

Social Capital Household Welfare and Poverty: Evidence from Pakistan

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The research addresses the missing link between social capital and analyses of household welfare and poverty. First the relationship between social capital and household welfare is analysed using a social capital index and a heterogeneity index. The social capital index is calculated using different dimensions: density of membership, attendance at meetings, cash and kind contributions and decision making in local organisations/associations. Heterogeneity index is based on differences in incomes, ethnicity, education and political affiliations in the composition of organisations. Endogeneity of social capital with household expenditure is tested through an Instrumental Variable approach. The relationship between social capital and probability of being poor is analysed through a logit model. The analysis uses data collected from 1050 households in and around the cities of Karachi, Lahore and Quetta. The main results indicate that social capital (however measured) has a positive impact on the welfare of the household. The study concludes that social capital and human capital have the same returns. A powerful result of the research is that households with social capital at their disposal are likely to be less poor and that poverty is less when households share risks through building associations and through collective action. The research has some policy implications which can be useful in building up social capital in the country.

1. INTRODUCTION

It has been increasingly recognised that social capital has a vital role to play in enhancing a nation's productivity and development. Recently, the subject has received attention in developing countries, as it has been realised that social capital is needed along with traditional inputs of land, labour and capital to realise the full benefits of investments in these countries. A number of authors have recognised these contributions in their work. For instance, Putman (1993) states that social contact between individuals and society increases the productivity of individuals in the same way as human and physical capital does. Knack and Keefer (1997) are of the view that trust and civic cooperation lead to economic prosperity and sustainable development. According to Narayan (1997) social capital brings prosperity and reduces poverty.

International agencies have also recognised the role that social capital can play in the development of countries, and have emphasised that countries should invest more in their social capital. The World Bank recognised the role of social capital in promoting welfare, wellbeing and happiness of individuals, households, communities and nations in

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it 'Social Capital Initiative' in 1996. Many empirical studies have also been undertaken by international institutions in Asia, South America and Africa, and elsewhere which have highlighted the role that social capital play in promoting household welfare in developing countries. This work has been the basis for policy formulation in some countries.

Although, there is agreement in the literature on what social capital can do there is no consensus as to what it means or an agreed definition of the term. So in order to better understand the issues, we begin by looking briefly at the theoretical underpinning and some of the definitions of social capital.

The theoretical basis for social capital stems from the idea that the institutions play a major role in the development of nations, and network or social relationships are formed in the process of these interactions that lead to commitment and trust and form social capital. The main reasons of people's engagement in these networks and continue to maintain links with others is that they can take benefit from it. Economic rational suggests that actors' goals are determined by utility-maximising pursuit of self-interest. Theoretical base for social capital can be better understood from the work of Bourdieu, Coleman and Putman and how they define social capital. Most of the empirical work that has subsequently followed is also based on these formulations. A central notion of Bourdieu's (1986) theory is the differential distribution of and control of social space and of resources. He describes social capital as 'the aggregate of the actual potential resources which are linked to possession of a durable network of institutionalised relationships of mutual acquaintance or recognition'. Putnam (1993) refers to social capital as "features of social organisations, such as networks, norms and trust that facilitate action and cooperation for mutual benefit". Coleman adopts a middle line between functionalist view of social action which is conditioned by social structure; and economic rational theory of utility maximisation. For Coleman (1988) social capital "consists of some aspect of social structure, and facilitates certain actions of actors-whether persons or corporate actors-within the structure". To him social capital is anything that facilitates individual and collective action generated by networks, reciprocity, trust and social norms. To all three authors, Bourdieu, Coleman and Putman social capital is a productive and collective resource which is used for achieving particular goals.

Social capital operates at the macro, meso and micro levels. At the macro level there are institutions like the government, rule of law and civil and political liberties. There is evidence that at the macro level social capital has a positive effect on the economic performance of nations. Knack and Keefer (1997) show a significant impact of social capital on aggregate economic activity. Grootaert (1998) shows that certain forms of social capital have strong positive effects on economic growth and contribute to sustainable development. Isham, *et al.* (2000) argues that communities with more social capital are in a better position to achieve economic growth. See Knack (1999) for a review of macro literature on social capital. At the meso and micro level social capital look at network of and interactions between individuals, households and communities which translates into formulation of local associations/organisations. Empirical studies at the micro level of social capital are still a relatively new area of research in the developing countries, mainly due to a lack of disaggregated data.

Social capital has not been the focus of much research in Pakistan and there is very little empirical evidence that investigates the issue at the micro and the household level. This paper is a study of social capital at the household micro level and defines it as a resource which is created by formal and informal relationships between individuals within a community. The definition that we adopt in this paper is based on the how people interact with each other as defined by Dekker and Uslaner (2001). "Social capital is about the value of social networks, bonding similar people and bridging between diverse people, with norms of reciprocity".¹ The research is based on household and community level data from around the cities of Karachi, Lahore and Quetta.

The remaining of the paper is organised in the following way. The next section gives a brief review of the relevant literature. Section 3 outlines the methodology and the sources of data and describes variables used in the analysis. Section 4 discusses the results and their interpretation. The last section concludes and describes the policy relevance of the research.

2. REVIEW OF LITERATURE

Recently the literature on social capital has grown especially in developing countries. Sociologists, economists and political scientists have written about it in abundance. It is beyond the scope of this paper to cover all the literature so we only present a brief review of the relevant studies here. Many studies in the literature investigate the effects of social capital on household welfare. The well-known study by Narayan and Pritchett (1997) demonstrates that ownership of social capital by households in rural Tanzania has a strong effect on household welfare and that social capital impacts household welfare more than human capital. Maluccio, *et al.* (2001) find a strong relationship between social capital and household welfare in their study for South Africa, while Grootaert, *et al.* (2001) demonstrates a significant effect of social capital on welfare in Bolivia. A recent study by Olawuyi and Oladele (2012) reveals that social capital makes a significant contribution to household welfare along with other characteristics such as age, age-squared and household size in Nigeria. Putman (2002) shows that more social capital is associated with lower levels of violent crimes, lower mortality rates and better education. Grootaert's (1998) research also shows that disaggregated measures of social capital such as memberships in local associations lead to higher incomes. In a recent study for Bhutan by the National Statistics Bureau (2013) both aggregate as well as disaggregated measures of social capital are found to significantly affect household welfare (happiness) in the country.

A body of literature includes trust an element in social capital in their analysis [see Cox and Caldwell (2000), Giddens (1990), Black and Hughes (2000)]. Trust is necessary

¹There are several other definition of social capital found in the literature. The World Bank defined it as "institutions, relationships and norms that shape the quality and quantity of society's social interactions". [Adler and Kwon (2002)] focus on types of linkages. Exterior relations are described as binding by Woolcock 1998 and as communal by Oh, *et al.* (1999). Baker (1990) states that social capital is created by changes in the association among participants. Portes (1998) defines social capital 'as the ability of actors to secure benefits by virtue of memberships in social networks or other social structures'. OECD (2001) defined social capital as "networks together with shared norms, values and understandings which facilitate cooperation within or among groups" According to Stone (2001) "social capital consists of networks of social relations which are characterised by norms of trust and reciprocity".

for smooth running of civil society and facilitation of democracy according to Putman (1993, 1995) and Uslaner (2001). Wheatley and Zurcher (2009) analyse the determinants of social capital in Tajikistan, Kyrgyzstan and Uzbekistan and test whether networks, norms and trust are empirically related to factors like culture, regime type, perceptions of government responsiveness and development interventions.

The effects of social capital on poverty outcomes have been the subject of a number of studies in developing countries and have clear policy implications for improving the well-being of the poor. Goetz (2007) in his research emphasises that social capital is vital to poverty alleviation in developing countries and that efforts to increase education level of the poor and job creation will not be successful in reducing poverty unless accompanied by social capital. Grootaert (1999) explores relationship between poverty and social capital in Indonesia and finds that social capital reduces the probability of being poor. Grootaert Oh and Swamy (2002) find similar results for South Africa while Narayan and Grootaert (2004) find that presence of social capital reduces the probability of being poor in Bolivia. Diawara, *et al.* (2013) for Nigeria and Roslan, Nor, and Russyani (2010) for rural Malaysia also find a negative relationship between poverty and social capital in their research.

3. DATA AND METHODOLOGY

The model used to measure the effects of social capital on household welfare corresponds to the conventional model of household economic behaviour under constrained utility maximisation which relates household expenditure to asset endowments and other socio economic characteristics of the household. The methodology that is used is based on the assumption that social capital provides measurable returns to households. The methodology is well known and used by a number of studies in different developing countries [Grootaert (1999) and Narayan and Pritchett (1997) Diawara (2013) among others, where social capital is treated as any other forms of capital that is at the disposal of the household to generate income and increase its welfare. We estimate the following equation:

$$L^{\text{PExp}} = \alpha + SC + HC + AS + X + Z + u \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

Where:

- L^{PExp} = Log of household per capita expenditure
- SC = household endowment of social capital
- HC = household endowment of human capital
- AS = household endowment of assets
- X = a vector of household demographic and other socioeconomic characteristics
- Z = regional characteristics (urban/rural)
- α = constant term
- u = error term

The model uses per capita household expenditure as a measure of household welfare as it is difficult to measure household income accurately. This approach has been extensively used in the literature [see Grootaert (1999); Grootaert and Bastelaer (2002);

Okunmadewa, *et al.* (2005a); Okunmadewa, *et al.* (2007); Yusuf (2008); Narayan and Pritchett (1999)]. The exploratory variables in the analysis include social capital, human capital, demographic variables, location variables, and physical capital.

Two measures of social capital are used in the analysis, an index of social capital and a heterogeneity index following the approach used by Grootaert, *et al.* (2002). The social capital index is constructed using different dimensions of social capital including density of membership of local groups/associations, meeting attendance, cash contribution, time contribution in days and decision making. Membership density is measured by the summation of number of groups a household belongs to. Meeting attendance is measured by the summation of number of meetings attended by all members of the household in the 12 months prior to the survey. Attendance at more meetings is assumed to translate into greater participation and higher social capital. Cash contribution represents average monthly cash that a household contributed to different local organisations in the last 12 months. Work contribution is measured by the number of days of work that members of the household have collectively contributed to any group/association also in the last 12 months. Both cash and time contributions are assumed to represent greater interest and participation in the groups' activities. Decision making is measured by the member's participation in the group's decision making process. The respondents were asked if they thought they had actively participated in making decisions. All positive responses from the above dimensions of social capital are aggregated to create an index of social capital. A linear transformation is then applied to get a scale of 0–10. The effect of the social capital index is expected to be positive on household welfare.

A group's composition may have a bearing on its effectiveness for collective action. For instance, an internally homogenous group may find it easier to trust other members in the group, share common information and reach collective decisions easily. On the other hand, if the membership of the group is diversified meaning if its members have heterogeneous backgrounds, they may have access to different sources of information and knowledge which can be utilised to improve the effectiveness of the group. We develop a Heterogeneity Index based on ethnicity, education, income and political affiliation. The respondents were asked if the majority of the members in the group they belonged to were of the same, ethnic background, had the same level of education and income and had similar political affiliation as them. Their recorded responses were used to develop a heterogeneity index. The index is based on an aggregation of responses of each of the household to the questions for the 3 most important groups/associations. The index has a higher value when there is more diversity in the group with a maximum score of 12 for each household representing highest level of heterogeneity. Score of each household is divided by the maximum score and multiplied by 100. The effect of heterogeneity on household welfare can be positive or negative (as indicated in the literature). There is very little empirical evidence in Pakistan to suggest the sign of the estimated effect of heterogeneity on household welfare.

Two additional measures of social capital are included in the analysis of poverty. A variable related to risk sharing measured as receiving help from the group of which a household is a member in times of natural disasters, illnesses, loss of work etc.) and collective action to deal with adverse circumstances (load shedding, water crises, poor service provisions etc.) is defined.

Human capital is measured by education (number of years) of the head of household. Demographic variables in the analysis include household/family size, age of the head of household and its squared term (both are used to define the life cycle effects of the household). Physical capital is measured by asset endowment. An asset index is computed through factor analysis and based on ownership of durables (car, motorbike, refrigerator, sewing machine, television, air conditioner tractor, cart, computer and cell phone). Location dummy is used to take into account regional (urban/rural) differences in welfare levels. Another dummy variable is included to represent the households engaged in agriculture activities.

Two Stage Least Square (2SLS)

Since, it costs time and money to acquire social capital households with higher incomes (measured through expenditures here) can have greater endowments of social capital. The causality between social capital and expenditures may be before run both ways and will cause the OLS estimates to be biased, so there is a need to test for endogeneity in the model where expenditure is a dependent and social capital is an independent variable. In order to address the endogeneity problem in the estimation, we use an instrumental variable (IV) approach which test for the extent of two way causality. The problem with this approach is the difficulty in finding a good instrument that is highly correlated with social capital, but uncorrelated with expenditures and does not belong in the expenditure equation. These problems have been highlighted in the literature [see Putman (2000)]. But a number of studies have tested for endogenous social capital and have used the instrumental variable approach. Different instrumental variables have been used in the literature for different countries. Adepoju and Oni (2012) uses length of household residence in the community, household donation, membership in a religious and ethnic group as instruments for the social capital variable. Diawara, *et al.* (2013) in their his work uses distances to closest market, closest primary school, closest secondary school and closest tele-centre as instruments for social capital. Trust in individual and government organisations is used by [Narayan and Prichett (1999)]. Grootaert, *et al.* (2002) uses traditional authority, organisation strength and associations created by the community as instrumental variables in their research. A two stage least square (2SLS) methodology is used in our analysis to test for endogeneity of social capital. Given the availability of data and past research, we use trust in individuals and government and other organisations as our instrumental variable for social capital.

In the second part of the paper, a logit model is estimated where the dependent variable is the probability of being poor and the independent variables include measures of social capital education of the head, age of the head and its squared term, household size, assets, location dummies, number of earners and a dummy to represent engagement in agriculture activity. The following logit model is estimated:

$$P(Y) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon_i)}} \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

Where:

P(Y) = Probability of being poor

- X_1 = Measures of Social Capital
 X_2 = Other individual and household characteristics
 ε_t = error term

Household level data is used for the analysis. Data was collected through a primary survey of 1050 households in and around the cities of Karachi, Lahore, and Quetta from clusters of households. These clusters were formed on the basis of housing characteristics and other measures of living standards. Data from the survey was collected through a structured questionnaire on the following modules (i) household composition and socioeconomic characteristics module (ii) groups and networks module (iii) trust and solidarity module (iv) collective action and cooperation module.²

The primary survey was conducted by Applied Economics Research Centre, University of Karachi in the year 2011. The survey was based on the household and community level information. A stratified random sampling approach was used to select the households in the survey. Clusters were identified on the basis of housing characteristics. Households within a cluster were identified for interview through the Monte Carlo method, where every 5th household was chosen for interview. Four hundred households each from around Karachi and Lahore and 250 households from around Quetta were selected for interview.³

4. EFFECTS OF SOCIAL CAPITAL ON HOUSEHOLD WELFARE

Test for Endogeneity of Social Capital

This section of the paper presents results of the analysis of social capital on household welfare. The results of the estimations are presented in Table 1 below. Model 1 presents results for OLS estimates and includes a social capital index along with other exogenous variables, while Model 2 presents results where the heterogeneity index is also included as a separate measure of social capital. The study test for endogenous social capital and the corresponding Instrumental Variable (IV) results are presented in Model 3 and 4 of Table 1. The results show that using the instrument of trust for social capital leads to slightly higher R^2 (0.355) than that obtained from the OLS estimates (0.347) in Models 1 and from 0.355 to 0.362 in Model 2. Additionally, instrumenting the social capital results in a higher coefficient for the social capital index than that estimated through the OLS regressions which imply an absence of reverse causality. The instrument test also indicates that the null hypothesis of exogeneity of the social capital variable is not rejected. This result is consistent with that found by Narayan and Prichett (1997), Grootaert (1999) and Okunmadewa, *et al.* (2005). Therefore our OLS estimates can be used to analyse the effects of social capital on household welfare.

The results of the OLS estimations indicate that social capital index has a consistently significant positive effect on household welfare in both the specification (see Table 1 Model 1 and 2) indicating that households with higher social capital have higher welfare levels. The effect however is small as indicated by the small coefficient of the variable. This is in contrast to the results of the studies for Indonesia by Grootaert (1999)

²Copy of the Questionnaire is available from the author's upon request.

³Both urban and rural households were included. As these households are located in and around major cities they do not adequately represent rural household. They are selected from a rural clusters only.

Table 1

Social Capital and Household Welfare

Dependent Variables→ Independent Variables ↓ Equations	Log Per Capita Expenditure			
	Model 1	Model 2	Model 3	Model 4
	OLS	OLS	IV	IV
Social Capital Index	0.021 (2.31)**	0.032 (3.929)***	0.087 (2.33)**	0.090 (2.55)**
Heterogeneity Index		0.046 (3.177)***		0.098 (2.52)**
Education of Head	0.038 (14.218)***	0.038 (14.18)***	0.038 (13.13)***	0.038 (14.07)***
Household Size	-0.124 (-15.716)***	-0.125 (-15.92)***	-0.126 (-14.49)***	-0.127 (-15.85)***
Age	0.0004 (0.137)	0.00001 (0.04)	0.002 (0.56)	0.000098 (0.03)
Age ²	0.00007 (3.431)***	.00008 (3.53)***	0.00006 (2.37)**	0.00007 (3.48)***
No. of Earners	0.114 (7.142)***	0.114 (7.16)***	0.102 (5.56)***	0.111 (6.92)
Asset Index	0.032 (1.67)	0.029 (1.65)	0.021 (0.95)	0.024 (1.19)
Engaged in Agr.	-0.042 (-1.113)	-0.053 (-1.40)	-0.124 (-2.51)**	-0.082 (-1.92)*
Urban	0.122 (3.776)***	0.11 (3.37)***	0.118 (3.33)***	0.094 (2.74)***
Constant	7.340 (67.46)	6.916 (40.26)	6.73 (21.05)	6.29 (13.73)
No. of Observations	1050	1038	1050	1050
R ²	0.347	0.354	0.355	0.362
Instrument Test (p-level)	-	-	0.347	0.323

Source: Ahmad, N and Sadaqat, M., "An Aggregate model of Social Capital and Household Welfare" Pakistan *Journal of Applied Economics*, Forthcoming and Author's Calculations.

* Significant at the 10 percent level of significance.

** Significant at the 5 percent level of significance

*** Significant at the 1 percent level of significance.

where the effect is shown to be large. The other measure of social capital, the heterogeneity Index (Table 1 Model 2) also shows a significant impact on household welfare. This result indicates that more the heterogeneous the members of a group in terms of income, ethnicity, education and political affiliation the more they increase the welfare of the group by having access to a greater pool of knowledge and resources. In some of the literature the homogenous group of association is more beneficial. However, when we test for the effect of each of these characteristics on household welfare in a separate equation they do not have a significant impact on the welfare of households.⁴

The results of the analysis also show a strong effect of the head of household's characteristics and household's demographic and socioeconomic characteristics on household welfare. The education of the head of the household measuring human capital has a consistently significant and positive effect on household welfare in both specifications of the equation. The coefficient is around 0.038 and is highly significant at the 1 percent level of significance. Our results of similar returns to human and social capital is different

⁴The results of the estimations are not reported here but are available with the authors upon request.

than those for other countries like Tanzania and Indonesia where the social capital effect is shown to be more than 4 times that of human capital.

Larger households have lower welfare as indicated by the negative and significant coefficient of the household size variable (a coefficient of around -0.02). This result as expected, and is consistent with a number of other studies which show negative effects of family size on household welfare. Narayan and Cassidy (2001), Grootaert (1999), Narayan and Pritchett (1997). The age and age squared of the head of the household are included to test the life cycle effects. The age squared variable of the head however, has a positive and strong significant impact on household welfare indicating increasing rather than diminishing life cycle effects. The effect is however very small as demonstrated by the small coefficient of the variable. Another variable included in the equations is the number of earners in the household. The effect is positive and highly significant indicating that the more income generating capacity of the household the higher is its per capita expenditure and its welfare, as expected.

An asset index calculated from the ownership of number of durables has also been included in the model. As expected the variable has a significant and positive effect on household welfare.

The results of the analysis also indicate that household's welfare is affected by its location. The urban/rural dummy is used to capture the effect and indicates that the welfare of households in the urban areas is much higher than in the rural areas with a highly significant positive coefficient. The variable has the largest coefficient in the equation showing that households in the urban areas have much higher expenditures and welfare. A dummy variable is included to represent engagement in agriculture activities. The results show an insignificant effect on household welfare indicating that there is essentially no difference between earning income from agricultural activities or from other sources on household welfare.

5. SOCIAL CAPITAL AND POVERTY

The results for the analysis of social capital and poverty are presented in this section of the paper. The estimated logit models for probability of being poor⁵ are presented in Table 2 Models 1 and 2 while the corresponding average marginal effects for the two models are presented in columns 2 and 5 of Table 2. The results of the analysis show that households with more social capital at their disposal are less likely to be poor. The marginal effects of Model 1 indicate that these households are 7 percent less likely to be poor. When social capital is disaggregated into its individual components i.e. membership density, number of meetings attended, cash and days contributions to local organisations, the effects are mixed (see Model 2). Membership density and cash contributions are significantly and negatively related to the probability of being poor while meeting attendance and work days contributed do not have a significant relationship with the poverty status of the household. Households with higher membership density in local groups/ associations are less likely to be poor although the marginal effect of the variable shows a small impact. Households that make more cash

⁵The poverty status of the household is based on the official poverty line at the time of the survey. The expenditure levels of the household from the survey and an adult equivalent are used to determine the poverty status of the households in the sample. The data shows that 13 percent households were poor in the sample.

Table 2

Social Capital and Poverty Outcomes

Dependent Variables → Independent Variables ↓ Equations	Probability of Being Poor					
	Model 1	Av. Marginal Effects	Odds Ratios	Model 2	Av. Marginal Effects	Odds Ratio
Social Capital Index	-0.094 (-0.59) ^{***}	-0.070	0.91	-	-	
Meetings				0.158 (0.34)	0.012	0.95
Memberships				-0.084 (-2.23) ^{**}	-0.006	0.91
Money Contribution				-0.494 (-2.14) ^{**}	-0.037	0.609
Days Contribution				.0006 (0.73)	0.00005	1.00
Collective Action for Benefits				-0.234 (-2.39) ^{***}	-0.034	
Risk sharing				-0.103 (-2.00) ^{**}	-0.060	
Education	-0.009 (-.81) ^{***}	-0.007	0.05	-0.102 (-3.93) ^{***}	-0.007	0.903
Household Size	0.439 (7.07) ^{***}	0.033	1.55	0.497 (7.51) ^{***}	0.037	1.64
Age of Head	-0.037 (-1.54)	-0.003	0.96	-0.031 (-1.26)	-0.002	0.97
Age ²	-0.00002 (-0.16) [*]	-2.26e-06	0.99	-0.0001 (-0.56) [*]	-7.85e-06	0.99
# Earners	-0.316 (-2.34) ^{**}	-0.024	0.73	-0.380 (-2.75) ^{***}	-0.029	0.68
Assets	-0.331 (-4.78)	-0.025	0.72	-0.370 (-5.13) ^{***}	-0.028	0.69
Part in Ag Activity	1.014 (4.08) ^{***}	0.077	2.76	1.117 (-4.44) ^{***}	0.084	3.05
Urban	-0.053 (-0.22)	-0.004	0.95	-0.065 (-0.27)	-0.005	0.94
CONSTANT	0.530 (0.059)	-	1.70	-0.062 (-0.07)		0.94
No. of Observations	1049			1049		
Log Likelihood	-274.71			-269.38		
Pseudo R2	0.33			0.42		
Percentage Correct Predictions	89.68			90.16		

Note: 1. Probability derivatives at the mean of each explanatory variable (or for 0 to 1 change for dummy variables) and z-scores in parenthesis based on robust standard errors.

contributions to organisations and groups are also less likely to be poor than those that do not. The marginal effects show that they are 3 percent less likely to be poor than other households in the sample. The contribution of volunteer days and meeting attendance however do not matter as indicated by an insignificant coefficient for the variable in the equations.

Two additional variables one measuring risks sharing and collective action to deal with adverse circumstances are included to see their impact on poverty. Both are significantly and negatively related to the probability of being poor. Therefore,

households with social capital, translated into receiving help in difficult times of need are less likely to be poor than those who do not have this networking at their disposal. The marginal effects show that households who receive help through collective action are likely to be 3 percent less poor than other households. Similarly the effect of social capital where households are aided through collective action by associations is highly significant. Such households are 6 percent less likely to be poor. This is a powerful result of our analysis and highlights the crucial role social capital can play in the fight against poverty in Pakistan and has policy implications for poverty alleviation strategies in the country.

A number of household and individual characteristics are also included in the logit model to test their association with the probability of being poor. Education of has a highly significant and negative coefficient indicating that households with educated heads are less likely to be poor. However, the marginal effects are small. The effect of the education variable is much smaller than that for the social capital index variable (Model1). This result is significant for Pakistan showing a much higher and powerful significant negative effect of social capital on the poverty status of households. Household size is positively and significantly related to the probability of being poor with a one unit increase in size leading to more than 3 percent increase in poverty. Age and squared term of age both representing life cycle do not show significant effects.

The number of earners in the household and the asset endowments both representing higher incomes in the households show that household with more earners and assets are less likely to be poor. The marginal effects show a negative effect of around 2 percent for both the variables representing and income generating capacity and wealth of the household, in both the models.

The dummy for participation in agriculture activities has a positive and significant effect on poverty indicating that such households are more likely to be poor. The urban dummy shows an insignificant effect on the probability of being poor.⁶

6. CONCLUSIONS AND POLICY IMPLICATIONS

The paper presents a contribution to the literature on social capital in Pakistan by including it in the analysis of income and poverty and providing empirical evidence on the subject at the household level. The results of the analysis indicate that social capital is an exogenous variable in the expenditure equation and that there is no simultaneity or two way causality. The results further show that social capital and the human capital both have a significant and positive effect on household welfare and that the returns to both forms of capital are similar. Social capital as measured by heterogeneity of the groups also shows significant positive effect on household welfare indicating that more the diversity in composition of a local group or organisation the more group benefits collectively. Household welfare is also influenced strongly by the household's demographic characteristics. As expected larger households have less welfare. Households with older heads are better off and that their welfare does not diminish with age. Household's welfare also depends upon where the household is located and urban households are better off compared to rural households.

⁶ Our sample of households is not representative and the results should be looked at in context only.

The results of poverty and social capital analysis indicate that households with social capital (measured in different ways) at their disposal are less likely to be poor. The social capital index has a significant negative impact on poverty of a household. Membership density and cash contributions, disaggregated measures of social capital are also associated with lower poverty levels. Social capital has a much larger impact on poverty than human capital. Social capital translated into risk sharing in time of disaster, job loss, and illnesses and collective actions to raise voices for common problems are likely to have a negative impact on household poverty. This is a powerful result of our analysis the issue needs to be investigated through research based on more representative data in the country.

The research presents some interesting results which are not sufficient to base policy recommendations on but they present some important considerations for policies in Pakistan. Many policy lessons can be learnt from these results and can facilitate more informed policy making. In developing countries like Pakistan social capital is important for development. Individuals are contributing by participating in networks and associations but the government needs to do more since market is not likely to create enough social capital. The results of the paper suggest that social capital may be the missing link in the analyses of poverty and welfare in the country. There is a need to promote social networks for raising the living standards of the poor and bring the social capital perspective into policies. The government should facilitate the development of regions by relying on social networks and improving the welfare of people by working through networks and organisation. If these associations and networks get the support of the local, regional and national governments and work through community leaders, collective social action can be instrumental in increasing the welfare of weaker sections of these communities. Since social capital has a significant impact on the welfare of the households and negative impact on poverty policies to improve the human capital in Pakistan have to be accompanied by policies to improve social capital as well. Investing in education only will not work to get development on track. More attention needs to be devoted to the development of social network in the rural areas of the country.

APPENDIX

A Summary Statistics

Variable Name	Variable Description/Unit of Measurement	N	Mean	Std. Deviation
Social Capital Index	An additive social capital index based on density of membership, meeting attendance, cash and work contribution	1050	68.3924	2.751
Heterogeneity Index	An index measuring diversity of a group based on ethnicity, education, income and political affiliation	1050	6.3876	1.535
Meetings	# of meetings of group attended by any household member in last 12 months	1050	1.07	84.690
Membership Density	# Number of organisations/groups household members are members	1050	2.31	6.68
Cash Contribution	Cash contribution in rupees to group in last 12 months	1050	1891.4333	870.79932
Days Contribution	Days of work contribution by household members to the group in last 12 months	1050	112.35	136.27
Education of Head Years	# of years of education of head of the household	1050	5.11	3.004
Household Size	# of family members in household	1050	5.90	2.022
Age	Age of the head of household in years	1049	45.02	9.80
Number of Earners	# earners in household	1048	1.88	1.03
Urban Dummy	Dummy for Rural/Urban, Urban =1	1050	.8790	.32623
Asset Index	An asset index calculated through factor analysis based on ownership of durable assets (car motor bike, refrigerator, sewing machine, television, air conditioner, computer cell phone, tractor, cart)	1050	1.56	0.3811
Risk Sharing	Dummy for risk sharing measured as receiving help from the group in times shocks or disaster =1	1050	0.423	2.30
Collective Action	Dummy for collective action measured as collective action taken by group =1	1050	.3390	.47361
Trust	Dummy for trust measured as trust in government and other organisations =1	1050	0.53	4.499

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