

AN AGGREGATE MODEL OF SOCIAL CAPITAL AND HOUSEHOLD WELFARE IN PAKISTAN

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The research has been undertaken on social capital with reference to developing countries context like Pakistan, and focuses on how the existence of social capital can lead to welfare of the households and their development. A social capital index is developed which is based on household level data collected across socioeconomic clusters, in and around the cities of Karachi, Lahore and Quetta. The relationship between the Social Capital Index and household welfare are analyzed in detail. The major results indicate that social capital together as in an additive sense represented by the social capital index has impact on welfare of the households. Heterogeneity of social capital as measured by the Heterogeneity Index (showing differences in income, ethnicity, kin and religion) shows that the households do not benefit much from being members of associations or organizations which are homogeneous in terms of their own characteristics. The study also highlights the urban rural differences. The results also indicate that social capital does not impact through human capital as represented by education but significantly impacts household welfare separately. The results of the study point to some useful policy implications. They throw light on how households can improve their welfare through associations and interactions with others. The results of the research may be useful in highlighting how the government can better target programs for development of social capital in the country.

I. Introduction

It has been increasingly recognized that social capital has a vital role to play in enhancing a nation's productivity and development, especially in context to the developing countries. The idea behind this is that the traditional inputs of land labour and capital are unable to explain differences in economic outcomes across different regions and countries and the role of social capital is important. Human capital and physical infrastructure need to be accompanied by "social capital" in order to reap the full benefits of any investment.

Recently, much interdisciplinary work has been undertaken on the subject. Economists, sociologists and anthropologists have all written extensively on it.

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Therefore, there is a growing literature on social capital theory as well as empirical work. However, social capital is a complex term as it is evident from many definitions of the term found in the literature. Still, there is also no consensus on the exact definition of the term. Various studies have adopted different definitions depending upon the context and culture, and setting the field of study; and the purpose of investigation.

In the existing literature social capital is generally characterized by: (i) groups and networks, (ii) trust and solidarity, (iii) collective action and cooperation, (iv) information and communication, (v) social cohesion and inclusion, and (vi) empowerment and political action; all of which are important for advancement in material gain and welfare [Ian et al. (2001), and Abdul-Hakim et al. (2010)].¹

The definition which is adopted in this paper is based on how people interact with each other as defined by Dekker and Uslaner (2001). “Social capital is about the value of social network, bonding similar people and bridging between the diverse people, with norms of reciprocity” and that social capital is fundamentally about how people interact with each other.

This paper investigates whether social capital has a positive and significant effect on household welfare in Pakistan and the role which it plays in increasing welfare of households. A social capital index is developed and based on household level data collected through a primary survey of households in different regions of Pakistan. A relationship between measures of social capital and household welfare is estimated through an aggregate model.

The paper is organized in the following way. Section II provides theoretical foundation and a brief review of the relevant literature. Section III discusses the sources of data and the methodology used for estimation. Section IV gives the results of analysis; and finally Section V presents the conclusions and some policy implications of the research.

II. Theoretical Framework and Review of Literature

The theory of social capital is based on the idea that institutions play a major role in sustaining the development process and that social capital comes from a network of social relationship or connections which lead to commitments and trust. Theoretical base for social capital can be understood through the theoretical formulations of Bourdieu Coleman and Putman. Most of the empirical work also follows these formulations in some sense. According to Bourdieu (1986) social capital is + defined as ‘the aggregate of actual potential resources which are linked to possession of a durable network of more or less the institutionalized relationships of mutual acquaintance or recognition’. This formulation of social capital is related

¹ See, Section II on Review of Literature.

to the size of network and also is based on the past accumulated social capital. The main reason that people engage in networks and maintain links with others is because they profit from it, not necessarily the economic profit. The central notion of Bourdieu's theory is the differential distribution of potential and control of social space, and the resources.

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 Coleman, social capital is anything that facilitates individual and collective action generated by networks of relationships, reciprocity, trust and social norms. Coleman adopts a middle line between functionalist view of social action which is conditioned by social structure; and the economic rational theory which suggests that actors' goals are determined by utility-maximizing pursuit of self-interest. For Coleman, social capital is a productive resource which is used for achieving particular ends. Putnam (1993) refers to social capital as "features of social organizations, such as networks, norms and trust which facilitate action and cooperation for mutual benefits." These authors, (Bourdieu, Coleman and Putman) define social capital as a collective resource for achievement of certain goals.

Social capital operates at the macro, meso and micro levels. At macro level there are institutions like the government, rule of law civil and political liberties. There is an evidence that at the macro level social capital has an impact on the economic performance of nations. At the meso and micro level, social capital consist of network which governs the interaction between individual households and communities and find expression in local associations and local institutions. This paper is a study of social capital at the micro level and defines it as a resource which is created by formal and informal relationships between individuals within a community. There are various definitions of social capital across disciplines. Sociologists, economists and political scientists have all used different ways to describe it. However, sometimes the economists do not recognize that it is a multi-dimensional multi-disciplinary concept. "Social capital depends primarily on relation of an actor maintained with other actors" [Alder and Kwon (2002)] focus on the types of linkages. Exterior relations are described as binding by Woolcock (1998) and as communal by Oh et al. (1999). For Baker (1990) social capital is created by change in the association among participants. Portes (1998) defines social capital 'as an ability of actors to secure benefits by virtue of memberships in social network or other social structures'. OECD (2001) defined social capital as "networks together with shared norms, values and understanding which facilitate cooperation within or among groups." According to Stone (2001) "social capital consists of the network of social relations which are characterized by norms of trust and reciprocity."

Many studies in the literature investigate the effect of social capital on household welfare Narayan and Pritchett (1997) demonstrate that ownership of social capital by households in Tanzania has a strong effect on household welfare. Maluc-

cio et al. (2000) show a relationship between social capital and household welfare for South Africa. Grootaert (1999) and Grootaert et al. (2002) show the relationship to be strong. Olawuyi and Oladele (2012) revealed that socio-economic characteristics such as age, age-squared and household size make significant contribution to percentage changes in household welfare in Nigeria.

Social capital is an important determinant of poverty and other factors like education crime as indicated by the literature [Grootaert et al. (2001). Isham et al. (2000) argued that communities which are endowed with more social capital are in a better position to gain economic growth opportunities. Putman (1993) and (2002) showed that more social capital was associated with lower level of violent crimes, lower mortality rates and better education. Goetz (1997) also emphasized that social capital is vital to poverty alleviation in developing countries. In his research Goetz (1997) showed that efforts to increase education level of poor and job creation will not reduce poverty unless accompanied by social capital.

Grootaert's (2001) findings show that membership in local associations lead to higher incomes. Grootaert (1998) claims that certain forms of social capital can have strong positive effects on economic growth and contribute to sustainable development. Trust is a main element of social capital and that it is necessary for smooth running of civil society and facilitation of democracy [Putman (1993) and (1995) and Uslaner (2001)]. Trust is present in social networks and takes many forms [Cox and Caldwell (2000), Giddens (1990), Black and Hughes (2000)].

Wheatley and Zurcher (2009) analyzed the determinants of social capital in Tajikistan, Kyrgyzstan and Uzbekistan. To test whether networks, norms and trust are empirically related and the extent to which the four factors (culture, regime type, perceptions of government responsiveness and development interventions) predict levels of social capital. Their results show that trust and norms diverge from networking. Letki (2003) shows that exposure to the democratic processes and development of democratic institutions has an important positive influence on political participation.

III. Methodology and Data Sources

An aggregate model is estimated to see the effect of social capital and other factors on household welfare. Drawing on the methodology used by Grootaert (1999) and Narayan and Pritchett (1999) social capital is treated as any other form of capital that is available to the household and is combined with human capital to make decisions. The key assumption here is that the social capital and networks that are built with association and interaction with others benefits, the participating households and increases their welfares. The following reduced form equation is estimated:

$$\text{LnPExp} = \alpha + \text{TSCI} + \text{HC} + \text{OC} + \text{X} + \text{Z} + \text{u} \quad (1)$$

where:

- LnPExp = Log of household per capita expenditure,²
 TSCI = household endowment of social capital,
 HC = household endowment of human capital,
 OC = 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 is based on the theoretical assumption highlighted in the previous section that social capital is actual “capital” and therefore has a measurable return to the household. The dependent variable of the above equation is the natural logarithm of household per capita expenditure. The independent variables in the analysis include social capital (as measured by an index of social capital and a heterogeneity index)³ human capital, demographic variables, location variables, and physical capital. Human capital is measured by the years of schooling of the head of household. Demographic variables include household/family size, age of the head of household and its squared term (both are used to define the life cycle outcome of well-being of the household). Asset endowment is measured through an asset index computed through factor analysis. Location dummy is used to test for regional (urban/rural) differences.

The household level data is used in the analysis which was collected through a primary survey of households in and around the cities of Karachi, Lahore, and Quetta from the 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 the following modules in a structured questionnaire:⁴

- i) household composition and socioeconomic characteristics of households,
- ii) Participation in associations/institutions/NGOs, etc., and
- iii) perceptions of community organizations.

The primary survey based on the basic household and community level information was conducted by the Applied Economics Research Centre, University of

² Household’s level of per capita is assumed to represent the welfare level of household in the literature. (See, Narayan and Pritchett (1999).

³ See, Appendix [B(2)], for details on calculation of the index.

⁴ Copy of the Questionnaire is available from the author’s on request.

Karachi, in the year 2010. The data was collected through two types of information: one from the household and the other from the local organizations. The sampling framework used is a stratified random sampling approach. Clusters were identified on the basis of housing and other characteristics of houses. Overall 1,050 households were selected for interview. Households within a cluster were identified through the Monte Carlo method, where every 5th household was chosen for interview. For description of variables used in this analysis, see Table A-1 (Appendix-A).

IV. Results and Interpretations

Results of the analysis are presented in this section of the paper. The estimated equation is as highlighted in Equation (1) in the methodology section. The dependent variable is the natural logarithm of household per capita expenditure. The independent variables included in the analysis are household size,⁵ age and age squared of the head of household, and number of earners, asset endowments and location dummies. A location dummy variable is included in the specification to capture the effect of residence in the rural or urban areas. Social capital is measured by the social capital index and a heterogeneity index which is described in detail in Appendix-B. Human capital is measured by the number of years of education of the head of household.

The results of analysis are presented in Table 1, Table 2 and Table 3. The first set of results in Table 1 include a social capital index as a measure of social capital while Table 2 presents results which measures social capital through a heterogeneity index to see the effect of membership in different associations/organizations of which household is a member. The specification in Table 3 includes both the variables to see the effect of both the additive index as well as heterogeneity together.

The results indicate that social capital as measured by the index has a consistently significant positive effect on household welfare in all specifications of the equations (Table 1). The effect however is small as indicated by the small coefficient in all the equations. This is in contrast to the results of the studies for Indonesia by Grootaert (1999). The other measure of social capital, the heterogeneity Index (Table 2) however is not significant in any specification of the equations when used alone indicating that association with homogenous groups (with same ethnicity, income, religion) is not beneficial to households. It is interesting to note that when both measures of social capital are included simultaneously, they have significant and positive effects on household welfare (Table 3). This result indicates that social capital has a simultaneous additive impact and that more the heterogeneous, the members of a group are more and they can contribute more to the welfare of individual households in that group. The literature states in other countries homogenous

⁵ A number of well-known studies in the literature have used the household size variable in their analysis of social capital [see, (Narayan and Cassidy (2001), Grootaert (1999), Narayan and Pritchett (1997)].

TABLE 1
Household Welfare and Social Capital (Social Capital Index)
Aggregate Model

Dependent Variables → Independent Variables ↓ Equations	Log Per Capita Expenditure					
	1	2	3	4	5	6
TSCI	0.012 (2.31)**	0.12 (2.36)**	0.014 (2.597)**	0.011 (2.17)**	0.011 (2.24)**	–
EDUC	0.038 (14.218)***	0.038 (14.168)***	0.037 (14.466)***	0.038 (14.28)***	0.038 (14.23)***	0.038 (14.128)***
HHSIZE	-0.124 (-15.716)***	-0.124 (-15.68)***	-0.103 (-13.745)***	-0.124 (-15.698)***	0.123 (-15.66)***	-0.123 (-15.64)***
AGE	0.000 (0.137)	0.001 (0.221)	0.002 (0.558)	0.000 (0.105)	0.001 (0.188)	0.003 (0.060)
AGE ²	0.00007 (3.431)**	0.00007 (3.391)**	0.00009 (4.025)**	0.00007 (3.398)**	0.00007 (3.36)**	0.0008 (3.53)**
EARNERS	0.114 (7.142)***	0.115 (7.260)***	–	0.114 (7.169)***	0.116 (7.279)***	0.116 (7.25)***
ASSESTS	0.032 (1.569)	–	0.041 (1.989)*	0.030 (1.487)	–	0.033 (1.645)*
AGGRISCORE	-0.042 (-1.113)	-0.037 (-0.994)	-0.0048 (-1.252)	–	–	-0.029 (-0.776)
URBAN	0.122 (3.776)***	0.123 (3.8)***	0.121 (3.737)***	-0.124 (3.843)***	0.123 (3.80)***	0.123 (3.787)***
CONSTANT	7.340 (67.46)	7.375 (69.215)	7.302 (65.936)	7.347 (67.642)	7.38 (69.33)	7.435 (73.63)
No. of Observations	1036	1036	1038	1036	1036	1036
R ²	0.347	0.346	0.314	0.346	0.345	0.344
F-STATISTICS	60.620	67.797	58.969	68.030	77.342	67.240

Note: t-values, * significant at the 90 per cent level of significance, **significant at the 95 per cent level of significance and ***significant at the 99 per cent level of significance.

TABLE 2

Household Welfare and Social Capital (Heterogeneity Index)
Aggregate Model

Dependent Variables → Independent Variables ↓	Log Per Capita Expenditure					
Equations	1	2	3	4	5	6
HSFI	0.02 (0.229)	0.002 (0.23)	-0.00007 (-0.008)	0.002 (0.27)	0.002 (0.26)	–
EDUC	0.38 (14.2)***	0.038 (14.04)***	0.03782 (13.33)***	0.038 (14.15)***	0.038 (14.04)***	0.038 (14.128)***
HHSIZE	-0.123 (-15.63)***	-0.123 (-15.59)***	-0.182 (13.61)***	-0.123 (-15.63)***	-0.123 (15.59)***	-0.123 (-15.64)***
AGE	0.0001 (0.50)	0.0001 (0.136)	0.001 (4.76)***	0.00008 (0.29)	0.00001 (0.176)	0.003 (0.060)
AGE ²	0.00008 (3.55)**	0.00009 (4.15)**	0.00009 (4.15)**	0.00009 (3.52)**	0.00007 (3.49)**	0.0008 (3.53)**
EARNERS	0.116 (7.25)***	0.118 (7.37)***	–	0.116 (7.26)***	0.118 (7.39)***	0.116 (7.25)***
ASSESTS	0.033 (1.65)*	–	0.043 (2.083)**	0.032 (1.59)	–	0.033 (1.645)*
AGGRISCORE	-0.082 (-0.77)	-0.033 (-0.875)	-0.33 (-0.88)	–	–	-0.029 (-0.776)
URBAN	0.122 (3.76)***	0.121 (3.46)***	0.143 (4.32)***	0.124 (3.80)***	0.122 (3.76)***	0.123 (3.787)***
CONSTANT	7.42 (67.46)	7.46 (66.63)	7.41 (63.56)	7.42 (64.88)	7.46 (66.68)	7.435 (73.63)
No. of Observations	1038	1038	1038	1038	1038	1038
R ²	0.344	0.342	0.310	0.343	0.342	0.344
F-STATISTICS	59.726	66.740	57.740	67.150	76.260	67.240

Note: t-values, * significant at the 90 per cent level of significance, **significant at the 95 per cent level of significance and ***significant at the 99 per cent level of significance.

TABLE 3

Household Welfare and Social Capital (Additive Index)
Aggregate Model

Dependent Variables → Independent Variables ↓	Log Per Capita Expenditure					
Equations	1	2	3	4	5	6
TSCI	0.032 (3.929) ^{***}	0.032 (4.00) ^{***}	0.034 (4.09) ^{***}	0.030 (3.74) ^{***}	0.030 (3.84) ^{***}	–
HSIF	0.046 (3.177) ^{***}	0.046 (3.23) ^{***}	0.046 (3.177) ^{***}	0.044 (3.177) ^{***}	0.045 (3.127) ^{***}	–
EDUC	0.038 (14.18) ^{***}	0.038 (14.13) ^{***}	0.037 (13.96) ^{***}	0.038 (14.25) ^{***}	0.038 (14.12) ^{***}	0.038 (14.128) ^{***}
HHSIZE	-0.125 (-15.92) ^{***}	-0.125 (-5.91) ^{***}	-0.125 (-15.92) ^{***}	-0.125 (-15.89) ^{***}	-0.125 (-15.87) ^{***}	-0.123 (-15.64) ^{***}
AGE(55)	0.00001 (0.04)	0.00001 (0.12)	0.00001 (0.45)	0.00007 (0.03)	0.00001 (0.08)	0.003 (0.060)
AGE ²	0.00008 (3.53) ^{***}	0.00007 (3.50) ^{***}	0.00009 (4.14) ^{***}	0.00007 (3.49) ^{***}	0.00007 (3.46) ^{***}	0.0008 (3.53) ^{***}
EARNERS	0.114 (7.16) ^{***}	0.115 (7.28) ^{***}	–	0.114 (7.19) ^{***}	0.116 (7.30) ^{***}	0.116 (7.25) ^{***}
ASSESTS	0.029 (1.45)	–	0.039 (1.88) [*]	0.027 (1.35)	–	0.033 (1.645) [*]
AGGRISCORE	-0.053 (-1.40)	-0.049 (-1.30)	-0.059 (-1.54)	–	–	-0.029 (-0.776)
URBAN	0.11 (3.37) ^{***}	0.11 (3.33) ^{***}	0.29 (3.91) ^{***}	0.13 (3.47) ^{***}	0.11 (3.43) ^{***}	0.123 (3.787) ^{***}
CONSTANT	6.916 (40.26)	6.94 (40.59)	6.87 (39.2)	6.942 (40.63)	6.96 (40.92)	7.435 (73.63)
No. of Observations	1038	1038	1038	1038	1038	1038
R ²	0.354	0.347	0.321	0.352	0.351	0.344
F-STATISTICS	56.054	61.970	53.970	62.000	69.460	67.240

Note: t-values, * significant at the 90 per cent level of significance, ** significant at the 95 per cent level of significance and *** significant at the 99 per cent level of significance.

group of association is more beneficial for its members. The relative importance of social capital can be further understood by comparing the model with and without the social capital variable (columns 6, Tables 1, 2 and 3). Including social capital increase the R-squared from 0.344 to 0.354 when both measures of social capital are included in the equation.

The education of the household measuring human capital also has a consistently significant and positive effect on household welfare in all specifications of the equation. The coefficient is around 0.038 and is highly significant at the 99 per cent level of significance and does not change across different specifications or choice of the social capital measure. This result is different than those for other countries like Tanzania and Indonesia where the social capital effect is more than 4 times of human capital depending upon the specification of the equation and where exclusion of social capital variable reduces the effect of human capital considerably. In our analysis, excluding the social capital variable has no effect at all on coefficient of the education variable or its level of significance indicating that in Pakistan human capital does not operate through the network and association of households which are part of social capital, as it does in some other countries like Tanzania and Indonesia.

The results of the aggregate model show that household welfare is also influenced, strongly by the head of household's characteristics and household's demographic and socioeconomic characteristics. Larger households have lower welfare as indicated by the negative and significant coefficient of the household size variable (HHSIZE). This result is consistent with a number of other studies which show negative effect of household size on welfare.⁶ The household size effect is highly significant in all specification of the equation. The age and age-squared of head of household are included to test the life cycle effects. The age variable is however not significant in any of the specifications except when the number of earners (EARNER) variable is excluded from the equation in Table 2 (column 3). The age-squared variable of the head however, has a positive and strong significant impact on household welfare indicating that households with very old heads are better-off and that their welfare does not necessarily reduce with age.

Another variable included in the equations is the number of earners in the household. The effect is positive and highly significant indicating that more the number of earners in a household and as expected, the better-off are the households. The equation is estimated without the EARNER variable, as well, due to the endogeneity problem, as dependent variable in the equation is household expenditure [Tables 1, 2 and 3 (column 3)]. Excluding the variable it reduces both the explanatory power of the equation and its fit, as indicated by a lower R^2 and F-statistics.

An asset variable representing ownership of number of durables has also been included in the model. The variable is only significant in cases when equation with-

⁶ Narayan and Cassidy (2001), Grootaert (1999), Narayan and Pritchett (1997).

out the EARNER variable and without the social capital variable at the 10 per cent level of significance [Tables 1, 2 and 3 (column 2)]. The results show that including the variable in the equation, it lowers the R^2 and the overall fit of the equation does not improve as indicated by a higher F statistic.

The results of the analysis also indicate that household's welfare is affected by its location. Two variables are used to capture the effect; the rural/urban dummy variable (URBAN) and the AGGRIScore variable (which represents the durable asset accumulation in the rural areas from income earned from agriculture activities). The results indicate that the welfare of households in the urban areas is much higher than in the rural areas with a highly significant positive coefficient and the household welfare goes up considerably (variable has the largest coefficient in all specifications). The AGGRIScore variable is however not significant indicating that there is no significant accumulation of assets in the rural areas and essentially no difference between earning income from agricultural activities or from other sources.

V. Conclusions and Policy Implications

The results of the aggregate model indicate that social capital and the human capital both have a significant and positive effect on the household welfare. But in Pakistan, the human capital does not operate through the networks and associations captured in the social capital as measured by a social capital index and a heterogeneity index. The 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 decline with age. Household's welfare also depends upon, where the household is located in urban sector; these households are better-off as compared to rural households.

The research presents some interesting results which sometimes are comparable to results in the other developing countries and are different in other cases. The results of the analysis which are different than for other developing countries have unique policy implications. 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 associations but the government needs to do more. It can facilitate the development of regions by relying on social networks and improving the welfare of people by working through networks and organizations. If these associations and networks get the support of local regional and national governments the welfare of people can be increased. With the help of community leaders collective social action can be an instrumental in the betterment of large sections of these communities. Social capital has a significant impact on welfare of the households pointing to the fact that policies to improve human capital in Pakistan have to be accompanied by

policies to improve social capital as well. The result that human capital does not operate through the social networks and associations, as in other countries, emphasize the importance of devoting separate attention to building networks and associations in the country.

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APPENDIX – A**TABLE A-1**

Variable Description

Variables	Description
LnPExp	Log Per Capita Expenditure Household.
TSCI	Social Capital Index, calculated through additive dimensions of social capital.*
HSFI	Heterogeneity Index.*
EDUC	No of Years of Schooling Completed.
HHSIZE	Household Family Size.
AGE	Head of Household Age up to 55.
AGE ²	Head of Household Age square.
EARNERS	Number of earners in household.
AGGRISCORE	Score for Agricultural Assets.
ASSESTS	Assets of household.
URBAN	Rural/Urban Dummy.

APPENDIX – B**1. Construction of Social Capital Index (TSCI)**

The social capital index was calculated and its index was decomposed into six separate aggregative measures. Each of these establishes a relationship between the social capital and household welfare. The argument for its inclusion is that these are correlated with the household well-being.

The six household social capital measures are as follows:

1. Density of membership (MEMBERSHIP) - household's membership in different organizations/ associations.

2. Attendance in meetings (MEETINGS) - the number of times any household member has participated in any meeting of the organization/association in the last 12 months, prior to the survey.
3. Decision-making (DECISIONS) - whether the household member has a say in decision making of the organization/association.
4. Contributions in terms of money (MCONT) - the extent to which any member of the household contributes money to any organization/Association.
5. Contributions in kind (DAYSCONTR) - the number of days of work contributed by any member of the household toward the organization/association.

The above indicators are combined into an index. All indicators are assigned equal weight and then added to form a social capital index (TSCI).

2. Calculation of the Heterogeneity Index

Heterogeneity may have different effects depending upon the number of associations of which the household is a member. Heterogeneity index shows whether individual and household belong to an organization which has the same or different members in terms of characteristics like income, ethnicity, occupation, religion and kin. The index of heterogeneity shows discrete regional and socio-economic connection. It is based on the assumption that an internally homogeneous association makes it easier for members to trust each other, share common information and reach viable decisions. The heterogeneity index empirically assesses the impact of given belongings, like neighborhood, group, occupation, economic status, religion/sect, gender, age, level of education, ethnicity, etc. Heterogeneity index indicates that if all households and members of the community do not have a similarity in same kind of information and their verdicts are different, then they have a negative effect on the community welfare. However, if members of a household have similar thoughts or opinion, a positive effect on community welfare is observed. Heterogeneity was assumed to be high if a number of a household was member of the organization/association where rest of the group was from a different background in terms of village, kin, religion, income, occupation and age.