Identifying sources of social capital among the farmers of the rural Sindh province of Pakistan

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Abstract: Social capital is the spirit of social relations. While it contains social resources, and is interrelated with other forms of capitals, there are some delusions among the scholars over its generation. The study was conducted to identify the factors possibly involved in the fluctuation of social capital, in which the structural social capital, bonding social capital and linking social capital of the water-user associations were measured, and it was linked to various socioeconomic, demographic and farm characteristics of farmers. The multiple linear regression analysis revealed that the social capital was significantly influenced by the canal water availability, age, the drainage system availability, land holding, the farming experience and the family size. Furthermore, the canal water availability was found the most dominant indicator in relation to social capital to make it dynamic, in the rural Sindh province of Pakistan.

Key words: socio-economic status, rural community development, water management

The importance of individuals is distinct from the resources they have; as knowledge becomes the "human capital" and social networks become the "social capital" (Navarro 2008). Human capital is said to exist among individuals and it includes the education and work experience (Erickson 2008), whereas social capital is claimed to reside in the relationships (Woolcock 2001). Social capital is one of the most modern terms in studies involving economy, sociology and management which have engaged the mind of the scientists' subsequent natural, financial, physical and human resource (Mohsenzadeh 2011). The exact character of social capital depends upon the explicit norms of behaviour, the set of connections and the groups that distinguish the given setting, because it is a multidimensional and culturally specific notion (De Silva et al. 2007), and operates at the individual, community and institutional levels (Shan et al. 2012). It is a sociological notion which refers to the worth of social networking, the cooperation and trust to attain particular benefits and is used as the networking and social resources (Seibert et al. 2001).

The term "social capital" is described by a number of scholars in a numerous ways according to their perception and understandings. The French sociologist,

Bourdieu, who was one of the first authors to investigate systematically the properties of social capital, defined it as identical to "the sum of resources, actual and virtual, that grow to an individual or a group by virtue of possessing a strong network or less institutionalized relationships of reciprocal acquaintance and recognition" (Bourdieu 1980). It was also referred to as the capability of people to make effort with each other in groups (Fukuyama, 2002); the heart of social relations (Kenny 2006). Gertler et al. (2006) are of the opinion that social capital is the capital of poor people, which can be drawn on, to be increased or depleted (Jochum 2003). It is also reflexive in that it both causes or strengthens the networks of trust and mutuality and is the effect of the networks of trust or support (Yates and Jochum 2003). Social capital also refers to the norms and networks that develop the trust, reciprocity and cooperation (Christoforou 2013). Hawkins and Maurer (2012) termed social capital as the "intellectual currency". In short, social capital is a complex set of relationships, and it can be understood as a deal in social relations with the projected returns (Berzina 2011).

Regarding its output, the worldwide scholars seem to be optimistic that if used positively (Jackson 2013),

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it can produce both tangible (increased income) and intangible (increased subjective well-being) benefits (Klein 2013). Social capital is regarded as a public good (Castagna et al. 2012), and makes the value for communities that offers greater innovation outcomes (Eklinder-Frick et al. 2012). The true application of social capital facilitates the relations and networks that lead to the community and economic wellbeing (Giorgas 2007), and can be used for the eradication of poverty (Dietlind and Hooghe 2003). Wu (2008) revealed out that the inhabitants of a more developed region have its positive impacts. Marsden and Oakley (1998) described that the group cohesion or solidarity functions to handle the conflicts and tensions fairly is aligned to the process of development. Even children – driven social capital has positive effects on their academic achievements (Dufur et al. 2013). Farmer associations strengthen the social ties among small-scale farmers, which in turn generate social capital (Bengtsson 2010), eventually social networks play a significant role in the business process of an enterprise (Mačerinskienė and Aleknavičiūtė 2011), learning and thus in the farmers' adoption of new agricultural technologies (Thuo et al. 2014), ultimately helping in rising the well-being (Rudd 2000). Farmers' organizations established under a project in the Sri Lanka produced an unexpected and otherwise unobtainable rice production in an acute water-short season, due to the effective cooperation and an equitable sharing of the scarce water (Uphoff 2001). Social capital is considered as an asset that can be built up and yields a flow of benefits, in the shape of the collective action to manage a common resource, the observation of traders, reduces costs; enhances the skill of the villagers to manage the water supply systems (Grootaert and Bastelaer 2002). Collaborative approaches foster the development of the relational capital in the stakeholder networks, facilitating the integrated water management process (Benham et al. 2012), and try to resolve such disputes peacefully and collectively (Howgate and Wendy 2009).

Even if there is no shortage of social capital studies, yet hardly few sources are available about how social capital is actually generated or which factors are usually involved in the particular social phenomenon (Dietlind and Hooghe 2003). However, some of the scholars made an effort to unveil the process and came to a conclusion that social capital arises from the interactions among individuals within voluntary associations (Whiteley 1999). The voluntary association promotes cooperation among

the stakeholders and provides a framework in which trust can be fostered (Coleman 1988; Putnam 1993; Fukuyama 2002). Social capital is produced by the personality characteristics of an individual, the normative beliefs, and the membership of imaginary communities (Whiteley 1999). However, different cultures generate social capital differently (Dietlind and Hooghe 2003), but the educational levels must also be taken into consideration while dealing with social capital and participation (Helliwell and Putnam 2007). Schwadel and Stout (2012) emphasized to a large extent the importance of examining the interrelationships between the socio-economic status and social capital (Phongsavan et al. 2006). Hopefully, under the particular cultural environment of the Sindh province of Pakistan, certain socio-economic factors could also involve and influence social capital among the farmers in the water management that needs to be identified.

THEORETICAL FRAMEWORK

Mainly three most cited scholars have contributed to a greater level and presented it in a way that people may understand and enable to evaluate this complex social phenomenon, while arranged in a way in Table 1 that could be understood comprehensively. Putnam (1993) highlighted bonding and bridging social capital, followed by Nahapiet and Ghoshal (1998) who introduced the structural, relational and cognitive SC, while later Woolcock (2001) added linking social capital in this world of knowledge. A number of practical variables were shared, based on their understanding and experiences, and also supported by others. While conceptualizing social capital, Nahapiet and Ghoshal (1998) distinguished its three different forms; structural, relational and cognitive. According to them, the structural social capital is an overall pattern of connections (morphology or network configurations) among actors. The relational social capital is the kind of personal relationships developed through interactions within a group. The cognitive social capital is the ability of performers to build up mutually interpretive frameworks based on language, codes and narratives. According to Putnam (1993), people in a group or community are engage in a closed set-up and express strong ties within the uniform groups which refers to the bonding social capital; whereas the bridging social capital indicates having common characteristic networks among the

Table 1. Dimensions of Social Capital

Dimensions	Definition	Operational Variables	Direction	Source
Structural	Overall pattern of connection (morphology or network configurations) between actors	Density, connectivity, hierarchy, solidarity	horizontal	Nahapiet and Ghoshal (1998)
Relational	The kind of personal relationships developed through interactions	Respect, identity reciprocity, norms, friendship, trust, expectations	horizontal	Nahapiet and Ghoshal (1998)
Cognitive	Ability of actors to expand mutually interpretive frameworks based on language, codes and narratives.	Shared interests, communication, informal interaction	horizontal	Nahapiet and Ghoshal (1998)
Bonding	Involves closed networks and describes strong ties within homogeneous groups	Trust, reciprocity, norms, expectations, uniformity	horizontal	Putnam (1993)
Bridging	A member of one community has the right to use the resources of another community through the overlapping membership.	Membership frequency and extent of the relationship with other communities	horizontal	Putnam (1993)
Linking	Connections among individuals and groups in the hierarchy or power-based relationships	The extent of relationship with a number of formal organizations	vertical	Woolcock (2001)

members of one cluster and having rights to use the resources of another group through the overlapping membership (Narayan and Cassidy 2001). Later Woolcock (2001) divulged another form of social capital, termed as the linking social capital. He described that the linking social capital means the relations between individuals and groups in the ladder or power-based relationships. However, the relational, social capital proposed by the Nahapiet and Ghoshal (1998) and the bonding social capital pointed out by Putnam (1993) are a similar type of social capital. Characteristics of the community/targeted group, a community-run watercourse association, referring the bottom-up approach and homogeneity, the structural social capital, relational/bonding social capital and linking social capital were conceptualized to make the study comprehensive and widespread.

MATERIALS AND METHODS

Measurement of social capital

The fact is that social capital is a multi-dimensional term (Putnam 1993) and offers numerous variables to measure the concept, yet solid and relevant indicators must be selected that could also be aligned with the theoretical framework. Considering the structural social capital, the "group solidarity" was chosen as

Coleman (1988) declares that the network 'closure' is based on robust interconnected social ties, Uphoff (2001) describes it as the roles, rules, precedents and procedures, while Marsden and Oakley (1998) indicated that the group solidarity is one of the potential variables, however, neglected sometimes, to measure the social capital. Capturing the concept of the relational/bonding social capital, 'trust' was selected the same as suggested by different scholars and researchers (Coleman 1988; Putnam 1993; Uzzi 1996; Snijders 1999). Coleman (1988) standard provides symbolic signs of benevolence which are most frequently found in organized networks. Trust is observed as the most imperative norm because it makes possible 'the exchange of resources and information that are key to high performance' (Uzzi 1996). Finally, "networking" with formal organizations was deemed to evaluate it, reflecting the linking social capital proposed by Woolcock (2001). Jennifer and Brian (2014) also claimed the role of networks and relational perspectives in the conceptual and empirical 'links' between the levels of analysis. In addition, first two types of social capital function as the horizontal and later (networking) work as the vertical social capital of the community (Beugelsdijk and Smulders 2003). The horizontal social capital refers to the connections among groups that have an identical standing in the community, while the vertical indicates the interactions contained by a hierarchical society (Whitley and McKenzie 2005). The cognitive and bridging

social capital was not included to measure the social capital intentionally, as the watercourse association does not allow to any farmer to become its member unless the member does occupy the agricultural land/command area under the jurisdiction of the particular watercourse.

Sampling method, sampling size and questionnaire

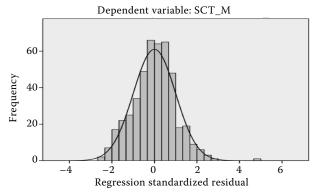
A study was conducted in the Sindh province of Pakistan using the multi-stage cluster sampling method. In the first stage, 8 canals out of 14 were randomly selected. In the next step, one distributory/minor from each canal was randomly selected. In the following, 6 watercourses from each distributory/minor were considered with the segregation of 2 watercourses each from head, middle and tail. At the same time, an equal representation of watercourses from the left and right side was assured. Finally, 48 watercourses were selected, while the sample size of 500 respondents was considered to study at the 95% confidence level and ±4.38 confidence interval (Krejcie and Morgan 1970). Finally, 457 (91.4%) respondents agreed to become the respondents. An interviewed method, pre-determined questionnaire was developed keeping in mind the objectives of the study. Answers of the questions were collected using the 6 points (Strongly Agree to Strongly Disagree) Likert scale, the openended numeric and categorized (yes/no) options.

Validity and reliability

The validity of the questionnaire was established by the PhD supervisory committee, the previous literature and theory. However, the reliability of the instrument/ scale was measured during the data analysis, by applying the Cronbach's Alpha to the variables after putting initially 50 questionnaires into the SPSS-20. The reliability test was applied to the variables and found the results as follows; trust (10 items) 0.943, group solidarity (17 items) 0.922, and networking (9 items) 0.716.

Table 2. Normality Test of Social Capital Elements

S. No.	Participation	Mean	Median	Skewness	Std. Error
01	Group Solidarity	64.87	66.00	-0.443	0.228
02	Trust	30.63	31.00	-0.239	0.228
03	Networking	15.01	13.00	0.989	0.228



Mean = -3.27E-15; Std. dev. = 0.993; N = 456

Figure 1. Histogram of Normality Test

Normality

After filling in 457 questionnaires and prior to anticipating the data analysis (Multiple Linear Regression), the normality test was applied to know the distribution of data. Figure 1 and Table 2 further elaborate the normality test, the skewness value showing the normal distribution of data between +1 to -1.

RESULTS AND DISCUSSION

A multiple linear regression analysis was applied using the "enter" method to evaluate the influence of demographic and socioeconomic variables of the farmers on social capital in the water management activities at the watercourse level. Subsequently, the scholarly approach to investigate social capital and the scientific method for data collection and analysis was used. The results of the study show in a way, which not only demographic and socioeconomic indicators are responsible for the generating of social capital, but for the specific study some agricultural or professional indicators could also be applied in this mechanism. The first round of the data analysis was conducted to ensure no violation of the assumptions of *normality*, linearity, multicollinerity and homocedascity. The results finally extracted are presented in Table 3.

The regression equation predicting social capital is: $SCT_M = 1.086 + (0.218) Age + (0.074) Family$ Size + (0.090) Land Holding + (0.271) Canal Water Availability + (0.317) Drainage System Availability +(0.054) Farming Experience. Little more than 24% of the total variance in social capital was accounted for by the age, family size, the total land holding, the canal water availability, the drainage system availability and the farming experience, F (6, 449) = 23.781, p < 0.05. The correlation between the canal water availability (β = 0.369, p < 0.05), age (β = 0.276, p < 0.05), the drainage system availability ($\beta = 0.246$, p < 0.05), the total land holding ($\beta = 0.172$, p < 0.05), the farming experience (β = 0.146, p < 0.05), the family size (β = 0.111, p < 0.05), and social capital was statistically significant in the studied vicinity of the Sindh province of Pakistan. However, no variable was found to have the negative relationship with the dependent variable.

Though not many studies are available about the factors responsible in the generation of social capital (Dietlind and Hooghe 2003), yet it was suggested to consider examining the interrelationships between the socio-economic status and social capital (Phongsavan et al. 2006). In the cultural context of the Sindh province, the results of the study match with some scholars as indicated in their studies. They were of the opinion that age (Paul 1999; Whiting and Harper 2003; Gregson et al. 2004), education (Whiteley 1999; Gregson et al. 2004; Helliwell and Putnam 2007), the socioeconomic status (Phongsavan et al. 2006), and the personality characteristics (Whiteley 1999; Phongsavan et al. 2006) play a considerable role in the generation of social capital. Furthermore, Saidu et al. (2014) reported a negative contribution of education in the participation in Nigeria. Likewise, the study revealed the age, family size, the total land holding and the farming experience as significant variables in this regard. In addition, all these indicators were directly proportional to the dependent variable. No variable was found to have the negative relationship with the dependent variable. However, the water canal availability was found the most dominant indicator, and it was not claim ever before, including the drainage system availability, by any other researcher to enhance the processes. The rational about the results could be that as a result of these indicators, the farmers may be enjoying a higher level of the socioeconomic status in the society; hence they contribute to the creation of social capital as indicated by Phongsavan et al. (2006). The satisfaction over the canal water availability refers to more land to irrigate and a higher production. At the same time, the drainage system works during a flood situation to save the crops and also facilitates to reduce the salinity, ensuring a higher output or production. Ultimately, these elements could help to increase in the socio-economic status of a farmer in the studied area of the Sindh province of Pakistan. However, the study did not gather the information regarding the income of the farmers, since the respondents were either reluctant to share the information on their earnings or lacking the proper expenditure details. Yet, the researcher was guided through the socio-economic indicators like education, the house structure, the residential locality and facilities, the professional experience, land holding, etc.

CONCLUSIONS

It was concluded that some of the demographic, socio-economic and irrigation indicators have strong relationships in producing social capital among the

Table 3. Factors Affecting Social Capital

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	В	Std. Error	Beta		Ö
(Constant)	1.086	0.148		7.353	0.000
Age	0.218	0.051	0.276	4.259	0.000
Family Size	0.074	0.028	0.111	2.632	0.000
Total Land Holding	0.090	0.024	0.172	3.748	0.000
Canal Water Availability	0.271	0.032	0.369	8.438	0.000
Drainage System	0.317	0.056	0.246	5.675	0.000
Farming Experience	0.054	0.023	0.146	2.319	0.021

Method = Enter, $R = 0.491^a$, $R^2 = 0.241$, Adjusted $R^2 = 0.231$, F = 23.781, Sig = 0.0001

farmers of a watercourse association. For the information of any layman, it is summarized that the comparatively older farmers, those who occupy a relatively greater agricultural land with the reasonable farming experience and inhabited in the company of an extended family/larger family size may generate more social capital under the local culture of the Sindh province of Pakistan. However, the availability of the surface/canal irrigation water and the drainage system must also be ensured.

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