welfare individually also when addressing the discussed inherent endogeneity. In contrast to the OLS results on group membership, we find no evidence of an association between group membership and asset holdings or per capita consumption expenditure here as presented in Table A9 in the appendix. On the other hand, even though the OLS results on this (see Table A5) are not fully supported, Table 10 strongly suggests that informal networks are a driver of the positive association between social and political capital and per capita consumption expenditure.

4.2.2 Gender-disaggregated welfare

After investigating the effects of social and political capital and selected aspects of the former on the economic wellbeing of households, we now turn to disaggregating household welfare and focus on individual asset holdings of the household head and his spouse as the dependent variables. Similarly to the main specification, we use the logarithmic value of the value of asset holdings, separated by ownership of the head or his spouse, and follow the empirical approach outlined above otherwise, meaning we move from a naïve OLS specification to an instrumental variables technique.¹⁴

The results of disaggregating household welfare are presented in Table 11 with the OLS results in columns (1) and (2) and the results of the instrumental variables estimation in columns (3) and (4). It is striking that social and political capital yield positive and statistically significant coefficients only when asset holdings of the household head are the dependent variable, while we find no evidence for an association with wealth of his spouse, which illustrates the necessity of disaggregating asset holdings by individual ownership.

¹⁴ Note that the results reported in this section are also robust to using indices for individual asset holdings as reported in Table A10 in the appendix for household heads. In the case of estimations for the spouses of household heads, social and political capital is negatively and statistically significantly associated with spouses' asset holdings, but only in the OLS estimation (column (2)).

Table 11: Aggregate social and political capital and gender-disaggregated welfare: OLS and IV results

	OLS		IV	
	Log of total assets of the HH head (1)	Log of total assets of the spouse (2)	Log of total assets of the HH head (3)	Log of total assets of the spouse (4)
Social and political capital of HH head	1.267** (0.585)		3.033** (1.416)	
Social and political capital of spouse		-1.089 (1.149)		-6.609 (9.235)
Years of schooling of HH head	0.071*** (0.016)		0.059*** (0.019)	
Years of schooling of spouse		0.037 (0.050)		0.045 (0.051)
Age of HH head	0.006 (0.006)		0.006 (0.005)	
Age of spouse		-0.041*** (0.015)		-0.043*** (0.015)
HH head employed off-farm	0.172 (0.186)		0.233 (0.207)	
Spouse employed off-farm		0.325 (0.818)		0.178 (0.996)
Household size	0.053 (0.040)	-0.432*** (0.090)	0.051 (0.038)	-0.439*** (0.087)
Male-to-female ratio	-0.012 (0.107)	0.439** (0.170)	-0.040 (0.086)	0.431** (0.188)
Household dependency ratio	-0.024 (0.519)	1.655 (1.071)	-0.189 (0.475)	1.528 (1.101)
Log of total plot size (square meters)	0.080*** (0.023)	-0.012 (0.051)	0.078*** (0.022)	-0.016 (0.050)
Total livestock (TLU)	0.401** (0.193)	1.060** (0.455)	0.314 (0.205)	1.107** (0.441)
Affected by climatic shocks	0.002 (0.151)	0.293 (0.314)	-0.045 (0.144)	0.462 (0.421)
Affected by non-climatic negative shocks	-0.376*** (0.141)	-0.182 (0.321)	-0.394*** (0.142)	-0.178 (0.319)
Affected by positive shocks	0.002 (0.134)	0.560* (0.326)	-0.006 (0.149)	0.684* (0.396)
R-squared	0.108	0.090	0.0874	0.058
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Education is also positively associated with the wealth of the head only, while household size yields a statistically significant and negative coefficient for asset holdings of the spouse being the dependent variable. The ratio of males to females within the household is statistically significantly associated only with asset holdings of the spouse, and in a positive way. Livestock ownership is positively associated with the asset holdings of both the head and his spouse, while land holdings, a male dominated asset, yield a statistically significant and positive coefficient with wealth of the household head only. Non-climatic negative shocks are found to be negatively related only to economic wellbeing of the head, while there is limited evidence for a positive association between positive shocks and assets of the spouse of the household head.

5. CONCLUSIONS

This paper investigates the effect of social and political capital on the economic wellbeing of households in Bangladesh, paying particular attention to methodological challenges and to gender differences with respect to social and political capital and wealth.

As a first step, we study the determinants of group membership of household heads and their spouses and find that men and women generally take part in different groups due to their different needs and opportunities. Farmer groups, for example, are, to a large extent, made up of male participants (possibly due to their relatively strong involvement in agriculture). On the other hand, members of credit groups are mostly women, which is likely due to NGOs encouraging credit use among women in the area and to female assets being disproportionately negatively affected by adverse events such as climatic and non-climatic shocks. Furthermore, we find that household heads participate in more groups than their spouses on average, who, however, are more likely to spend time on group activities. If women do devote time to group activities, they are able to contribute less time, possibly due to their workload and widespread involvement within the household.

Turning to the relationship between social and political capital and economic wellbeing, we develop indices of social and political capital, and pay particular attention to addressing the endogeneity inherent in the relationship. To be specific, while our *a priori* expectation is that social and political capital has a positive impact on household welfare, causality may not necessarily run in the hypothesized direction if economic wellbeing facilitates group membership, possibly directly through less severe time constraints, or indirectly through education positively impacting on both, for example. We initially conduct a naïve OLS estimation and subsequently employ an instrumental variables technique using the household's relative group membership and the household head's and his spouse's trust in strangers as instruments. Overall, we find a positive relationship between social and political capital and household welfare in general, and especially so for consumption expenditure of the household and asset holdings of household heads. Interestingly, the results suggest that, within social capital, the main driver of the effects is not merely group membership, but also the strength of the informal network that leads to the positive association with household welfare.

As groups are often established in places or communities that are in need, the findings should not be understood as a classical evaluation of group membership, but as an indication of how groups benefit members. It should be kept in mind, however, that the sample for the initial survey round was not selected with a study about group membership in mind and that the results with respect to group membership are not the ones our overall conclusions with respect to the positive influence of social and political capital hinge on.

Recalling that household heads are more likely to participate in groups to begin with, the finding that their social capital is beneficial, in particular, for their economic wellbeing invites the recommendation of policies aiming to facilitate *active* group membership that strengthens networks. It may also be beneficial for women to participate in groups that are important for enhancing livelihood outcomes, and not mostly in those that help coping with adverse events. Participation in groups in general may be encouraged through a reduction of costs of participation, both in monetary terms as well as relating to opportunity costs. For the specific case of women, this facilitation could take place by encouraging them to become active members of the community

through emphasizing the importance of (their) social capital for household wellbeing and through shared responsibility for domestic chores. It should, however, be noted that *active* participation in groups and the strengthening of informal networks is necessary for social capital to have a positive effect on household welfare. For women, this may also help to improve their personal relative position within the household in relation to their husbands, but this is rather speculative and a topic for future research.

It is, unfortunately, impossible to disentangle in this study whether the positive effect of active group membership differs by which group a household has members in with a causal interpretation due to the nature of the instrumental variables available to us. As this is of high priority to NGOs setting up groups, it may be advisable to undertake experiments looking at the effects of group membership in different types of groups although randomized participation would most likely be difficult to achieve due to *active* participation, and thereby some inherent motivation on part of the respondents, necessary. Furthermore, future research could look at whether the effects of active group participation differ by the role played in the group and investigate whether there are persistent effects with more long-term data.

APPENDIX

Table A1: Household summary statistics

Variable	N	Mean	Min	Median	Std. Dev.	Max
HH head participating in groups	642	0.78	0	1	0.41	1
Spouse participating in groups	642	0.43	0	0	0.50	1
Number of groups the HH head participates in	642	1.58	0	2	1.21	7
Number of groups the spouse participates in	642	0.92	0	0	1.28	7
Year of schooling of HH head	642	3.47	0	2	4.24	17
Year of schooling of spouse	642	2.98	0	1	3.46	15
Age of HH head	642	49	22	48	13.03	97
Age of spouse	642	40	18	39	11.49	75
HH head employed off-farm	642	0.13	0	0	0.34	1
Spouse employed off-farm	642	0.03	0	0	0.16	1
Household size	642	4.97	2	5	1.93	14
Male-to-female ratio	642	1.16	0.17	1	0.82	5
Household dependency ratio	642	0.66	0	0.70	0.16	1
Per capita monthly food expenditure	642	698	108	619	370	3,217
Per capita monthly non-food expenditure	642	1,007	59	583	1,485	16,721
Total value of assets	642	57,072	0	37,565	79,910	772,591
Total value of assets of HH head	642	45,073	0	23,090	80,626	855,930
Total value of assets of spouse	642	11,772	0	2,000	27,691	321,500
Total plot size (square meters)	642	3,255	0	1,618	4,700	38,053
Total livestock (TLU)	642	0.86	0	1	0.35	1
Affected by climatic shocks	642	0.63	0	1	0.48	1
Affected by non-climatic negative shocks	642	0.32	0	0	0.47	1
Affected by positive shocks	642	0.27	0	0	0.45	1
Relative participation in groups	642	0.09	0	0.11	0.07	0.39
Trust in strangers of HH head	642	2.68	0	3	1.02	5
Trust in strangers of spouse	642	2.54	0	3	1.05	5
Social capital index of HH head	642	0.61	0	0.63	0.14	1
Social capital index of spouse	642	0.43	0	0.43	0.14	1
Political capital index of HH head	642	0.56	0	0.55	0.15	1
Political capital index of spouse	642	0.48	0	0.48	0.05	1
Social and political capital index of HH head	642	0.63	0	0.64	0.15	1
Social and political capital index of spouse	642	0.41	0	0.41	0.13	1

Source: Authors' calculations based on the survey data.

Table A2: Components of the social and political capital index

Social capital
Active in group decision making
Meetings usually attended
Homogeneity of groups in terms of economic status
Availability of close friends to discuss private matters
Availability of close friends/neighbors to borrow from in times of need
Availability of individuals to help in case of long-term emergency
Others seeking help from respondent in past 12 months
Availability of neighbors willing to take care of children if needed
Trust in neighbors and fellow villagers in general
Participated in community-based activities in past 12 months
Labor contributed to groups
Yearly fees paid for group membership
Monthly fees paid for group membership
Registration fees paid for group membership

Political capital
Belief that own opinion is valued by elites
Belief of having control in decision making affecting every day activities
Attended Council meetings in past 12 months
Engaged with a politician in past 12 months
Participated in a protest in past 12 months
Participated in an information or election campaign in past 12 months
Reported local problems to police in past 12 months
Voted in National elections in past 12 months

Source: Authors' calculations based on the survey data.

Note: All components are indicator variables.

Table A3: Social and political capital separately and household welfare: OLS results

	Log of total assets				Log of per capita consumption expenditure			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Social capital of HH head	0.918* (0.563)				0.644*** (0.145)			
Social capital of spouse		-0.352 (0.554)				-0.334* (0.175)		
Political capital of HH head			0.459 (0.512)				0.426*** (0.160)	
Political capital of spouse				-0.959 (1.581)				0.228 (0.423)
Years of schooling of HH head	0.084*** (0.017)		0.086*** (0.017)		0.038*** (0.006)		0.039*** (0.006)	
Years of schooling of spouse		0.146*** (0.023)		0.146*** (0.023)		0.052*** (0.008)		0.051*** (0.008)
Age of HH head	-0.015* (0.008)		-0.014* (0.008)		0.010*** (0.002)		0.011*** (0.002)	
Age of spouse		-0.003 (0.010)		-0.003 (0.010)		0.016*** (0.002)		0.016*** (0.002)
HH head working off-farm	0.039 (0.202)		0.034 (0.200)		0.020 (0.062)		0.019 (0.061)	
Spouse working off-farm		-0.525 (0.627)		-0.479 (0.626)		-0.101 (0.149)		-0.087 (0.159)
Household size	0.037 (0.045)	0.048 (0.047)	0.038 (0.045)	0.049 (0.047)	-0.073*** (0.014)	-0.073*** (0.014)	-0.072*** (0.014)	-0.073*** (0.014)
Male-to-female ratio	-0.182* (0.109)	-0.165 (0.108)	-0.180* (0.108)	-0.167 (0.108)	0.019 (0.030)	0.027 (0.030)	0.018 (0.031)	0.027 (0.030)
Household dependency ratio	0.440 (0.593)	0.039 (0.639)	0.442 (0.607)	0.061 (0.639)	0.166 (0.146)	0.106 (0.159)	0.157 (0.148)	0.116 (0.161)
Log of total plot size (square meters)	0.047* (0.028)	0.046* (0.027)	0.049* (0.027)	0.045* (0.027)	0.002 (0.008)	0.005 (0.008)	0.004 (0.008)	0.005 (0.008)
Total livestock (TLU)	1.102*** (0.335)	1.146*** (0.331)	1.103*** (0.334)	1.156*** (0.331)	-0.042 (0.064)	-0.014 (0.063)	-0.047 (0.065)	-0.017 (0.064)
Affected by climatic shocks	-0.197 (0.168)	-0.171 (0.164)	-0.186 (0.170)	-0.182 (0.166)	0.071 (0.048)	0.098** (0.048)	0.077* (0.048)	0.085* (0.048)
Affected by non-climatic negative shocks	-0.405** (0.186)	-0.404** (0.185)	-0.415** (0.186)	-0.407** (0.185)	0.068 (0.048)	0.082 (0.049)	0.059 (0.048)	0.082* (0.050)
Affected by positive shocks	-0.042 (0.171)	-0.029 (0.172)	-0.032 (0.173)	-0.032 (0.170)	0.026 (0.050)	0.046 (0.052)	0.033 (0.050)	0.037 (0.051)
R-squared	0.106	0.116	0.104	0.116	0.189	0.165	0.167	0.160
N	642	642	642	642	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Table A4: Group participation and household welfare: OLS results

	Log of total assets		Log of per capita consumption expenditure	
	(1)	(2)	(3)	(4)
HH head participated in groups	0.324* (0.199)		0.009 (0.053)	
Spouse participated in groups		-0.326* (0.182)		-0.080* (0.046)
Years of schooling of HH head	0.086*** (0.016)		0.041*** (0.006)	
Years of schooling of spouse		0.144*** (0.023)		0.051*** (0.008)
Age of HH head	-0.014* (0.008)		0.010*** (0.002)	
Age of spouse		-0.004 (0.010)		0.016*** (0.002)
HH head employed off-farm	0.023 (0.205)		0.005 (0.062)	
Spouse employed off-farm		-0.431 (0.624)		-0.063 (0.154)
Household size	0.048 (0.047)	0.047 (0.047)	-0.072*** (0.014)	-0.073*** (0.014)
Male-to-female ratio	-0.176* (0.108)	-0.169 (0.108)	0.025 (0.030)	0.026 (0.030)
Household dependency ratio	0.489 (0.595)	-0.031 (0.647)	0.201 (0.149)	0.098 (0.161)
Log of total plot size (square meters)	0.046* (0.028)	0.045* (0.027)	0.003 (0.008)	0.004 (0.008)
Total livestock (TLU)	1.110*** (0.337)	1.118*** (0.331)	-0.025 (0.064)	-0.021 (0.064)
Affected by climatic shocks	-0.173 (0.168)	-0.148 (0.164)	0.087* (0.048)	0.094** (0.048)
Affected by non-climatic negative shocks	-0.406** (0.186)	-0.367** (0.188)	0.067 (0.049)	0.091* (0.049)
Affected by positive shocks	-0.038 (0.172)	0.017 (0.176)	0.032 (0.051)	0.051 (0.053)
R-squared	0.107	0.121	0.166	0.164
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Table A5: Informal network and household welfare: OLS results

	Log of total assets		Log of per capita consumption expenditure	
	(1)	(2)	(3)	(4)
Informal network of HH head	2.560*** (0.842)		0.984*** (0.249)	
Informal network of spouse		0.857 (0.971)		0.488* (0.277)
Years of schooling of HH head	0.084*** (0.017)		0.039*** (0.006)	
Years of schooling of spouse		0.145*** (0.023)		0.051*** (0.008)
Age of HH head	-0.015* (0.008)		0.010*** (0.002)	
Age of spouse		-0.003 (0.010)		0.016*** (0.002)
HH head employed off-farm	0.039 (0.203)		0.013 (0.061)	
Spouse employed off-farm		-0.497 (0.619)		-0.078 (0.153)
Household size	0.034 (0.045)	0.048 (0.047)	-0.073*** (0.014)	-0.073*** (0.014)
Male-to-female ratio	-0.173 (0.108)	-0.168 (0.108)	0.025 (0.030)	0.025 (0.030)
Household dependency ratio	0.445 (0.595)	0.046 (0.638)	0.184 (0.150)	0.115 (0.160)
Log of total plot size (square meters)	0.045* (0.028)	0.047* (0.027)	0.002 (0.008)	0.005 (0.008)
Total livestock (TLU)	1.123*** (0.332)	1.136*** (0.329)	-0.026 (0.063)	-0.020 (0.064)
Affected by climatic shocks	-0.197 (0.168)	-0.192 (0.165)	0.078* (0.047)	0.081* (0.048)
Affected by non-climatic negative shocks	-0.409** (0.185)	-0.399** (0.185)	0.065 (0.048)	0.084* (0.050)
Affected by positive shocks	-0.054 (0.170)	-0.044 (0.171)	0.024 (0.050)	0.034 (0.052)
R-squared	0.113	0.116	0.185	0.163
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Table A6: Aggregate social and political capital and the asset index: OLS and IV results

	Asset index			
	OLS		IV	
	(1)	(2)	(3)	(4)
Social and political capital of HH head	0.074** (0.037)		0.354*** (0.125)	
Social and political capital of spouse		-0.046 (0.037)		1.136** (0.504)
Years of schooling of HH head	0.013*** (0.002)		0.011*** (0.002)	
Years of schooling of spouse		0.018*** (0.003)		0.016*** (0.003)
Age of HH head	0.001 (0.000)		0.001 (0.000)	
Age of spouse		0.002*** (0.001)		0.002*** (0.001)
HH head working off-farm	0.005 (0.018)		0.014 (0.018)	
Spouse working off-farm		-0.011 (0.022)		0.020 (0.054)
Household size	0.010*** (0.004)	0.010*** (0.004)	0.010*** (0.003)	0.012** (0.005)
Male-to-female ratio	0.003 (0.007)	0.005 (0.008)	-0.001 (0.008)	0.007 (0.010)
Household dependency ratio	0.005 (0.039)	-0.022 (0.041)	-0.021 (0.042)	0.005 (0.060)
Log of total plot size (square meters)	-0.001 (0.002)	-0.001 (0.002)	-0.002 (0.002)	0.000 (0.003)
Total livestock (TLU)	0.000 (0.014)	0.006 (0.013)	-0.014 (0.018)	-0.004 (0.024)
Affected by climatic shocks	-0.003 (0.012)	0.000 (0.012)	-0.011 (0.013)	-0.036 (0.023)
Affected by non-climatic negative shocks	-0.003 (0.012)	0.000 (0.012)	-0.006 (0.013)	-0.001 (0.017)
Affected by positive shocks	-0.003 (0.013)	0.000 (0.013)	-0.004 (0.013)	-0.027 (0.022)
R- squared	0.149	0.137	0.080	0.797
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Table A7: Aggregate social and political capital and household welfare: IV results with only trust as instrument

	Log of total assets		Log of per capita consumption expenditure	
	(1)	(2)	(3)	(4)
Social and political capital of HH head	-0.280 (3.478)		3.182*** (1.110)	
Social and political capital of spouse		7.492 (8.975)		7.334* (4.328)
Years of schooling of HH head	0.091*** (0.032)		0.019* (0.010)	
Years of schooling of spouse		0.134*** (0.033)		0.040** (0.016)
Age of HH head	-0.015** (0.007)		0.011*** (0.002)	
Age of spouse		0.000 (0.010)		0.019*** (0.005)
HH head employed off-farm	0.008 (0.278)		0.116 (0.089)	
Spouse employed off-farm		-0.304 (0.635)		0.114 (0.306)
Household size	0.038 (0.047)	0.057 (0.054)	-0.074*** (0.015)	-0.064** (0.026)
Male-to-female ratio	-0.168 (0.118)	-0.153 (0.115)	-0.026 (0.038)	0.038 (0.056)
Household dependency ratio	0.516 (0.656)	0.225 (0.690)	-0.098 (0.209)	0.288 (0.333)
Log of total plot size (square meters)	0.050* (0.028)	0.052* (0.031)	-0.001 (0.009)	0.010 (0.015)
Total livestock (TLU)	1.141*** (0.294)	1.082*** (0.275)	-0.179* (0.094)	-0.076 (0.133)
Affected by climatic shocks	-0.168 (0.196)	-0.413 (0.334)	0.001 (0.063)	-0.139 (0.161)
Affected by non-climatic negative shocks	-0.403** (0.181)	-0.410** (0.194)	0.033 (0.058)	0.076 (0.094)
Affected by positive shocks	-0.032 (0.187)	-0.206 (0.288)	0.018 (0.060)	-0.128 (0.139)
R- squared	0.101	0.089	0.181	2.266
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Table A8: Social and political capital separately and household welfare: IV results

	Log of total assets				Log of per capita consumption expenditure			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Social capital of HH head	2.059 (2.077)				1.651*** (0.567)			
Social capital of spouse		5.698 (3.715)				2.675** (1.158)		
Political capital of HH head			2.790 (2.134)				1.082* (0.570)	
Political capital of spouse				-41.313 (35.039)				-17.197 (12.572)
Years of schooling of head	0.078*** (0.023)		0.072*** (0.024)		0.033*** (0.006)		0.035*** (0.007)	
Years of schooling of spouse		0.139*** (0.029)		0.182*** (0.049)		0.049*** (0.009)		0.067*** (0.017)
Age of HH head	-0.015** (0.007)		-0.014** (0.007)		0.010*** (0.002)		0.011*** (0.002)	
Age of spouse		0.000 (0.009)		-0.001 (0.012)		0.018*** (0.003)		0.017*** (0.004)
HH head employed off-farm	0.065 (0.255)		0.113 (0.263)		0.043 (0.070)		0.042 (0.070)	
HH head employed off-farm		-0.159 (0.613)		0.557 (1.165)		0.080 (0.191)		0.360 (0.418)
Household size	0.035 (0.047)	0.059 (0.051)	0.038 (0.048)	0.063 (0.067)	-0.074*** (0.013)	-0.068*** (0.016)	-0.072*** (0.013)	-0.066*** (0.024)
Male-to-female ratio	-0.194* (0.106)	-0.164 (0.111)	-0.219 (0.111)	-0.242 (0.158)	0.008 (0.029)	0.027 (0.035)	0.007 (0.030)	-0.005 (0.057)
Household dependency ratio	0.379 (0.580)	0.266 (0.653)	0.204 (0.616)	0.412 (0.883)	0.112 (0.158)	0.219 (0.204)	0.090 (0.165)	0.268 (0.317)
Log of total plot size (square meters)	0.043 (0.028)	0.045 (0.029)	0.051* (0.028)	0.001 (0.054)	-0.001 (0.008)	0.004 (0.009)	0.004 (0.007)	-0.014 (0.019)
Total livestock (TLU)	1.070*** (0.247)	1.145*** (0.257)	0.979*** (0.268)	1.597*** (0.508)	-0.070 (0.067)	-0.015 (0.080)	-0.082 (0.072)	0.174 (0.182)
Affected by climatic shocks	-0.224 (0.179)	-0.392* (0.229)	-0.235 (0.180)	-0.096 (0.250)	0.048 (0.049)	-0.012 (0.071)	0.064 (0.048)	0.122 (0.090)
Affected by non-climatic negative shocks	-0.403** (0.177)	-0.425** (0.189)	-0.459** (0.183)	-0.509** (0.260)	0.069 (0.048)	0.072 (0.059)	0.046 (0.049)	0.038 (0.093)
Affected by positive shocks	-0.053 (0.187)	-0.169 (0.217)	-0.027 (0.189)	0.189 (0.322)	0.016 (0.051)	-0.024 (0.068)	0.034 (0.050)	0.132 (0.115)
R-squared	0.101	0.025	0.081	0.727	0.136	0.284	0.153	1.868
N	642	642	642	642	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Table A9: Group participation and household welfare: IV results

	Log of total assets		Log of per capita consumption expenditure	
	(1)	(2)	(3)	(4)
HH head participated in groups	0.408 (0.290)		0.097 (0.078)	
Spouse participated in groups		1.147 (0.800)		0.328 (0.218)
Years of schooling of HH head	0.085*** (0.021)		0.040*** (0.006)	
Years of schooling of spouse		0.150*** (0.028)		0.053*** (0.008)
Age of HH head	-0.014** (0.007)		0.010*** (0.002)	
Age of spouse		0.003 (0.009)		0.018*** (0.003)
HH head employed off-farm	0.024 (0.250)		0.006 (0.067)	
Spouse employed off-farm		-0.758 (0.586)		-0.154 (0.159)
Household size	0.051 (0.048)	0.051 (0.050)	-0.069*** (0.013)	-0.072*** (0.014)
Male-to-female ratio	-0.177* (0.103)	-0.150 (0.109)	0.024 (0.028)	0.031 (0.030)
Household dependency ratio	0.488 (0.568)	0.346 (0.657)	0.201 (0.153)	0.202 (0.179)
Log of total plot size (square meters)	0.046* (0.027)	0.052* (0.029)	0.003 (0.007)	0.006 (0.008)
Total livestock (TLU)	1.106*** (0.240)	1.242*** (0.260)	-0.029 (0.065)	0.013 (0.071)
Affected by climatic shocks	-0.172 (0.172)	-0.311 (0.201)	0.087* (0.046)	0.049 (0.055)
Affected by non-climatic negative shocks	-0.406** (0.176)	-0.538*** (0.207)	0.067 (0.048)	0.043 (0.056)
Affected by positive shocks	-0.039 (0.186)	-0.227 (0.235)	0.030 (0.050)	-0.016 (0.064)
R-squared	0.106	0.019	0.163	0.063
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

Table A10: Aggregate social and political capital and gender-disaggregated asset indices: OLS and IV results

	OLS		IV	
	Asset index of the HH head	Asset index of the spouse	Asset index of the HH head	Asset index of the spouse
	(1)	(2)	(3)	(4)
Social and political capital of HH head	0.110** (0.043)		0.253** (0.120)	
Social and political capital of spouse		-0.108*** (0.033)		0.273 (0.265)
Years of schooling of HH head	0.010*** (0.002)		0.009*** (0.002)	
Years of schooling of spouse		0.009*** (0.002)		0.008*** (0.001)
Age of HH head	0.000 (0.000)		0.000 (0.000)	
Age of spouse		0.000 (0.000)		0.000 (0.000)
HH head employed off-farm	-0.010 (0.016)		-0.005 (0.017)	
Spouse employed off-farm		0.037 (0.049)		0.047* (0.029)
Household size	0.007** (0.003)	-0.006*** (0.002)	0.007** (0.003)	-0.005** (0.002)
Male-to-female ratio	-0.003 (0.007)	0.011** (0.004)	-0.005 (0.007)	0.012 (0.005)
Household dependency ratio	0.014 (0.035)	0.042* (0.025)	0.001 (0.040)	0.050 (0.032)
Log of total plot size (square meters)	0.001 (0.002)	0.001 (0.001)	0.001 (0.002)	0.001 (0.001)
Total livestock (TLU)	0.011 (0.017)	0.008 (0.011)	0.004 (0.017)	0.005 (0.013)
Affected by climatic shocks	-0.006 (0.012)	0.000 (0.008)	-0.010 (0.012)	-0.011 (0.012)
Affected by non-climatic negative shocks	-0.036*** (0.012)	-0.012 (0.008)	-0.038*** (0.012)	-0.012 (0.009)
Affected by positive shocks	-0.011 (0.013)	0.010 (0.008)	-0.011 (0.013)	0.002 (0.011)
R- squared	0.123	0.123	0.104	0.090
N	642	642	642	642

Source: Authors' calculations based on the survey data.

Note: Robust standard errors are given in parentheses.

***p<0.01, **p<0.05, *p<0.1.

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