

# Social Capital and Economic Well-being

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## FOREWORD

Over a quarter of Bangladesh's people live in extreme poverty, not being able to meet even the barest of the basic needs. They spend most of their meagre, unreliable earnings on food and yet fail to fulfil the minimum calorie intake needed to stave off malnutrition. They are consequently in frequent poor health causing further drain on their meagre resources due to loss of income and health expenses. More often than not, the extreme poor are invisible even in their own communities, living on other peoples' land, having no one to speak up for them or assist them in ensuring their rights. Extreme poverty also has a clear gendered face – they are mostly women who are dispossessed widows, and abandoned.

The extreme poor are thus caught in a vicious trap and the story of denial and injustices tend to continue over generations for a large majority of them. Thus, a vast majority of the extreme poor in Bangladesh are chronically so. The constraints they face in escaping extreme poverty are interlocked in ways that are different from those who are moderately poor. This challenges us to rethink our existing development strategies and interventions for the extreme poor, and come up with better ones that work for them. This is the challenge that drove BRAC to initiate an experimental programme since 2002 called, 'Challenging the Frontiers of Poverty Reduction: Targeting the ultra poor programme.' The idea to address the constraints that they face in asset building, in improving their health, in educating their children, in getting their voices heard, in a comprehensive manner so that they too can aspire, plan, and inch their way out of poverty.

The extreme poor have not only been bypassed by most development programmes, but also by mainstream development research. We need to know much more about their lives, struggles, and lived experiences. We need to understand better why such extreme poverty persists for so many of them for so long, often over generations. Without such knowledge, we cannot stand by their side and help in their struggles to overcome their state.

I am pleased that BRAC's Research and Evaluation Division has taken up the challenge of beginning to address some of these development knowledge gaps through serious research and reflection. In order to share the findings from research on extreme poverty, the 'CFPR Working Paper Series' has been initiated. This is being funded by CIDA through the 'BRAC-Aga Khan Foundation Canada Learning Partnership for CFPR' project. I thank CIDA and AKFC for supporting the dissemination of our research on extreme poverty.

I hope this working paper series will benefit development academics, researchers, and practitioners in not only gaining more knowledge but also in inspiring actions against extreme poverty in Bangladesh and elsewhere.

**Fazle Hasan Abed**  
Chairperson, BRAC

# Social Capital and Economic Well-being

## INTRODUCTION

Increasingly, scholars and development practitioners recognize the importance of social capital in enhancing economic and social well-being of individuals, households, groups and communities. A growing literature underscores the fundamental importance of social capital in economic development. While working definitions vary, social capital is generally understood to be the social associations, networks, norms and values that facilitate interaction between individuals and groups and further their socioeconomic welfare. In this view, value is generated through inter-relationships so that people with 'less' social capital are economically worse off than those with greater access to social networks. Social capital broadens the concept of human capital, as a key input in raising economic productivity and well-being.

If social capital indeed plays such a role in economic development then at least two important policy-related questions emerge – first, what are the mechanisms or paths through which social capital operates to affect economic well-being? Second, would enhanced access to social networks and other forms of social capital be a matter of governmental or non-governmental policy to increase the well-being of the poor?

BRAC, in the CFPR/TUP project, sought to 'induce' social capital formation among programme participants. *Gram Daridra Bimochon Committee* (GDBC) – or village poverty eradication committees – of the rural elite are formed and offer guidance and protection to the ultra poor. Envisioned to be committees composed of both CFPR/TUP members and village elite, the GDBC are support groups that compensate for the low level of social capital among the ultra

poor. Implementation of the GDBC rests on the underlying assumption that social capital is a critical component of household assets, in addition to physical and human capital, contributing to economic welfare. As such, it is imperative that we expand our understanding of social capital networks in rural Bangladesh and evaluate the efficacy of GDBC in the CFPR/TUP programme.

### What is social capital?

Social capital is a multi-dimensional concept and the literature relies on several theoretical approaches. In recent years, a general consensus has emerged that social capital is both *structural* and *cognitive* (Grootaert and Bastelaer 2002)<sup>1</sup>. Structural social capital incorporates social networks along with accompanying roles, rules, procedures and organization. Cognitive social capital refers to the norms, values, attitudes and beliefs underlying social interactions and engagement. Both structural and cognitive aspects of social capital operate through *formal* institutions (governmental laws, organizations) or through *informal* social ties (community interactions, sociability).

At the outset, it should be emphasized that some disagree about the value of social ties and the use of the word capital to describe this value. Arrow (2000)<sup>2</sup> and Solow (2000)<sup>3</sup>, for example,

<sup>1</sup> Grootaert C and Bastelaer TV (Editors). Understanding and measuring social capital: a multidisciplinary tool for practitioners. Washington, D.C.: The World Bank, 2002.

<sup>2</sup> Arrow K. Observations on social capital. In: Dasgupta P and Serageldin I (Editors). Social capital: a multifaceted perspective. Washington, D.C.: The World Bank, 2000.

<sup>3</sup> Solow R. Notes on social capital and economic performance. In: Dasgupta P and Serageldin I (Editors). Social capital: a multifaceted perspective. Washington, D.C.: The World Bank, 2000.

point out that the word ‘capital’ is generally used as a ‘stock’ concept to suggest present sacrifice for future benefit. In this sense, capital is generally diminished with use whereas social capital is enhanced with usage. Furthermore, social ties may have both positive and negative effects (Arrow 2000). For example, social networks may prevent people from engaging in individually profitable ventures that conflict with group benefits. Also, a particular group may use social capital to benefit its own members, to the detriment of other groups. Thus, although social capital may lead to beneficial effects within a group, it can result in negative effects across groups.

Even when social capital generates overall benefits within or across groups, its importance may depend on the level and kind of trust prevailing in a society. Social capital may have a larger impact in societies where *individualized trust* is of greater importance due to the absence of adequate *generalized trust* (Durlauf and Fafchamps 2004)<sup>4</sup>. For example, Putnam (2000)<sup>5</sup> reports a decline in formal and informal club membership although the economy grew at a healthy pace in the U.S. from the 1950s onwards. In advanced industrial societies with credible laws and institutions (courts, police, government, etc.), sufficient generalized trust may outweigh the need for individualized trust developed through social networks. Durlauf and Fafchamps argue a situation of generalized trust represents the ‘first-best’ outcome and promoting individualized trust (informal social capital) in place of generalized trust may in fact be ‘second-best.’

All social ties are not equal and do not yield the same benefits. In particular, the benefits of vertical ties between members of different socio-economic groups are not the same as gains from horizontal ties among members of similar groups. (See, for example, Huda *et al.*<sup>6</sup>, 2005, for a discussion of the value of *horizontal* and *vertical relationships* among BRAC’s CFPR/TUP pro-

gramme participants). Vertical ties can bring tangible financial benefits for the poor, whereas horizontal ties among the poor may provide moral and group support. Such difference can create tension within horizontal relationships when some individuals increase private gain and well-being through vertical ties at the expense of horizontal relationships.

### Social capital: what do we know?

Of late, researchers have focused on the value of social relationships and the economic benefits resulting from social ties, networks, and norms. In their classic work, Putnam, Leonardi and Nanetti (1993)<sup>7</sup> found variations in per capita output linked with differing endowments of social capital across Italian administrative units, as local governments were more effective in regions with stronger social networks. In a study of rural Tanzania, Narayan and Pritchett (1999)<sup>8</sup> show social capital raises incomes among village residents when individuals maintain a concentrated network of horizontal associations. Households in villages with stronger social ties were more likely to enjoy better public services, use credit for advanced agricultural practices and join in communal activities. The impact of social capital was at least as important as that of human capital. Fafchamps and Minten (1999)<sup>9</sup> establish that ‘better connected’ agricultural traders in Madagascar have significantly larger sales and value added than less connected traders, after controlling for physical and human factors. Using empirical evidence from a study of 150 irrigation systems in Nepal, Ostrom (2000)<sup>10</sup> concludes government assistance without regard to local social capital creates inferior outcomes in the

<sup>4</sup> Durlauf SN and Fafchamps M. Social capital. 2004. Forthcoming in Handbook of Development Economics.

<sup>5</sup> Putnam RD. Bowling alone. New York: Simon and Schuster, 2000.

<sup>6</sup> Huda K, Rahman S, Guirguis C. Building social capital for the ultra poor: challenges and achievements. Dhaka: BRAC, 2005. (CFPR Working Paper Series No. 6).

<sup>7</sup> Putnam RD, Leonardi R, Nanetti R. Making democracy work: civic tradition in modern Italy. Princeton: Princeton University Press, 1993.

<sup>8</sup> Narayan D and Pritchett L. Cents and sociability: household income and social capital in rural Tanzania. *Econ Dev Cultural Change* 1999;47(4):871-97.

<sup>9</sup> Fafchamps M and Minten B. Relationships and traders in Madagascar. *J Dev Stud* 1999;35(6):1-35.

<sup>10</sup> Ostrom E. Social capital: a fad or a fundamental concept. In: Dasgupta P and Stiglitz J (Editors). Social capital: a multifaceted perspective. Washington, D.C.: The World Bank, 2000.

effectiveness of irrigation programmes. In Sri Lanka, Uphoff (2000)<sup>11</sup> reports informal farmer organizations produce unusually high rice yield in acutely water-short seasons despite government assumptions to the contrary.

Using measures of reported trust and civic cooperation in a cross-country study, Knack and Keefer (1997)<sup>12</sup> confirm a positive relation between social capital and economic growth. La Porta, Lopez-de-Silanes, Shleifer, Vishny (2000)<sup>13</sup> investigate the link between trust and cooperation, especially in large organizations. Using data from 40 countries on 'government performance, participation in civic and professional societies, importance of large firms, and overall performance of different societies', they find trust is lower in countries with 'dominant hierarchical religions', which may inhibit the formation of 'horizontal networks of cooperation.'

Therefore, social capital operates in several ways: facilitating greater cooperation with superior outcomes as compared to non-cooperative behavior (Ostrom 2000); helping in the diffusion of innovation (Rogers 1995)<sup>14</sup>; lowering transaction costs by reducing imperfect information (Fafchamps and Minten 1999); and providing a source of informal insurance (Morduch 1995)<sup>15</sup>. Putnam, Leonardi and Nanetti (1993) show social capital enhances the monitoring performance of governments thereby improving services and efficacy. Furthermore, social capital performs a social monitoring function by preventing actions that increase individual gains at the expense of group welfare.

The two working papers in this monograph seek to better understand the impact of social capital in rural Bangladesh and to explore the links with economic well-being. Using data collected in BRAC's Social Capital Survey of 2004, the authors investigate the relationship between social capital and economic well-being among 810 households in twelve districts of northern Bangladesh.

In the first paper titled 'Does it pay to be social?,' Ameen uses OLS estimation to investigate the effect of *informal* and *formal* social capital on economic well-being. Results suggest a positive association between informal social interactions and per capita household expenditure, for both ultra poor and wealthier households, although the effect is possibly smaller for the ultra poor. The relation between formal social capital and household expenditure is more complex as the effect of membership varies by the type of group or organization. Given the relatively early stage of the programme, the impact of the CFPR/TUP project in developing social capital is still unclear. While membership in formal organizations is positively related to per capita expenditure on average, the effect appears to be negative for the ultra poor, a finding in need of additional exploration. The paper, however, does not explicitly address the issue of simultaneous determination of social capital and economic well-being and leaves open the question of the effect of income on the level of social capital. The results establish an association between social capital and household expenditure without definitively establishing causality.

In the second paper titled 'Do relationships matter? an empirical study of social capital in rural Bangladesh,' Sulaiman explicitly addresses the issue of causality focusing on *informal social capital*. Indicators of the quality of informal relations with neighbours and relatives are used to create an index of horizontal social capital, which tests the effect on well-being. To investigate causality, measures of 'trust' are used as instrumental variables. Sulaiman finds a strong positive influence of social relations on economic well-being after controlling for a number of variables, while the influence of income on social relations is not significant. In addition, he

<sup>11</sup> Uphoff N. Understanding social capital: learning from the analysis and experience of participation. In: Dasgupta P and Serageldin I (Editors). Social capital: a multifaceted perspective. Washington, D.C.: The World Bank, 2000.

<sup>12</sup> Knack S and Keefer P. Does social capital have an economic impact? a cross country investigation. *Quarterly J Econ* 1997; 112: 1252-88.

<sup>13</sup> La Porta R, Lopez-de-Silanes F, Shleifer A, Vishny RW. Trust in large organizations. In: Dasgupta P and Serageldin I (Editors). Social capital: a multifaceted perspective. Washington, D.C.: The World Bank, 2000.

<sup>14</sup> Rogers EM. Diffusion of innovations. New York: Free Press, 1995.

<sup>15</sup> Morduch J. Income smoothing and consumption smoothing. *J Econ Perspectives* 1995;9(3):103-14.

investigates ways in which social relations matter. Social relations are found to be correlated with the extent of village-level conflict, informal insurance mechanisms and information flows. For the ultra poor who subsist on selling labour in the informal labour market, obtaining work is probably the most important benefit flowing from the social capital developed through the various channels of informal social networks.

These two papers begin to explore the impact of complex social networks and ties on the economic well-being of households in rural Bangladesh. More intensive study of rural social networks will undoubtedly follow to further inform policy makers in governmental and non-governmental agencies and provide a more conclusive portrait of social capital among the ultra poor in rural Bangladesh.



## Paper 1

# Does it Pay to be Social?

Farhad Ameen\*

### ABSTRACT

Sociologists and economists increasingly consider “social capital” a valuable component in the asset endowment of households, improving productivity and enhancing economic well-being. Like physical and human capital, social capital is viewed as a critical factor in economic development. This paper tests the proposition that social capital expands household welfare by estimating the effects of social interactions on per capita expenditure among a sample of 810 households in northern Bangladesh. Using data from BRAC’s 2004 Social Capital Survey, ordinary least square (OLS) estimates isolate the differential effects of physical assets, human capital, and social capital. The results show a statistically significant positive association between ‘informal’ social networks and household per capita expenditure, after controlling for physical assets, human capital, and regional differences. The link between ‘formal’ social capital – membership in organizations, groups and committees – and per capita expenditure is less clear. On average, membership is positively related to household expenditure; however, such membership does not necessarily yield positive benefits for the ultra poor, a result that requires further exploration. Although it is too early to fully evaluate the impact of BRAC’s ‘Challenging the frontiers of poverty reduction/targeting the ultra poor’ (CFPR/TUP) programme, the findings raise important questions for programmes seeking to develop ‘induced social capital’ for the ultra poor. In particular, attention needs to be placed on costs and benefits of informal and formal social interactions.

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\* Farhad Ameen, Professor of Economics at State University of New York – Westchester Community College, wrote this paper while he was a visiting researcher at RED, BRAC. Support from the Carl & Lily Pforzheimer Foundation is gratefully acknowledged. For further information: farmeen@aol.com

I would like to thank Imran Matin at RED, BRAC for making the 2004 TUP Social Capital Survey data available to me. I have benefited from discussions with Munshi Sulaiman, Mehnaz Rabbani, Imran Matin, Djavad Salehi-Isfahani, Fahad Khalil, Teresa Williams and Shahe Emran. Any errors are mine alone.

## INTRODUCTION

After more than a decade of steady economic growth, Bangladesh continues to have a substantial proportion of extremely poor households—the ultra poor who have limited productive assets and subsist mainly by selling manual labor. In an effort to address the basic needs of these 35 million people still living in extreme poverty, BRAC initiated an experimental action research project in 2002 – *Challenging the Frontiers of Poverty Reduction/Targeting the Ultra Poor* (CFPR/TUP)<sup>1</sup>. The programme provides economic assets and health services to selected ultra poor villagers (henceforth referred to as CFPR/TUP programme members) with the goal of enhancing sustainable livelihoods and reducing persistent poverty. As part of the programme, *Gram Daridro Bimochon Committee* (GDBC) - or village assistance committees comprised of the rural elite - offer guidance and protection to the ultra poor. BRAC envisions GDBCs as support groups composed of both CFPR/TUP members and village elite that compensate for the ultra poor's limited social capital. Implementation of the GDBC rests on the underlying assumption that social capital is a valuable component of household assets contributing to economic welfare.

This paper tests the hypothesis that social capital positively impacts household economic well-being and analyzes the efficacy of the social capital component in the CFPR/TUP programme. Social capital is widely understood to be the social associations, networks, norms and values that facilitate interaction between individuals and groups and enhance their socioeconomic welfare (Grootaert *et al.* 2004, Putnam *et al.* 1993). Thus,

social capital includes *structural* (rules and organization) as well as *cognitive* (norms, values, attitudes) aspects. While this paper does not explicitly explore these two aspects of social capital, I consider *formal* social capital as that generated by membership in community organizations and *informal* social capital as developed through community social interactions. In particular, the estimation models isolate the association between these variables and household per capita expenditure among villagers in several regions of northern Bangladesh. Using data collected by BRAC across 90 villages, the study documents two indicators of social capital among two sub-groups of ultra poor and a control group of 'Other' households. The description and rationale for these groupings are provided in the data section. Having documented indicators, I ask two related questions – a) Do these social interactions impact economic well-being as measured by household consumption expenditure? b) What, if any, are the differences in the impact of social capital between ultra poor and wealthier households?

Ordinary least square regressions estimate the differential effects of physical, human and social capital on per capita expenditure of households. Overall regression results show statistically significant effects for most variables and confirm the importance of physical, human and social capital on household economic well-being. The results show a statistically significant positive association between 'informal' social interactions and household per capita expenditure, after controlling for physical assets, human capital, and regional differences. The link between 'formal' social capital – membership in organizations, groups and committees – and per capita expenditure is less obvious. On average, membership in some types of organizations is positively related to household expenditure, although it is uncertain if the ultra

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<sup>1</sup> BRAC uses multi-dimensional criteria to define extreme poverty and specifically targets households that are functionally landless, own no productive assets, do not have adult working males in the house and earn a significant part of their income by selling manual labour. For details, see 'Towards a profile of the Ultra poor in Bangladesh: Findings from the CFPR/TUP baseline survey,' published by RED, BRAC, 2004.

poor gain economically from such membership. While it is too early to fully evaluate the impact of BRAC's CFPR/TUP programme, these findings raise important questions about institutions like BRAC's GDBC that support the development of 'induced social capital' for the ultra poor. In particular, attention needs to be focused on costs and benefits of informal and formal social capital

and on the relative importance of these two types of social capital for the ultra poor.

The following section develops a conceptual framework for the empirical investigation and outlines the estimation model. The data section describes the data and the results section presents the regression results.

## CONCEPTUAL FRAMEWORK

This paper tests the empirical validity of the proposition that social capital affects economic well-being. Using data collected by BRAC for its CFPR/TUP programme, I analyze the impact of social capital on per capita household expenditure. The data allows for comparison between three groups from each of 90 villages – a group of ultra poor selected for the programme (SUP), a similar group of ultra poor not selected for the programme (NSUP) and a control group of random households from the same village (Other)<sup>2</sup>.

### Empirical model

The empirical model uses a standard formulation where social capital is seen as one type of asset employed by households to generate income (Grootaert and Bastelaer 2002). Households possess endowments of physical assets or capital (such as land and livestock), human capital (literacy) and social capital (organizational memberships and social interactions). In this framework, household income, and therefore consumption expenditure, results from the combination of a particular asset endowment of physical, human and social components in conjunction with regional and household-specific characteristics.

The model can be formalized as a set of structural equations where household consumption is a function of the income generated by combining the physical, human and social capital. The reduced form equation expresses household

consumption expenditure directly as a function of the asset endowments and other characteristics of the household and village/district. The following estimation equation is used:

$$\ln E_i = \beta_0 + \beta_1 \text{Social}_i + \beta_2 \text{Human}_i + \beta_3 \text{Physical}_i + \text{HH}_i + \text{VR}_i + \varepsilon_i$$

where

- $E_i$  = monthly expenditure per capita of household  $i$
- $\text{Social}_i$  = household endowment of social capital
- $\text{Human}_i$  = household endowment of human capital
- $\text{Physical}_i$  = household endowment of physical assets
- $\text{HH}_i$  = a vector of household characteristics
- $\text{VR}_i$  = a vector of village and regional characteristics
- and  $\varepsilon_i$  = an error term

This study incorporates the standard usage of variables of 'associational life' as proxies for social capital. To capture the impact of 'formal social capital,' I use membership in various village committees and organizations.<sup>3</sup> While formal groups may yield important benefits, anecdotal evidence suggests that 'informal social capital' is of greater importance, especially in societies where *generalized trust* in institutions is low (Durlauf and Fafchamps 2004). I use fre-

<sup>2</sup> 'Other' respondents exclude SUP and NSUP.

<sup>3</sup> It is common to use group or network memberships as a measure of social capital: Putnam (2000) uses choirs and business associations. Coleman (1988) employs PTA membership. Granovetter (1995) adopts memberships in networks. Narayan and Pritchett (1999) use community groups. Fafchamps and Minten (1999) utilize the number of commercial traders known.

quency of participation in social functions, such as weddings, festivals and funerals, to capture the value of these informal interactions among village households.

Both land and livestock ownership are used as indicators of physical assets/capital, along with a dummy variable for residential ownership. Literacy is a proxy for human capital, as opposed to years of schooling. Given the low literacy rate in Bangladesh rural society, literacy translates into considerable economic benefits and opens up many opportunities unavailable to those who

cannot read or write. As such, the differential of several years of schooling is less important than the difference between literacy and illiteracy. Household characteristics include the size of household, male/female household headship, and age of the head of household. Time taken to walk to a *pucca* (paved) road captures the relative geographic or economic isolation of a village. Additionally, several variables obtained from village level focus groups serve as controls for community-level differences and district dummies capture unobserved district-level characteristics.

## THE DATA

Between October and December 2004, BRAC researchers surveyed 810 households across 90 villages in 12 districts from northern Bangladesh. A stratified random sample of nine households in each village were surveyed with questions concerning social interactions, memberships in organizations and committees, trust in family members and villagers, and a range of socioeconomic information.

The nine households in each village were divided equally into three groups: SUP, NSUP and OTHER. These groupings merit some explanation: the CFPR/TUP programme conducts *participatory wealth ranking* exercises where village residents reach a consensus on the relative wealth status of each household in an open community meeting<sup>4</sup>. Households determined by participating villagers to be the poorest are grouped as 'ultra poor'. Programme officers interview the ultra poor and select the neediest among them to be programme recipients, referred to as SUP - selected ultra poor. Those deemed to be ultra poor, but not selected as programme recipients are NSUP – not selected ultra poor. The remaining, randomly chosen households (Other) exclude the ultra poor and therefore are relatively better-off overall. SUP 2002 and SUP 2004 programme recipients joined the CFPR/TUP

programme in 2002 and 2004, respectively.

A second survey of two focus groups (one male and one female) in each village gathered information on village-level characteristics. The data from the 180 community surveys (two per village for 90 villages) merged with the household level data provide variables that control for community and village-level differences.

Table 1 presents descriptive statistics on the surveyed households for the variables of interest. Monthly per capita expenditure includes two types of expenditures – the recurring monthly expenditures incurred by a household and the monthly average for large one-time annual expenditures. Per capita monthly expenditure ranges from Tk. 350 to Tk. 56,175 with a mean value of Tk. 2,974. Two proxy variables are used for social capital. The 'Social functions attended' variable records the reported number of social events (weddings, festivals, funerals, etc.) attended by the head of the household in the previous 12 months and serves as a measure of sociability and informal social interaction. 'Organization membership' includes the number of formal groups, organizations or committees (cooperatives, religious committees, NGO and microfinance groups, CFPR/TUP programme, etc.) to which household members belong. The average household attends 1.76 social functions annually and belongs to 0.70 organizations.

<sup>4</sup> For a description of the participatory wealth ranking exercise, see 'Stories of Targeting: Process Documentation of Selecting the Ultra poor for CFPR/TUP Programme.' CFPR Working Paper No. 1.

'Landholding' consists of the reported amount of land owned by households and not necessarily the land in use, of which all or part may be rented or sharecropped. 'Livestock' is comprised of animals reared for income-generating potential, such as cows, goats, chickens, etc<sup>5</sup>. Differences among households are measured by the size of the household, sex and age of the household head. In order to control for differences in economic opportunity and relative isolation of different villages, the variable 'Time to *pucca* road' (measured from the center of the village) represents village-specific geographic and economic situations that can affect overall household productivity. Other community and village-level control variables account for the number of households in the village, the number of extended family members living in the same village, number of politically active village residents (those who attend political meetings and actively campaign during elections) and number of villagers who spend at least two consecutive nights away from home for work<sup>6</sup>. District dummies control for unobserved regional variations in the 12 districts.

Some explanation is needed for the proxy variables capturing the effects of social capital. It is clear that social capital develops through social interactions, as documented in several recent studies focusing on interactions through community groups, cooperatives, etc. (Narayan and Pritchett 1999). However, relatively little attention is given to the impact of obligations, expectations and mutual benefit from these informal social interactions. It is unclear if the net effect of such interactions is consistently positive, as social relations may also exact a high cost from each person through reciprocative obligations.

### Attending social functions

The significance of attending social functions not only varies between cultures and communities,

but also between socioeconomic groups. In rural Bangladesh, the benefits and costs of social interactions depend on the socioeconomic situation of each household. For example, attendance at a wedding involves the presentation of expensive gifts from wealthy guests and the provision of a lavish dinner by the host. The same host will not expect purchased gifts from relatively poorer village residents, but implicitly anticipates the provision of labour services at the wedding, especially if the person depends on the host for his or her livelihood. While the poorer villager enjoys the wedding meal and festivities, the exchange differs from a wealthier guest bearing gifts. In each case, benefits and costs are involved. I conjecture that the value generated by social interaction has an impact on economic well-being of households if only because of information exchange. The path or mechanism by which social capital is developed clearly calls for closer examination. While I use the frequency of social interactions as a proxy for informal social capital, in all likelihood important aspects of these encounters are missing from the data set.

### Membership in organizations

Residents of the villages surveyed belong to many types of formal organizations, including village committees based on religious, political and school/parent affiliations, as well as NGO-sponsored microfinance and savings groups or other independent cooperatives. (A third of the surveyed households also belong to BRAC's CFPR/TUP programme). Just like informal social interactions, the exchange between members during organization meetings and other group activities have the potential to generate value in the exchange of information about job opportunities, business prospects, skill development, and so on. I consider the total number of such memberships as a proxy for the intensity of formal social capital. Table 2 lists the range of organizations in order of importance, as cited by the surveyed households.

<sup>5</sup> BRAC organized separate focus groups for men and women. The community-level variables used in this paper are from male focus groups, mainly because men spend more time outside the home and are considered to have more accurate information about political activities of village residents, etc. The values of these variables are community estimates and are not based on reports from individuals or households.

<sup>6</sup> Admittedly, all the animals considered do not generate the same return. Although it would have been prudent to assign weights to the value generated by each type of animal, no weights could be assigned due to the lack of data on the actual market value of each animal. A straightforward total is used.

**Table 1. Descriptive statistics**

	N	Minimum	Maximum	Mean	Std. Dev.
Monthly per capita expenditure (Tk.s)	810	349.67	56,175	2974.6	3660.50
Social functions attended (last 12 months)	810	0	55	1.76	3.55
Organization memberships (total)	810	0	4	0.70	0.72
Landholding (bighas)	810	0	3640	59.72	191.62
Livestock (total)	810	0	203	8.96	17.37
Size of household	810	1	8	4.30	1.78
Age household head	810	16	90	43.32	12.25
Time to <i>Pucca</i> road (minutes)	810	0	60	13.10	12.10
Households in village	90	110	2500	811.22	608.28
Extended family members in village	810	0	100	7.43	7.89
Politically active persons in village	89	0	800	63.08	103.06
Village residents spending more than 2 nights away from home for work	90	20	2000	321.92	399.85

**Table 2. Most important local organizations by citation**

Type of organization	Total no. of citations	Percentage of surveyed households
BRAC TUP	264	32.6%
BRAC Microfinance	64	7.9%
Other NGOs	60	7.4%
School/Parents Committee	31	3.8%
Other Microfinance	28	3.5%
BRAC Other	25	3.1%
Religious	22	2.7%
Cooperative	16	2%
BRAC Gram Daridro	16	2%
Other	15	1.9%
Political	13	1.6%
Village Committee	8	1%
Savings	6	0.7%

Table 3 lists means of variables representing social capital by group (SUP 2002, SUP 2004, NSUP, Other)<sup>7</sup>. It is clear that the non ultra poor (Other) have more social outings on average, providing an informal network of social connections exceeding, at least quantitatively, the ultra poor. Looking at Table 3, SUP have the largest average group memberships, as all SUP members belong to the BRAC programme. Removing CFPR/TUP membership from consideration reduces the SUP 2002 and SUP 2004 means to 0.39, respectively. Ineligible for the CFPR/TUP pro-

**Table 3. Means of social capital variables by group**

	Organization membership (total)	Social functions attended (12 months)	N
SUP 2002	1.39	0.87	54
SUP 2004	1.09	1.13	216
NSUP	0.27	1.50	270
OTHER	0.68	2.70	270
Total	0.70	1.76	810

gramme, 'Other' households most actively participate in formal organizations not sponsored by NGOs.

Table 4 provides means and percentages of several indicators for physical assets and human capital over the four different sub-groups, including landholding, livestock ownership, home ownership, literacy and also the percentage of households headed by females. Ultra poor households on average have fewer literate members and less physical assets (land, livestock, and houses). A larger percentage of ultra poor households have female heads and are more likely to live in their parent's village. Since the lower per capita expenditure by ultra poor households derives in large part from differences in human or physical capital as well as household composition and location, the variables listed in Table 4 are important controls for isolating the effect of social capital.

<sup>7</sup> SUP 2002 started as CFPR/TUP members in 2002 and were members for two years at the time of the survey. SUP 2004 joined as new members shortly before the survey.

**Table 4. Physical assets and human capital by group**

	N	Bighas of land (mean)	Livestock total (mean)	Own house (percent)	Literate (percent)	Female head (percent)	Living in parent's village (percent)
SUP 2002	54	3.15	6.5	55.6	13	38.9	53.7
SUP 2004	216	1.64	5.14	49.5	15.3	34.7	38
NSUP	216	3.86	3.69	64.8	18.9	24.1	36
OTHER	270	173.35	17.78	94.1	62.6	6.3	26
Total	810	59.72	8.96	69.9	32.1	22	34.3

## REGRESSION RESULTS

The empirical model postulates monthly per capita expenditure to be a function of the household endowment of physical, human and social capital, in conjunction with household-specific and regional characteristics. Estimates are obtained using different organizational memberships (Table 5) and different model specifications (Table 6 to 8). I first regress the log of per capita monthly household expenditure on the 'social capital' variables without any controls (Table 6). Then, I add the control variables – physical assets, literacy, household characteristics, the village-specific 'distance' variable, community controls and the district dummies (Table 7). Finally, I include additional dummy variables to separate the effects for ultra poor and 'Other' households (Table 8). OLS estimation is used in all regressions.

For each set of regression, I estimate five equations with different subsets of membership organizations as described in Table 5 - Base, SUP 02, SUP04, Micfin and All. This strategy allows identification of organizations that are significant in terms of their 'social capital effect.' Equation 1 reports results for membership in the 'Base' set of organizations, mainly village committees, cooperatives and savings groups. Equation 2 includes all organizations in the questionnaire (Base + Microfinance + CFPR/ TUP). Equation 3 retains microfinance organizations but excludes membership in the CFPR/TUP programme. Equation 4 keeps CFPR/TUP but drops microfinance programmes. Finally, Equation 5 includes all organizations but the 2004 CFPR/ TUP programme.

### Social capital and household per capita expenditure

Estimates from the regression of the log of 'household per capita monthly expenditure' on the 'social capital' variables – 'social functions attended' and 'membership in organizations' – with no other controls, are detailed in Table 6. All five reported equations use the number of 'social functions attended' by the head of the household.

'Social functions attended' is statistically significant and positively related to household consumption expenditure in all cases; however, 'Membership in organizations' is associated with increases in per capita expenditure in all cases except when SUP 2004 members are included.<sup>8</sup> The positive and significant estimates in equations 1, 3 and 5 suggest that membership in organizations, even when unrelated to household income earning sources, may yield benefits that can be translated into higher incomes and expenditures.

Any rash conclusion about the efficacy of the CFPR/TUP social capital component could be misleading. Of the 270 households in the CFPR/ TUP programme, 54 had participated for two

<sup>8</sup> Equations 2 and 4 do not yield statistically significant estimates. since equations 1 and 3 yield statistically significant and positive estimates, I hypothesize that statistical insignificance in equation 2 results from including the SUP. This is confirmed by equation 4, which includes SUP memberships but excludes microfinance participants. However, equation 5, which excludes SUP 2004 members but includes SUP 2002 members and all other organizations, yields statistically significant estimates allowing the conclusion that insignificant estimates may result from including SUP 2004 members.

years and the remaining 216 for several months, before the survey, a time period hardly long enough to develop and employ social capital networks.

### **Social capital and household per capita expenditure: with controls**

The estimates obtained without employing any control variables are of course highly susceptible to bias due to omitted variables. It is plausible and probable that the level of physical assets, human capital, household-specific characteristics, as well as community and regional differences, influence attendance at social functions and membership in organizations. To account for bias due to omitted variables, I re-estimate the five equations with the inclusion of all the household, community and district control variables mentioned earlier. The results of the OLS estimates are presented in Table 7.

As expected, the inclusion of additional household, village and regional variables reduce the magnitude and statistical significance of coefficients for the social capital variables. Estimates of the effect of 'social functions attended' are significant only at the 10% level in all cases; however, the estimates still show a positive association with household per capita expenditure, increasing 0.9% for every social function attended.

The coefficients for membership in organizations remain positive and statistically significant at the 5% level, although diminished in magnitude. Estimates for increases in per capita household expenditure vary from 5.2 to 6.8% for each additional group membership and depend upon the group mix. As in the earlier scenario, equations 2 and 4 (which include SUP 2004 members) do not yield statistically significant estimates.

At the outset, the strong likelihood that income and social capital are simultaneously determined should be emphasized. This may cause bias and inconsistency in the estimates. It is desirable to estimate the model with instrumental variables correlated with social capital but not with per capita expenditure. Unfortunately, the data set lacks satisfactory instruments, so one must allow for the possibility of bias in the estimates due to endogeneity. Nevertheless, other studies using instrumental variables estimation have found social capital to be exogenous (Narayan and Pritchett 1999, Fafchamps and Minten 1999) suggesting that the 'true' estimates are likely to be positive. Although, if reverse causality exists, the magnitudes are likely to be lower than reported in Table 7.

The physical asset (landholding, livestock, house ownership) and human capital (literacy) coefficients are also statistically significant with the

**Table 5. Different sub-groups of membership organization**

	<u>Sub-group descriptions</u>
Equation 1 Base	<b>Base</b> Membership in Village Committees, Religious groups, Political groups, School/Parents Committees, Cooperatives, Savings Groups, NGO groups other than TUP and Microfinance groups, Other miscellaneous groups.
Equation 2 All	<b>SUP02</b> Participants who joined BRAC's CFPR/TUP programme in 2002
Equation 3 Base + Micfin	<b>SUP04</b> Participants who joined BRAC's CFPR/TUP programme in 2004
Equation 4 Base + SUP02 + SUP04	<b>Micfin</b> Participants in Microfinance programmes organized by BRAC as well as other NGOs.
Equation 5 All – SUP04	<b>All</b> All organizations listed above.



expected positive signs. Larger household size has a negative effect, as do households with a female head (although not statistically significant). As expected, households with older heads have a

positive effect on expenditure, while geographic isolation has a mildly negative effect. Having extended family members is positively related to expenditure, as one might expect due to expanded

**Table 6. OLS regressions without controls dependent variable: log of household per capita monthly expenditure**

	(1) Base	(2) All	(3) Base+ Micfin	(4) Base + SUP 02 + SUP 04	(5) All -SUP 04
<b>Social Capital</b>					
Social functions attended	0.031 (2.97)***	0.038 (2.96)***	0.033 (2.95)***	0.038 (2.95)***	0.035 (3.00)***
Membership in organizations ^	0.246 (6.19)***	0.035(1.15)	0.196 (5.65)***	0.031 (0.92)	0.149 (4.69)***
<b>Constant</b>	6.20 (265.32)***	6.22 (207.42)***	6.19 (260.69)***	6.23 (208.98)***	6.19 (247.58)***
No. of observation	810	810	810	810	805
F stat	34.75	6.30	30.61	5.68	22.58
R-sq.	0.113	0.058	0.104	0.057	0.089

Notes: Robust *t*-statistics in parentheses. \*\*\*, \*\*, and \* represent significance at 1%, 5%, and 10% level, respectively. ^ Equations (1), (2), (3), (4) and (5) include membership in different subsets of organizations – see table 5 for details

**Table 7. OLS regressions with controls dependent variable: log of household per capita monthly expenditure**

	(1) Base	(2) All	(3) Base + Micfin	(4) Base + SUP02 + SUP04	(5) All – SUP 04
<b>Social Capital</b>					
Social functions attended	0.009 (1.87) *	0.009 (1.85) *	0.009 (1.87) *	0.009 (1.84) *	0.009 (1.89)*
Membership in organizations ^	0.068 (2.02) **	0.0006 (0.03)	0.059 (2.03) **	- 0.006 (- 0.25)	- 0.052 (2.08)**
<b>Physical</b>					
Log of landholding	0.107 (10.25)***	0.110 (10.95)***	0.107 (10.36)***	0.110 (10.96)***	0.108 (10.55)***
Log of livestock total	0.074 (5.01)***	0.077 (5.23)***	0.074 (5.04)***	0.078 (5.23)***	0.074 (5.07)***
Own house (=1)	0.052 (1.73)*	0.048 (1.58)	0.050 (1.64)	0.046 (1.49)	0.049 (1.61)
<b>Human</b>					
Literacy (Literate=1)	0.222 (5.83)***	0.232 (6.05)***	0.223 (5.94)***	0.233 (6.07)***	0.226 (5.95)***
<b>Household</b>					
Size of household	- 0.116 (-9.45)***	- 0.114 (-9.21)***	- 0.116 (-9.37)***	- 0.114 (-9.27)***	- 0.116 (-9.38)***
Female head (=1)	- 0.055 (- 1.30)	- 0.057 (- 1.36)	- 0.055 (- 1.30)	- 0.057 (- 1.35)	- 0.059 (- 1.40)
Age of head	0.017 (2.53)**	0.018 (2.71)***	0.018 (2.57)***	0.018 (2.73)***	0.018 (2.60)***
(Age of head) squared	- 0.0002 (- 2.32)**	- 0.0002 (- 2.47)**	- 0.0002 (- 2.34)**	- 0.0002 (- 2.48)**	- 0.0002 (- 2.36)**
<b>Village</b>					
Live in parent's village (=1)	- 0.073 (- 2.18)**	- 0.071 (- 2.13)**	- 0.073 (- 2.16)**	- 0.071 (- 2.11)**	- 0.075 (- 2.22)**
No. of extended family members in village	0.008 (2.87)***	0.008 (2.95)***	0.008 (2.79)***	0.008 (2.95)***	0.008 (2.75)***
Households in village	- 0.00005 (- 1.18)	- 0.00006 (- 1.24)	- 0.00006 (- 1.19)	- 0.00006 (- 1.25)	- 0.00005 (- 1.17)
Politically active villagers	0.0001 (0.71)	0.0001 (0.70)	0.0001 (0.70)	0.0001 (0.78)	0.0001 (0.66)
No. of people from village away two nights in a row for Work	0.0002 (2.79)***	0.0002 (2.85)***	0.0002 (2.81)***	0.0002 (2.87)***	0.0002 (2.84)***
Time to <i>pucca</i> road	- 0.003 (- 2.49)**	- 0.003 (- 2.51)**	- 0.003 (- 2.45)**	- 0.003 (- 2.51)**	- 0.003 (- 2.56)**
<b>District dummies</b>					
	Yes	Yes	Yes	Yes	Yes
<b>Constant</b>	5.96 (36.65)***	5.94 (36.75)***	5.95 (36.63)***	5.94 (36.96)***	5.94 (36.38)***
No. of observations	801	801	801	801	796
F stat	22.62	22.07	22.22	22.23	22.10
R-sq.	0.496	0.493	0.496	0.493	0.496

Notes: Robust *t*-statistics in parentheses. \*\*\*, \*\*, and \* represent significance at 1%, 5%, and 10% level, respectively. ^ Equations (1), (2), (3), (4) and (5) include membership in different subsets of organizations.

connections of a larger support group. The negative relation of living in one's parent's village to expenditure is somewhat puzzling. One explanation centers on the limited options of the home village and the constraints on migrating for better economic opportunities. Surprisingly, the village size or political activity levels do not have statistically significant effects. Greater numbers of village residents migrating away for work positively relates to expenditure, most likely due to the expanded income-earning opportunities in other villages or towns.

### **Ultra poor and others: attending social functions**

In addition to exploring the association between social capital and per capita expenditure, this study seeks to identify significant differences between the ultra poor and 'others' (the relatively wealthier households) in the uses and effects of social capital. To further investigate this question, an additional version of the model is estimated using dummy variables for the ultra poor group (SUP + NSUP together) and interaction terms with the two social capital variables. The results are presented in Table 8.

As expected, ultra poor have significantly less per capita household expenditure than 'others.' The dummy variable for ultra poor reveals a magnitude of 23 to 27% lower expenditure. Looking more closely at how the social capital variables affect the ultra poor differently than wealthier households, informal social capital (attendance at social functions) has a statistically significant effect for both groups, ultra poor and 'others'. The interaction term, ultra poor X attend, allows for comparison of the impact of attendance, at social functions for the ultra poor and 'others', controlling for other factors. The impact of each additional social function attended is significant for 'others' - each additional function attended is associated with a 1.5 to 1.6% increase in monthly per capita expenditure. No statistically significant difference appears in the impact of attending social functions between the 'other' and ultra poor groups. Although the coefficients on ultra poor X attend are not statistically significant, they are negative in all the equations. While these

estimates do not allow for definitive conclusions, the effect of social interactions is possibly smaller for the ultra poor<sup>9</sup>.

The possibility of informal social interactions having a smaller effect for ultra poor households agrees with intuition in two ways. The ultra poor have a smaller set of initial endowments of physical assets and human capital and therefore may be unable to translate the benefits of social capital into higher productivity in the same magnitude as 'others'. Secondly, the horizontal relationships between ultra poor households may be less valuable than similar relationships between wealthier households<sup>10</sup>.

### **Ultra poor and others: membership in organizations**

Table 8 shows a statistically significant association between membership in organizations and household per capita expenditure only in equations 1 and 4 (at the 5 and 10% levels respectively) for both the 'other' and ultra poor groups<sup>11</sup>. The statistical insignificance of the other equations is puzzling. Approximately 15% of relatively wealthier households participate in micro-finance groups, so it is inconclusive why Equation 3 yields a statistically insignificant result. Likewise, it is also unclear why Equation 4 gives a statistically significant result, whereas Equation 5 does not. Be that as it may, the effect of mem-

<sup>9</sup> Although not statistically significant, all estimates of the coefficient on Ultra poor x attend are negative, varying from -1.2 to -1.4 percent in the five estimated equations. Subtracting from the coefficient on attending for others (that is, the coefficient for 'Social functions attended') implies an effect of one-fifth to one-eighth of Other households. It should be emphasized that these results are obtained after controlling for differences in average household expenditure across groups. The coefficient on 'Ultra poor' tells us that the per capita expenditure of the Ultra poor is 23% to 27% less than Other households when no social function is attended.

<sup>10</sup> Of course, one cannot assume that the Ultra poor rely on horizontal relationships solely with households similar to their own. They may have important vertical relationships with the wealthy. See Huda *et al.* 2005, for a discussion of horizontal and vertical relationships with regard to CFPR/TUP participants.

<sup>11</sup> In table 8, the coefficient on the variable 'Membership in organizations' pertains to the effect on 'others'. The coefficient on 'Ultra poor x membership' should be added to the coefficient of 'Membership in organizations' to get the estimate of the effect for the 'Ultra poor' group.

bership in organizations is negative for the ultra poor in both Equations 1 and 4<sup>12</sup>.

While these estimates need to be interpreted with caution, the results suggest that belonging to various village and NGO groups and organizations is associated with lower per capita expenditure for the ultra poor after controlling for other factors. If valid, such a counter-intuitive result requires an explanation and one possibility is reverse causality. In general, higher incomes (and expenditures) may lead to participation in more organizations, if membership is considered a normal good. In the case of the ultra poor, lower income allows access to specialized NGO sponsored groups, such as microfinance or the CFPR/

TUP programme, and therefore lower incomes and expenditure may be associated with higher group membership. However, it is also possible that social interactions and obligations have a net negative impact on the well-being of the ultra poor, resulting from constraints imposed on the individual by the community group. Thus, while membership may be important to ultra poor households in providing access to jobs, information, etc., the costs of belonging may be 'too high.' The data set used in this paper does not address these issues which require further study to evaluate the full costs and benefits accrued from belonging to groups, committees and organizations.

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<sup>12</sup> In equation 1, subtracting the coefficient of ultra poor x membership (- 0.114) from that of membership in organizations (- 0.086) yields a 2.8 percent decrease in per capita household expenditures for the Ultra poor belonging to an additional 'base' organization. The same calculation for Equation 4 gives a 4.1 percent decrease.

**Table 8. OLS regressions with ultra poor interaction terms dependent variable: log of household per capita monthly expenditure**

	(1) Base	(2) All	(3) Base + Micfin	(4) Base + SUP02 + SUP04	(5) All -SUP 04
<b>Social capital</b>					
Social functions attended	0.015 (1.83)*	0.016 (1.85)*	0.016 (1.86)*	0.015 (1.83)*	0.016 (1.88)*
Membership in organizations ^	0.086 (1.96)**	0.054 (1.39)	0.054 (1.42)	0.085 (1.94)*	0.055 (1.41)
Ultra poor (=1)	- 0.257 (- 5.92)***	- 0.250 (- 5.19)***	- 0.267 (- 5.76)***	- 0.236 (- 5.22)***	- 0.273 (- 5.94)***
Ultra poor x attend	- 0.012 (- 1.42)	- 0.014 (- 1.51)	- 0.014 (- 1.52)	- 0.013 (- 1.47)	- 0.014 (- 1.52)
Ultra poor x membership	- 0.114 (- 1.84)*	- 0.065 (- 1.40)	- 0.026 (- 0.47)	- 0.126 (- 2.52)**	- 0.015 (- 0.30)
<b>Physical</b>					
Log of landholding	0.070 (6.56)***	0.071 (6.68)***	0.071 (6.62)***	0.070 (6.53)***	0.071 (6.62)***
Log of livestock total	0.063 (4.24)***	0.064 (4.42)***	0.064 (4.36)***	0.066 (4.43)***	0.064 (4.36)***
Own house (=1)	0.015 (0.50)	0.013 (0.43)	0.015 (0.49)	0.009 (0.28)	0.013 (0.43)
<b>Human</b>					
Literacy (Literate=1)	0.176 (4.75)***	0.182 (4.94)***	0.181 (4.90)***	0.176 (4.77)***	0.18 (4.88)***
<b>Household</b>					
Size of household	- 0.115 (-9.59)***	- 0.115 (-9.53)***	- 0.116 (-9.54)***	- 0.115 (-9.61)***	- 0.116 (-9.58)***
Female head (=1)	- 0.034 (- 0.80)	- 0.034 (- 0.81)	- 0.036 (- 0.84)	- 0.031 (- 0.72)	- 0.038 (- 0.91)
Age of head	0.015 (2.25)**	0.015 (2.33)**	0.015 (2.25)**	0.015 (2.33)**	0.015 (2.25)**
(Age of head) squared	- 0.0001 (- 2.04)**	- 0.0001 (- 2.11)**	- 0.0001 (- 2.02)**	- 0.0001 (- 2.12)**	- 0.0001 (- 2.02)**
<b>Village</b>					
Live in parent's village (=1)	- 0.063 (- 1.94)*	- 0.062 (- 1.89)*	- 0.063 (- 1.91)*	- 0.062 (- 1.91)*	- 0.064 (- 1.96)*
No. of extended family members in village	0.0063 (2.40)**	0.0062 (2.33)**	0.0061 (2.30)**	0.0062 (2.40)**	0.006 (2.24)**
Households in village	- 0.00007 (- 1.48)	- 0.00007 (- 1.51)	- 0.00007 (- 1.49)	- 0.00007 (- 1.48)	- 0.00007 (- 1.46)
Politically active villagers	0.0001 (0.81)	0.0002 (0.82)	0.0001 (0.77)	0.0002 (0.83)	0.0001 (0.72)
No. of people from village away two nights in a row for work	0.0002 (3.03)***	0.0002 (3.07)***	0.0002 (3.04)***	0.0002 (3.00)***	0.0002 (3.05)***
Time to pucca road	- 0.002 (- 2.20)**	- 0.002 (- 2.05)**	- 0.002 (- 2.01)**	- 0.002 (- 2.22)**	- 0.002 (- 2.07)**
<b>District dummies</b>					
	Yes	Yes	Yes	Yes	Yes
<b>Constant</b>	6.31 (38.49)***	6.28 (38.30)***	6.29 (38.07)***	6.30 (38.76)***	6.29 (37.93)***
No. of observations	801	801	801	801	796
F stat	22.87	22.37	22.43	22.82	22.42
R-sq.	0.525	0.523	0.523	0.526	0.524

Notes: Robust *t*-statistics in parentheses. \*\*\*, \*\*, and \* represent significance at 1%, 5%, and 10% level, respectively. ^ Equations (1), (2), (3), (4) and (5) include membership in different subsets of organizations.

## CONCLUSION

Social capital is considered to be a critical component in the asset endowment of households and an important factor in economic well-being. The paper tested this proposition by estimating the effects of *informal* and *formal* social interactions on economic well-being as measured by per capita monthly household expenditure in a sample of 810 households in northern Bangladesh. Using data collected by BRAC in 2004, OLS estimates isolate the differing effects of physical, human and social capital on per capita expenditure. An adjusted model separates the ultra poor from 'Others' and estimates differential effects of social capital on the ultra poor and Other (wealthier) households.

'Social functions attended' is statistically significant and positively related to per capita household expenditures. Each additional social function attended is associated with a 0.9% increase in per capita monthly household expenditure. 'Membership in organizations' is also positively and statistically significantly related to household expenditures, excluding SUP 2004 members perhaps due to the early nature of the programme. Each additional organization membership is associated with a 5.2 to 6.8% increase in expenditure.

In the case of the ultra poor, while the coefficients of 'Social functions attended' are not statistically significantly different from 'Others', the coefficients are one-fifth to one-eighth in magnitude. The effect of 'Membership in organizations' is positive and significant for 'Others' not enrolled in microfinance programmes, although results suggest that the effect may be negative in the case of the ultra poor.

In conclusion, informal social capital has a beneficial effect on the economic well-being of rural households, even if the ultra poor benefit less than others. However, the benefits accrued

from formal social capital, while positive on average, may be negative for ultra poor households. This issue needs to be explored in greater depth to reliably capture the actual costs and benefits of belonging and participating in groups and organizations.

In this paper, I assumed social capital to be exogenous, independent of the level of household income and expenditure. It is plausible that social capital is endogenous and higher incomes may have feedback effects enhancing social capital. In such case, these estimates are biased. Several studies in recent years have shown one-way causal link from social capital to income or value added, using instrumental variable estimation methods to determine causality (Narayan and Pritchett 1999, Fafchamps and Minten 1999). As the data set used in this study does not contain satisfactory instruments, I assumed the exogeneity of social capital, based on the findings of other papers. It should be clear that the results establish a strong association between household expenditure and social capital, but do not establish one-way causality. If reverse causality exists, the estimates of interest are biased upward and exaggerate the importance of social capital.

While the BRAC social capital survey is an important first step in collecting detailed quantitative information about social networks in the sampled villages, much more needs to be known about the value of *informal social ties* in village-level social capital. Any ties between informal social networks and formalised organizations and institutions must be explored as well. A more nuanced study, particularly with qualitative approaches, is required to explore these questions in the future.

As mentioned earlier, BRAC is working to 'build' social capital of the ultra poor by forming GDBC in support of programme participants. The

results, particularly with respect to SUP 2004, suggest that it may be too early to evaluate the impact of the GDBC. As the GDBCs mature, it is imperative that studies evaluate the impact and efficacy of this kind of 'induced' social capital. Formation of the GDBC is an attempt to induce a linkage between the village elite and ultra poor, with the intention of creating vertical relationships between the two groups. If successful, the GDBC model has significant and broad-reaching policy implications for global replication.

Any policy must in the long run take into account broader village and regional effects. For example, SUP households may gain by participating in BRAC's CFPR/TUP programme;

however, the increased solidarity between SUP members may lead to harmful exclusion of other ultra poor. Informal social support systems between SUP and NSUP households may be weakened as SUP members increasingly rely on the CFPR/TUP programme for their own household's gain. A more thorough understanding of the possible positive and negative spillover effects of such a policy intervention becomes an urgent imperative.

Finally, more research is needed to isolate key factors in the formation of social capital and to better understand variations across households, regions and socioeconomic groups.

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## Paper 2

# **Do Relationships Matter? An Empirical Study of Social Capital in Rural Bangladesh**

**Munshi Sulaiman\***

### **ABSTRACT**

Using indicators of quality of informal relations with neighbours and relatives, this paper forms an index of horizontal social capital to see whether it affects well-being. To investigate causality, trust was used as instrumental variables. Controlling a number of variables a strong positive influence of social relation on economic well-being was found. However, influence of income on social relation was not significant. On the question of how does social relation matter, social relation is correlated with extent of conflict in the villages, informal insurance mechanism and flow of information. Probably for the ultra poor who live solely by selling labour in informal labour market, getting work more frequently through informal relations is one of the most important channel of benefit flow.

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## INTRODUCTION

There is a broad consensus over the importance of social norms and relations for the quality of life. However, the measurement of such relations, usually termed as 'social capital', is as fuzzy as it can get. One of the key reasons of this fuzziness is the absence of acceptable definition of social capital. It has been wisely expressed by Narayan and Pritchett (1997), "Social capital, while not all things to all people, is many things to many people."

Different theories of social capital deal with economic development at micro and macro levels. In the last decade and half, social and institutional dimensions of economic development have received considerable amount of attention. However, the discussion is pioneered by Hirschman (1958). Woolcock (2000) discussed both the demand and supply side stories of this rise of social capital discourse. The role of social capital in the economy of a country has long been overlooked. In fact, the modernization theory considered the social structure and norms of the 'backward' countries as an impediment to growth and advocated wholesale transformation of the traditional structure to attain greater economic prosperity. 'Dependency' theorists and the structural critics were concerned about the networks of elites as a means to capitalist exploitation. In classical approach, the three basic factors of production are land, labor and physical capital. Neoclassical theorists add human capital to emphasize the role of productivity in economic growth. However, it is argued that the innovative ideas in the minds of the brightest people will not be translated to greater productivity unless they interact with each other to inform, correct, assist with, and disseminate their work (Woolcock 2000). As such, broader division in societies will be harmful to growth and make the economies more prone to growth collapse from shocks (Rodrik 1999).

At conceptual level, 'social capital' has dual importance on the well-being of people. The intrinsic value arises from the essence of participating in social life or not being socially excluded. Multifaceted character of deprivation has directed this discussion to link the inequalities in different frontiers with effect on social exclusion (Sen 1997, de-Hann 1998). Emphasis on social capital as mediating force of the livelihood strategy of the people has arisen mostly from rural livelihood approach, which considers social capital as an instrument of economic development of people. The term social capital arises partly because of the tendency of considering social relations as other assets like physical, social, human and financial. However, the real analytical contribution of social capital is in the discussion of poverty dynamics and the socio-political process that push people into poverty (Gore *et al.* 1997, Dasgupta 1999).

Empirical work of social capital was pioneered by Putnam (1993). However, measurement of social capital is challenging, to say the least, since its comprehensive definitions are multidimensional and incorporates different units of analysis (Woolcock and Narayan 2000). Besides the unit of analysis, social capital itself can also be defined at macro, meso or micro levels (Turner 1999). Studies use different definitions of social capital and four different levels of analysis viz. household, community, regional, and national (Krishna 2002 pp 57). Most empirical studies use participation in associational life or norm-based measures of social capital.

The measurement of social capital is incomplete since it cannot be viewed as a 'stock' as other forms of capital remains latent unless activated to produce flow of benefits (Krishna 2002). Another uniqueness of social capital stock is that its use enhances this asset though covariate



shocks can sometime erode the stock of social capital (Jayasankar *et al.* 1999).

In this study, quality of relationship with the neighbours and relatives has been used as proxy of social capital to investigate its impact on household welfare. Indicators of quality of

relations with the relatives and neighbours of the households were used to form a social relation index. Using per capita consumption expenditure as welfare indicator, the causal link between social capital and household welfare was investigated.

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## THE DATA

The sample includes 810 households selected from 90 villages from 12 districts of Bangladesh. Data were collected during October-December of 2004. Sample households were selected based on BRAC's CFPR/TUP programme information. The districts were not randomly selected for the survey. These are the districts where the programme is underway. Moreover, the programme also selects the villages in these districts purposively so that there is high level of concentration of the ultra poor households. Therefore, the sample households represent the population covered in the BRAC's CFPR/TUP programme areas. Since the programme operates in districts with relatively higher food insecurity, the sample can, at best, be considered representing the rural population of poorer districts in Bangladesh.

In the beneficiary selection process of this programme, a list of all households in the village is prepared after community-based wealth ranking. These lists were used as the sampling frame. The sample includes three groups of household viz. selected ultra poor (poorest in the wealth rank and selected by the programme, SUP

for short), non-selected ultra poor (poorest in the wealth rank but not a beneficiary, NSUP for short) and other non-ultra poor. From the list of all households in a village, 3 households were randomly selected from each of these 3 groups of households. Therefore, these three groups of households consist equal proportion in the sampling distribution. However, distribution of SUP, NSUP and other category in the wealth ranking is 8, 27 and 65% respectively, at aggregate level (calculated from programme database). Due to this sample selection process, any estimate with the pooled data is prone to biasness towards the ultra poor households. Therefore, frequency weight factor was used to have a balanced distribution of the sample. Each SUP household was considered representing one household whereas NSUP and other households represented 3 and 8 cases respectively.

The questionnaire was designed following the World Bank social capital survey design. Alongside this household survey, two semi-structured focus group discussions, one each for female and male group, were conducted in each of these villages.

## SOCIAL RELATION INDEX

The major challenge in empirical studies on social capital is its measurement. This is partly because as a concept there is no accepted definition of social capital and more often than not these definitions include measurable and non-measurables. Nonetheless, an index was constructed using indicators that are linked to the social relation of the households with their relatives and neighbours. Since the unit of analysis is households, the index reflects the bridging dimension of social capital which is a metaphor for horizontal relations (Woolcock 2000). The indicators that were used in forming the index are listed in Table 1. Regularity of visiting neighbours and relatives is manifestation of relation with them and often termed as sociability. However, sense of respect and trustworthiness are social relations at cognitive

level and reflects emotive behaviour. This is a component of social capital since people's interpersonal behaviour is shaped not only by reciprocity but also by trust, affection and confidence (Dasgupta 1999). While this gives a useful proxy of horizontal social relations of the households, it certainly leaves out a series of other dimensions of social capital.

All the indicators show good degree of central tendency with variations across the three types of households. In general, the quality of relations seems better among the wealthier households. For example, non-ultra poor households are more likely to have relatives and neighbours visiting their house. The central issue of this study is whether such pattern of relations has any impact on the economic welfare of the households.

**Table 1. Indicators of social relation**

Questions		SUP	NSUP	Other	Chi Sq
1. How often have you visited other houses in the last month?	Never	11	5	2	22.05***
	A few times	55	59	59	
	Often	21	24	25	
	Regularly	13	11	14	
2. How often have people come to visit your house?	Never	10	7	1	77.12***
	A few times	62	64	43	
	Often	15	19	38	
	Regularly	13	11	19	
3. Do your relatives respect you and maintain good relations with you?	No, none	5	3	0	38.53***
	Yes, few do	53	55	36	
	Yes, everyone does	42	42	63	
4. Do your neighbours respect you and maintain good relations with you?	No, none	4	4	0	77.44***
	Yes, few do	72	71	47	
	Yes, everyone does	24	25	53	
5. Do you think that your relatives are trustworthy?	No, none	1	1	1	14.92***
	Yes, few	67	57	51	
	Yes, everyone	32	42	48	
6. Do you think that your neighbours are trustworthy?	No, none	3	1	3	1.42
	Yes, few	75	74	75	
	Yes, everyone	22	24	22	

In measurement of social capital, one crucial aspect is the method of calculating social capital. When there are significant correlations among the indicators, there is a strong convergence to the use of factor analysis. Table 2 shows the result of factor analysis.

**Table 2. Component matrix of social relation**

	Factor loadings Of Components	
	1	2
Indicator 1	.672	-.627
Indicator 2	.717	-.607
Indicator 3	.748	.258
Indicator 4	.793	.139
Indicator 5	.712	.396
Indicator 6	.613	.442
Eigenvalues	3.038	1.20
(% of variance of components)	(50.64)	(19.90)
KMO measure of sampling adequacy	0.705	

Extraction method: Principal component analysis and 2 components extracted.

All the variables are in categorical forms where greater scores means better relations. All the indicators show strong positive relation with the first component, which is the social relation index.

### Alternative measures of social capital

To investigate consistency of the index, a few alternative measures were used. Usually, additive measure of indexing is used in studies of social capital instead of multiplicative measures. Moreover, to understand the robustness of the

index, extension in variables is also required with variations in method of calculation. With the same six indicators an index of additive form, which essentially computes averages, was calculated. Since the indicators are in different scales, they were rescaled<sup>1</sup> so that the indicator divides up evenly some assumed underlying uniformly distributed continuous variable ranging between 0 and 100. These values were normalized to have zero mean and 1 standard deviation.

Along with the six indicators, two more indicators of social cohesion viz. perception of the respondent about the amount of social tension created by difference in wealth and political affiliation in the village were considered. Principal factor of this index with extended indicators explained 38% of the variance. The correlation coefficients of the indices in both additive and multiplicative forms are given in Table 3.

All the four indices have great similarity. Correlation coefficient of any two measure is over 0.90. However, multiplicative forms showed greater consistency with the extension of indicators (coefficient 0.9967). Comparatively less amount of consistency in additive forms by increasing number of indicators (coefficient 0.9172) is most likely due to the small number of indicators used. Fewer indicators allow relatively greater weights for additional indicators in the additive form. Nonetheless, the index formed by factor analysis of six indicators is almost identical to the additive index of same number of indicators and has been used as a proxy measure of social capital.

**Table 3. Correlation of alternative indices**

		Multiplicative		Additive	
		Six indicators	Eight indicators	Six indicators	Eight indicators
Multiplicative	Six indicators	1.0000	-	-	-
	Eight indicators	0.9967*	1.0000	-	-
Additive	Six indicators	0.9982*	0.9943*	1.0000	-
	Eight indicators	0.9189*	0.9372*	0.9172*	1.0000

<sup>1</sup> The value of  $k$  in a scale of  $N_i$  categories for the  $i^{\text{th}}$  indicator would be  $V_{ik} = (100 / N_i) \times k - 100 / (N_i \times 2)$

## SOCIAL CAPITAL AND ECONOMIC WELL-BEING

The principal aim of this study is to see whether social relations have an influence on household welfare. It is customary to use per capita consumption expenditure as proxy of household welfare. However, two different measures of expenditure were considered. One is the regular monthly household expenditure that includes food expenses and other non-food items such as cooking fuel, residence, and transportation. These regular expenses are the ones that a household requires to maintain its basic welfare status. However, some consumptions are made annually most of which are 'luxuries' in nature. It is plausible that there would be lesser extent of variations among the households in their regular expenses compared to total expenses. The second measure includes all the regular monthly expenditure as well as other annual expenditures such as clothing, consumer durables, education expenses, etc. To make these two comparable, the annual expenses were converted to monthly expense. Using these two different measures of expenditure (henceforth referred to as regular expenditure and total expenditure) allows us to see how the strengths of the determinants changes when more expensive kinds of expenditures are concerned. Moreover, this is a way of verifying the consistency of results. There would be lesser extent of variations in the consumption of regular items compared to the variations in consumption of durables across the households.

In ordinary least square estimates, per capita expenditure, either regular or total, is the dependent variable while the right hand side includes vectors of household characteristics along with the social capital.

$$Y_i = \beta_0 + \beta_1 SK_i + \beta_2 HH_i + u_i$$

A range of household features that are usually used in explaining household consumption was incorporated in the regression as explanatory

variables. These include variables of household demography, education, income source, assets and geographical location. Table 4 shows OLS results where column 2 and 4 shows the results after using the weight factor. Column 1 and 2 of the table uses per capita monthly regular expenditure as the dependent variable. In the last two equations, per capita monthly expenditure including the annual expenses is the dependent variable.

The coefficient of social capital index (SK) is positive and significant indicating strong association between income and social capital index. Before going into discussion on the relation between these two, the focus of this study, it is useful to have a good look at the effects of other variables. In the household demography, coefficients of age of the head and square of age yield expected signs<sup>2</sup>. They become more significant when weight is used (Table 4, column 2 and 4).

The negative coefficients of female headship are significant only when the larger expenses along with monthly regular ones are considered (column 3 and 4). Female headship matters more when the consumption of expensive items is concerned. Despite the generally accepted notion that female-headed households are poorer than male-headed ones, the evidence on female headedness of the households and their consumption expenditure are mixed. Quisumbing et al (1995) showed that the rate of poverty is higher among the female-headed households in Bangladesh. On the contrary, Joshi (2004) found that female-headed households in Bangladesh are actually better-off in terms of consumption expenditure even though the income and assets of this type of households are lower. Such contradictory or inconclusive findings mostly arise

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<sup>2</sup> Wodon (2000) uses nationally representative household surveys of five periods to identify determinants of consumption in Bangladesh.

because of the way the female-headedness is defined (Rahman and Islam 2003). Here, de facto headship of female member was not considered as female-headed household.

Larger households are likely to be poorer. Households with more members have lower per capita consumption expenditure. Rahman and Islam (2003) found that higher number of household members, either dependants or earners,

have greater probability of being poor. However, higher number of earner per household member is associated with greater per capita consumption, which is understandable.

Household head's ability to read and write is positively associated with expenditure. However, variables of members' level of education give some interesting results. Higher number of persons with 5 to 9 years of education does not

**Table 4. Determinants of per capita expenditure (OLS)**

	(1)	(2)	(3)	(4)
	Ln (per capita regular expenditure)	Ln (per capita regular expenditure)	Ln (per capita total expenditure)	Ln (per capita total expenditure)
Constant	5.842 (40.12)***	5.741 (69.13)***	5.845 (38.91)***	5.706 (66.14)***
Social relation index	0.097 (6.24)***	0.113 (13.40)***	0.115 (7.21)***	0.129 (14.67)***
Age of HH head	0.009 (1.44)	0.012 (3.25)***	0.014 (2.10)**	0.020 (5.23)***
AGE <sup>2</sup> of HH head	-0.0001 (1.85)*	-0.0001 (3.80)***	-0.0002 (2.53)**	-0.0002 (5.84)***
Female headed household (1 if yes, 0 otherwise)	-0.060 (1.55)	-0.029 (1.30)	-0.078 (1.90)*	-0.071 (3.01)***
Number of children	-0.098 (4.77)***	-0.099 (8.29)***	-0.110 (5.29)***	-0.124 (10.33)***
Number of member of working age (16-65)	-0.096 (5.96)***	-0.098 (13.33)***	-0.100 (5.60)***	-0.108 (12.93)***
Earner to member ratio	0.464 (4.23)***	0.499 (7.94)***	0.423 (3.84)***	0.426 (6.62)***
HH head can read & write (1 if yes, 0 otherwise)	0.099 (3.11)***	0.148 (9.27)***	0.114 (3.19)***	0.162 (8.93)***
Number of household members with 5-9 years' of schooling	0.022 (1.15)	0.008 (1.07)	0.021 (1.00)	0.006 (0.74)
Number of household members with Secondary Certificate	0.139 (5.09)***	0.137 (14.72)***	0.191 (6.25)***	0.188 (18.22)***
Number of income sources of the household	0.022 (2.01)**	0.024 (4.34)***	0.026 (2.33)**	0.038 (6.15)***
Log of amount of cultivable land	0.059 (7.04)***	0.057 (15.81)***	0.079 (8.35)***	0.076 (19.34)***
Number of cows	0.030 (3.15)***	0.030 (7.71)***	0.030 (2.78)***	0.032 (7.08)***
Number of poultry birds	0.006 (2.53)**	0.006 (6.82)***	0.006 (2.07)**	0.005 (5.02)***
Whether owns a house (1 if yes, 0 otherwise)	0.048 (1.77)*	0.057 (3.38)***	0.050 (1.78)*	0.063 (3.64)***
Minutes distance from <i>pucca</i> (bitumen surface) road	-0.001 (1.02)	-0.001 (1.98)**	-0.001 (0.95)	-0.001 (2.27)**
F Statistics for 11 District dummies	11.10	30.00	8.99	25.77
Observations	810	3240 (Weighted)	810	3240 (Weighted)
R-squared	0.57	0.60	0.61	0.63

Robust t-statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

have any impact on the consumption expenditure. However, number of persons in the household achieving at least secondary school certificate, which is achieved sitting in public examination of competency test, have strong positive influence over consumption. Given the quality of education prevailing in Bangladesh, return to primary and secondary education is very low. Completing secondary level is required to gain any meaningful return from education in Bangladesh (Asadullah 2005).

The coefficients of household assets in the forms of agricultural land, cow, poultry, and ownership of the residence are all positive and significant. Land is the most desirable asset in rural Bangladesh. Over the last 2 decades, landlessness is decreasing in Bangladesh with an increase in functional landlessness i.e. without any cultivable land (BBS 1999). Land still remains as the most productive assets in rural settings. Distance of the village from the bitumen-surfaced road and district dummies are used to capture geographical disparities. Minutes of walk from the paved road has negative association with expenditure but not significant. Because of the high density of population, very high remoteness is not common in Bangladesh though BIDS (2001) study shows that there are some pockets of remote areas with high level of poverty.

Introduction of the social capital term does not make any noticeable change in the coefficients of these explanatory variables (estimates without social capital have not been reported). However, it increases the  $R^2$  by about 0.03 on every occasion. The positive coefficients of social relation index increases when the observations are weighted and the relations become more significant. However, the coefficients in these OLS estimates demonstrate merely the associations.

Instrumental variables have been used to ascertain causality. The instruments have to be variables that determine social capital but not associated with household welfare. In case they determine expenditure, the effect has to be through social capital. In 2-SLS estimation process, social capital is predicted by the instrument and other exogenous variables in the first stage. The predicted social capital instead of

actual ones enters at the second stage with other exogenous variables.

$$\begin{aligned} SK_i &= \lambda_0 + \lambda_1 IV_i + \lambda_2 HH_i + v_i \\ S\hat{K}_i &= \hat{\lambda}_0 + \hat{\lambda}_1 IV_i + \hat{\lambda}_2 HH_i \\ Y_i &= \beta_0^* + \beta_1^* S\hat{K}_i + \beta_2^* HH_i + u_i \end{aligned}$$

The five instrumental variables that have been included are i) whether the respondent feels safe when alone at night, ii) her perception about extent of cooperation in the village, iii) trust in shopkeepers, iv) trust in teachers and v) trust in doctors. The most crucial aspect in this estimation is the validity of the instruments. As noted, a 'valid' set of instruments must be relevant and exogenous in the model. In other words,  $\text{Corr}(\text{endogenous, instrument}) \neq 0$  and  $\text{Corr}(\text{instrument, error}) = 0$ .

The condition of relevance can easily be tested if there is only one endogenous variable in the model (Bound et al, 1995). The most commonly used statistics for investigating relevance is the partial  $R^2$  of the first stage regression with the instruments. Therefore, weak instruments imply that the F-statistics of the joint significance of the instruments in the first-stage regression would be very low. As a rule of thumb, F-statistics of less than 10 is considered as an indicator of weak instrument (Staiger and Stock 1997). Following this cut-off mark, the instruments pass the test of relevance comfortably when weight factors were used (column 2 and 4) but marginally otherwise (column 1 and 3) in Table 5.

Exogeneity of the instruments can be tested through Hansen's J statistics only when the model is overidentified (Hyashi 2000). In other words, to estimate J statistics the number of instrumental variables have to be larger than the number of included endogeneous variables, which is the case here. In calculating J statistics, using the estimates of 2SLS, the expenditure is predicted<sup>3</sup> to estimate the residuals.

The residual is regressed against the instruments and other exogenous variables; and endogenous social capital is excluded. Partial F

<sup>3</sup> In calculating the predicted values, actual values of social capital are used instead of predicted ones from the first stage.

statistics of the instruments from the final regression multiplied by the number of instruments yields the J statistics. This follows a chi

$$\begin{aligned}\hat{Y}_i &= \beta_0^* + \beta_1^* SK_i + \beta_2^* HH_i \\ \hat{\varepsilon}_i &= Y - \hat{Y} \\ \hat{\varepsilon}_i &= \pi_0 + \pi_1 IV_i + \pi_2 HH_i + \varepsilon_i\end{aligned}$$

distribution where the null hypothesis is that all the instruments are exogenous to expenditure. All the five instruments passed this test as well. It is interesting to note here that trust in strangers failed to consistently pass this over identification test. Though conceptually this variable is least likely to be associated with consumption, similar pattern was observed by Narayan (1997).

**Table 5. Per capita household expenditure and social capital (2SLS)**

	(1)	(2)	(3)	(4)
	Ln (per capita regular expenditure)	Ln (per capita regular expenditure)	Ln (per capita total expenditure)	Ln (per capita total expenditure)
Constant	5.837 (36.05)***	5.819 (59.59)***	5.841 (35.32)***	5.771 (58.90)***
Social relation index	0.276 (4.35)***	0.324 (8.71)***	0.280 (4.14)***	0.304 (7.60)***
Age of HH head	0.004 (0.54)	0.000 (0.03)	0.010 (1.18)	0.011 (2.15)**
AGE <sup>2</sup> of HH head	-0.0001 (0.85)	-0.00002 (0.50)	-0.0001 (1.53)	-0.0001 (2.72)***
Female headed household (1 if yes, 0 otherwise)	-0.044 (1.10)	-0.023 (0.97)	-0.063 (1.47)	-0.066 (2.67)***
Number of children	-0.101 (4.35)***	-0.089 (6.84)***	-0.112 (4.87)***	-0.116 (9.07)***
Number of member of working age (16-65)	-0.083 (4.62)***	-0.082 (9.63)***	-0.088 (4.46)***	-0.095 (9.94)***
Earners to member ratio	0.455 (3.75)***	0.544 (7.74)***	0.415 (3.45)***	0.463 (6.72)***
HH head can read & write (1 if yes, 0 otherwise)	0.066 (1.79)*	0.097 (4.86)***	0.083 (2.03)**	0.120 (5.33)***
Number of household members with 5-9 years' of schooling	0.006 (0.28)	-0.002 (0.27)	0.006 (0.26)	-0.003 (0.31)
Number of household members with Secondary certificate	0.127 (4.78)***	0.122 (12.82)***	0.179 (5.87)***	0.176 (15.90)***
Number of income sources of the household	0.035 (2.73)***	0.036 (5.34)***	0.039 (3.01)***	0.047 (7.07)***
Log of amount of cultivable land	0.057 (6.49)***	0.057 (14.29)***	0.077 (7.88)***	0.076 (18.00)***
Number of cows	0.031 (2.99)***	0.032 (7.46)***	0.031 (2.71)***	0.034 (7.11)***
Number of poultry birds	0.006 (2.31)**	0.006 (5.89)***	0.006 (1.94)*	0.005 (4.52)***
Whether owns a house (1 if yes, 0 otherwise)	0.032 (1.02)	0.004 (0.17)	0.035 (1.11)	0.020 (0.88)
Minutes distance from <i>pucca</i> (bitumen surface) road	-0.000 (0.49)	-0.000 (0.21)	-0.001 (0.49)	-0.000 (0.81)
F statistics of 11 district dummies	10.11	28.23	9.08	27.88
Observations	810	3240 (weighted)	810	3240 (weighted)
R-squared	0.49	0.50	0.55	0.59
First stage F statistics	11.03	48.61	11.03	48.61
J statistics of overidentification test (p value)	3.12 (0.54)	4.66 (0.32)	1.02 (0.91)	5.82 (0.21)
Hausman chi (p value)	6.59 (0.0102)	59.69 (0.000)	9.02 (0.003)	34.04 (0.000)

Robust t-statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Instrumented effect of social relation index on expenditure is higher than the OLS effect (Table 5). The coefficients are much higher at around 0.3 in estimates using instrumental variables compared to just over 0.1 in OLS. While this larger coefficient can be due to measurement errors, it demonstrates that social relations have positive influence over household expenditure. Therefore, social capital increases economic well-being. Similar effects were also found in other studies on social capital in Tanzania (Narayan and Pritchett 1997), in South Africa (Maluccio *et al.* 2000) and in Indonesia (Grootaert 1998). All these studies used participation in groups as the proxy for social capital and discovered the existence of only one-way causality from social capital to welfare.

Though the instruments are relevant and exogenous, consistency gained in the 2SLS estimate is not completely costless. Therefore, the loss of efficiency by not using the OLS needs to be evaluated. Hausman specification test results show usefulness of alternative (instrumental variable) estimations. This justifies the use of 2SLS in estimating the effect of social capital on household welfare.

Other than increase in the coefficient of social capital index, there are few changes in effects of other variables when instrumental variables are used. Effect of ownership of dwelling and distance from paved roads become insignificant. Variables of household head's age remain significant only in the last equation and effect of number of income sources (proxy for diversification) becomes stronger.

Given that social relations influence economic status, the question is what determines social capital. Any effort here on identifying the determinants of social capital would be useful not only for its own sake but also it would allow us to see, in the other way around, whether income is a determinant of social capital. Table 6 investigates some determinants of social capital.

Explanatory variables include number of relatives living in the village, respondents' perception about the economic, educational, occupational and religious status of close neighbours along with log of per capita expenditure of the households. As expected, the households with more relatives living in the village have higher social capital since the index include the relations with neighbours and relatives. However, villages with more households have lower social capital. Heterogeneity among the close neighbours in terms of economic and religious status is positively associated with relations among themselves.

Perception on the extent of cooperation and exchange of assistance among the villagers has strong positive association with the social relation measure. Though trust in shop-keepers and teachers have expected strong association with social relation, trust in doctors is not a consistently significant determinant.

Household consumption expenditure shows strong association with social relation index (column 1 and 3 in Table 6). To explore endogeneity, here again instrument variables were used. The instruments are log of cultivable land, number of poultry owned, type of housing and number of rooms in the house. These instruments pass the diagnostics of relevance and validity. After using instruments, the effect becomes insignificant as in column 2. Quite interestingly, the effect of expenditure on social capital becomes negative when frequency weights are used (column 4). While such a negative influence of income on social relation is subject to further investigation, this is probably reflecting the possibility of horizontal social relation becoming less important as income level crosses some threshold. Investigation of the nature of social capital between the well-off and different poverty groups would be a useful approach.



**Table 6. Determinants of social relations**

	(1)	(2)	(3)	(4)
	OLS	2SLS	OLS	2SLS
Number of relatives living in the same village	0.009 (2.32)**	0.012 (2.86)***	0.006 (3.96)***	0.010 (6.13)***
ln (HHs in the village)	-0.246 (6.64)***	-0.269 (6.72)***	-0.284 (15.46)***	-0.322 (15.90)***
Close neighbours are different in education (1=Yes, 0 otherwise)	0.030 (0.27)	0.052 (0.45)	0.010 (0.15)	0.064 (0.87)
Close neighbours are different in economic status (1=Yes, 0 otherwise)	0.131 (1.02)	0.161 (1.24)	0.071 (0.85)	0.156 (1.79)*
Close neighbours are different in occupation (1=Yes, 0 otherwise)	-0.112 (0.74)	-0.094 (0.62)	0.092 (0.78)	0.180 (1.43)
Close neighbours are different in religion (1=Yes, 0 otherwise)	0.325 (4.47)***	0.300 (4.14)***	0.223 (6.27)***	0.170 (4.79)***
Feels safe to go outside homestead alone at night (1=Yes, 0 otherwise)	0.180 (2.79)***	0.189 (2.89)***	0.097 (2.95)***	0.088 (2.54)**
Perceived extent of cooperation among villagers (low=1, ..., high=3)	0.186 (2.75)***	0.231 (3.22)***	0.212 (6.16)***	0.302 (8.17)***
Trust in shopkeeper (low=1, ..., high=3)	0.243 (4.86)***	0.246 (4.98)***	0.264 (10.79)***	0.257 (10.37)***
Trust in teacher (low=1, ..., high=3)	0.255 (3.33)***	0.267 (3.44)***	0.209 (5.53)***	0.215 (5.31)***
Trust in doctor (low=1, ..., high=3)	-0.002 (0.03)	0.009 (0.15)	0.035 (1.18)	0.070 (2.28)**
Ln (per capita total expenditure)	0.299 (4.72)***	0.084 (0.74)	0.278 (9.67)***	-0.094 (1.86)*
Constant	-2.075 (3.33)***	-0.677 (0.75)	-1.631 (4.82)***	0.732 (1.65)*
Observations	810	810	3240 (Weighted)	3240 (Weighted)
R-squared	0.20	0.18	0.19	0.14
First stage F statistics	-	65.02	-	428.28
J statistics (p value)	-	2.527 (0.47)	-	5.149 (0.16)
Hausman Chi <sup>2</sup> (P value)	-	4.71 (0.03)	-	83.97 (0.00)

Robust t-statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

## LINKS BETWEEN SOCIAL CAPITAL AND INCOME

Social capital is one of the five key components of livelihood platform along with natural, physical, human and financial capitals (Ellis 2000). However, it has usually been considered as a reciprocal phenomenon, which mostly works as an informal insurance mechanism. In literature, different channels have been identified through which social capital leads to greater economic emancipation of people both collectively and individually. Haddad and Maluccio (2000) argue that the pathway of benefit (e.g. cooperation, domination, free-riding and externality) would differ based on the level of group participation and trust. Narayan and Pritchett (1997) identifies five mechanisms of social capital's potentiality which are enhancing public sector efficacy, maintaining common property usage to avoid 'tragedy of common', spilling over knowledge and technology, reducing the cost of imperfect market information and providing informal insurance.

Though social capital can have impact on the upward mobility of a household or community, the centre of attention in literature is on the reduction of vulnerability. Transformation of assets of households or community into effective

livelihood strategy depends on social relations, institutions, organizations and the likelihood of shocks. Providing an informal safety net, social capital can induce a household to take more risky but gainful activities.

In the development literature, it has been discovered that the communities endowed with a rich stock of social networks and civic associations are in a stronger position to confront poverty and reduce vulnerability through informal insurance (Coate and Ravallion 1993), resolve disputes, share beneficial information (Isham 1999) and achieve better institutional performance.

To develop understandings on how social relations may influence household welfare, its correlation with a few indicators is looked at (Table 7). The variables are a few indicative channels between social capital and well-being. Households with higher score in social relation index are likely to live in villages where fewer amounts of conflicts and violence take place. Moreover, there is correlation between neighbours helping each other during crisis and households'

**Table 7. Correlates with Social relation index**

	Without weight	With weight
How often conflicts take place between households in the village (1=very often, ... 5 = never) <sup>a</sup>	0.2056*	0.2643*
How often are there violence cases in this village? (1=very often, ... 5=never) <sup>a</sup>	0.1271*	0.1715*
People of the village help each other during crisis (1=strongly agrees, ... 3=Disagrees)	-0.1661*	-0.1737*
Neighbours helping each other (financial gifts) during crisis. (1=a lot, ... , 4= never) <sup>a</sup>	-0.0554	-0.0354
Neighbours helping each other (non-financial gifts) during crisis. (1=a lot, ... , 4= never) <sup>a</sup>	-0.2007*	-0.1778*
Feels that household assets are safe from theft if out of house for a while	0.1140*	0.1989*
Whether feels safe when go outside at night.	0.1572*	0.1025*
Whether knows about the services of govt. agriculture officer	0.2462*	0.2209*
Whether knows about the services of govt. health center	0.0577	0.0358
Whether knows about the services of family planning	0.0545	0.0803*
Amount of land cultivated in sharecropping contract (Households without own land)	0.1391*	0.1909*
Have regular day labour works (households with day labour as an occupation)	0.1771*	0.1071*

\* Significant at less than 1 percent level

<sup>a</sup> From group discussions with the female of the villages

social relations. However, the correlation is significant as far as non-financial assistances are concerned. People are unlikely to come up with financial assistances. Besides frequency of disputes and informal safety net, social capital is also correlated with sense of security. Judgment on the security of assets is crucial for the households to build physical asset base. Better relations with neighbours can work as a security device.

Social capital can influence the flow of information about the government services that are available. It was found that social relation is positively related with the knowledge about government agriculture officers. However, no such significant relation is found regarding information on services of health centers and family planning officers. In Bangladesh, there is

increased awareness about family planning activities.

Among the households almost 70% do not have any cultivable land of their own. It was found that among them, households with better scores in the social relation index are likely to have more land to cultivate in sharecropping. Therefore, better relations may influence access to resources like land. Though access to land is important, most of the households depend on their labour to manage livelihood. Over 68% of the households depend on agriculture and/or non-agriculture day labour as an income source. However, only 60% of these day labourer households can find regular jobs. In the informal rural labour market, better relation with people is important to secure regular work.

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## CONCLUSION

Causal relation between social capital and welfare of households in a few districts of Bangladesh was investigated in this study. Instead of group participation, quality of relation with the relatives and neighbours was used as a proxy of social capital. Results show that household's social capital positively influences per capita expenditure but not the other way round. This finding is similar with studies conducted at the household level but using different measure of social capital.

Better relations with neighbours and relatives work as safeguard against violence and conflict, informal safety net during crisis, security of household assets and source of information. Given the highly informal nature of markets in rural Bangladesh, access to wage employment, land and other assets is shaped by quality of relations among the agents.

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