

Modern farming and cooperation: A sociological analysis of farming families in rural Punjab, Pakistan

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Abstract: Agriculture is the most important element of social organization in rural Pakistan and the main source of income for rural population. The mode of agriculture determines the socio-cultural networks of farming in the village. Socio-cultural values have been attached with farming. Modern farming affects socio-cultural values and encourages capital intensive farming. Punjab is the biggest province of Pakistan having 67 % population living in the rural areas where kinship, cast and Biraderi have been particular complex contexts based on specific socio-cultural cooperation in the farming activities. There is no doubt that modernization of agriculture has been a successful, but only in the limited terms. However, approach of modernization of agricultural research and development is inadequate particularly in heterogeneous environment of Pakistan where informal cooperative influence the farming practices. This research paper has been extracted from the doctoral study of the research. This research study focuses on the third. This study deals with how modernization of agriculture is affecting the farming related socio-cultural local cooperative networks, exchange of labor among farming families, sharing of indigenous knowledge, seed, dairy products, animals and vegetables as well. Such cooperation occurs, seasonally and occasionally among the farming families. The main goal of this study is to enhance productivity keeping in view the cooperative networks among the rural people in Punjab, Pakistan. The research was conducted for doctoral dissertation in 2018 in the rural Punjab, Pakistan

Key words: Cooperative networks; Family farming; Rural social organization; Sustainable agriculture

1. Introduction

This study deals with the socio-cultural value of family and *Biraderi* cooperation in the farming. Socio-cultural values determine farming patterns. These patterns are carried out by the local, social and cultural institutions. Family, kinship and clans are socio-cultural intuitions in rural Punjab, Pakistan. Family and *Biraderi* labor have been working as social capital in farming. Farming has been socio-cultural activity in rural Punjab (Strange, 2008). Agriculture is not just an economic activity but it is a social activity as well. Social activities are performed within the social networks of socio-cultural institution.

In Pakistan, Family, kinship, clan (*Biraderi*), community (Villages), and class are the social institutions that form a bridge between individual and national society. They are the building blocks of social organization and anchors of the cultural system. The tribe or caste is losing influence over everyday life and social relations. Yet individuals remain deeply embedded in family and kin groups and sentiments nurtured in these relations are carried into friendships, social networks, and associations (Qadeer, 2006).

In the pursuit of sustainable agriculture, year of 2014 was declared by FAO as family farming year on the global level. Family cooperation in farming and family farming is linked with traditional social organization in Punjab, Pakistan which is an agriculture country and agriculture is the life line of country's economy (Hanif, 2005). A segment of the population (about 67%) lives in rural areas. Rural people directly or indirectly dependent on agriculture for their livelihood (Baig, & Khan, 2006). Agriculture is a dominant force driving force of livelihood for the population (Baig, & Strayquadine, 2011). Agriculture is the source of the livelihood of almost 44.7% of the total employ labor force in the country. Agriculture is the largest source of household income for 38 million Pakistanis, including 13 million (about 40%) of the poorest are living in the rural areas of the country (World Bank, 2007).

Punjab is the biggest province of Pakistan having 67 % population living in the rural areas where kinship, cast and *Biraderi* are the socio-cultural capital for the agrarian activities. Social capital contributes to learning through interaction or participation in the practices of the community. Building social capital to enhance leaning depends on shared language, experience, trust and commitment to shared values (Kilpatrick, 1999). Human and social capital may interact to produce

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joint effect on productivity. When social capital interacts with human capital, the transfer of knowledge depends on the human capital of the recipient; the more you know, the more you will get benefit from others, knowledge (Greve, 2010). This interaction effect may create higher productivity (Huang, Brink, & Groot, 2009). According to one study, before industrialization of agriculture in Mexican community, family members carried out sowing, cultivation, wedding, harvesting, and other activities involved in the management of traditional agriculture system and community members organized into cooperative networks or mutual aid systems (Korsback, 1996). In rural Punjab, among relatives and *Biraderi* members, mostly cooperation has been occurred in the seasons of harvesting and sowing the crops. More labor was required for sowing and harvesting the crops but sometimes, farmers cooperated with one another to irrigate the crops.

2. Review of literature

This study does not undermine the modernization of farming but its major goal is to enhance productivity without undermining the cooperative networks in the rural Punjab, Pakistan. Cooperation occurs when family, *Biraderi* and community members mutually involve in farming practices and other socio-cultural occasions. In rural Punjab, cooperation also occurs when families, *Biraderis* exchange dairy products like *Dasi Ghee* (vernacular oil), *Makhan* (butter), *Lussi*, *Dahee* (yoghurt), milk, animal dung. So, exchange of labor, knowledge, seed, produce, local agriculture technology to cooperate with another among the families in farming practices is the symbol of cultural life. Such sort of cooperation takes into place more within the kin groups. So, the social institution of kinship plays a vital role in farming practices. Industrial agriculture is affecting the local socio-cultural network of cooperation followed by change in the overall socio-cultural milieu of rural Punjab. While on other hand, the group and joint farming in Europe, America and Scandinavian countries is being promoted. Although, there is a great similarities between joint venture framing, group farming and the farming in which *Biraderi* has been involved as social unite in rural Punjab.

Kinship means social relations based on blood ties and sometimes marriage bonds. All societies have kinship institutions of one form or another. Historically, Pakistani society, including its regional and ethnic components, has had strong kinship structures. Kinship is the larger group surrounding a family with which its members are tied in bonds of mutual support, obligations, common identity, and endogamy. It is called *Biradari* (literal meaning brotherhood) in Punjab (Qadeer, 2006). Agriculture is the pillar of social organization in rural Punjab where most of the people are directly or indirectly involved in farming. Farming determines the pattern of interaction among the farming community

members in the villages. Mode of agriculture technology has changed patterns of farming followed by changing the patters of interaction among the relatives and *Biraderi* members in the villages of Punjab. The significant indicator of rural social organization is cooperation in farming. In the recent past, farming was playing a major role to make families and *Biraderis* gathered. There were cooperative networks among relatives and *Biraderi* members through which farming activities were performed. The role of kinship in farming was the significant factor for cooperation. In the context of cooperation, the questions were asked from the respondents to identify the current status of cooperation in farming.

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In Mexican Society a study is evidenced that fewer animals, however, means a reduction in the quantity of manure available to maintain fertility in the plot and an increased reliance on purchased, inorganic fertilizer. Another trend with serious implications is the increasing use of hybrid corn varieties all over Mexico, and the more recent introduction of genetically engineered seeds (Jacom, 2010). On the other hand in Cuban society at the end of the 1980s, Cuban agriculture was characterized by a high concentration of state-owned land (80% of total land area was in the state sector), high levels of mechanization (one tractor for every 125 ha of farming land), crop specialization, and high input usage (13 million tons diesel, 1.3 million tons fertilizers, US\$80 million in pesticides, and 1.6 million tons livestock feed concentrates applied per year) (Lage, 1992). It has been the cultural component of the rural Punjab that farmers used the animal manure in their fields. There was no need of chemical fertilizers. This study explains how social organization was retained by the animal manure. Farming families, *Biraderies* and villagers exchanged the animal manure with one another. This exchange of manure contributed in maintaining the social network among the farming communities in rural Punjab. The decline of animals decreased the manure led to weakening the social network followed by breakdown of the social organization.

The involvement of families in farming has been the socio-cultural tradition of rural Punjab. This tradition has been played a central role in the local cooperative networks of the village. The farmers did

not show their interest to involve in the farming. If the farmers do not involve their children in the farming activities, family farming will not be possible in the village of Punjab. Moreover, the dream of intensive farming in rural Punjab will not work. Sociologists have referred to family farming as an important cultural symbol (Sinnema, 2005). Another scholar (Taylor, 1954) encompassing an influential set of values (Pfeffer, 1989). The same thing was written by another writer (Rohwert, 1951).

Local farmers shared indigenous knowledge and skills of farming with each other in the village of Punjab. It has been the cultural capital in the villages. The interaction among the farming community members was based on sharing the indigenous knowledge. Modern/industrial agriculture has affected significant role of indigenous knowledge. So, the sharing of indigenous knowledge mechanism among the farmers was no more in rural Punjab. Indigenous or folk knowledge refers to local people's knowledge (Bellon, & Tyallor, 1993). Farmers usually derive their knowledge from their long interaction with local agro- ecosystem (Altieri, 1990) and also another writer (Barrios, 1994). Scientists, biologists, ecologists, ecological anthropologists and sociologists all share an interest in indigenous knowledge for scientific, social, or economic reasons

(Norttonet, 1998). Indigenous knowledge can facilitate a dialogue of rural population and developing workers (Warren and Rajasekaran, 1993). Therefore, indigenous soil knowledge is a knowledge –practice –belief complex (Steiner, 1998).

3. Material and methods

In the present study, multistage random sampling technique was used, because it was an appropriate technique for drawing sample from large population with limited time and cost. According to this technique, sampling was done in two stages. In the first stage, districts were selected and union councils were selected in the second stage. This sample was selected by using multistage random sampling technique. Initially Punjab was divided into three zones i.e. Northern, Central and Southern. For the appropriate representation, one district from each zone was taken randomly. Three districts *Jelum* from Northern Punjab, *Sargodha* from Central Punjab and *Dera Ghazi Khan* from Southern Punjab) were selected randomly from all 36 districts of Punjab. The Sampling plan is as under in the following Table1.

Table 1: First stage of multi-stage of sampling

Name of Area	Jelum	D.G.Khan	Sargodha	Total
Population	677419	1414724	1916838	4008981
Tehsils	3	2	3	8
Percentage	17%	36%	47%	100
Sample	75	165	210	450
Second Stage				
Union Councils	97	297	391	785
Sampled Union Councils	5	11	14	30
Per Union Council Probability	20=1	27=1	28=1	
Per Unit Population	15	15	15	

(Source: Census 1998)

4. Results and discussion

The statistics shows the potential of yield production, national average of yield and gap in yield on national level in Pakistan.

But the Statistical Book 2011 of the United Nations Food and Agriculture Organization (FAO) reveals that Pakistan is way behind in wheat, rice, sugarcane and pulses production tons in per hectare, both globally and regionally.

Modernization of agriculture is affecting the local cooperative networks among the farming families. Local cooperative networks includes, farming families exchange labor, indigenous knowledge, seed, dairy products, animals and vegetables as well. Such cooperation occurs seasonally and occasionally within the farming families in the villages. Cooperation in farming is socio-cultural value that integrates the rural people. The interplay of human and social capital in agriculture determines the sustainability of agriculture. It is argued that to reestablish a more direct connection between those

who grow the food and those who consume it, with a goal of reestablishing a culture of sustainability that takes into account the interactions between all components of the food system. Conversion occurs within a social, cultural, and economic context, and that context must support conversion to more sustainable systems (Stephen, 2010).

The role of kinship for cooperation has been the major significant factor in rural agrarian social organization. Cooperation among the families and *Bieraderi* members has also been socio-cultural value of the social organization in rural Punjab. This mutual cooperation has been symbolized and manifested in agricultural activities. The inclusion of families in the local cooperatives network has been played a significant role to increase interest in farmers for farming activities. In the recent past, exchange of labor, animals, dairy products, indigenous sharing of agriculture knowledge and local transport like Donkey carts, bicycles, oxen carts in farming activities among the villagers were compatible with the cultural life of the rural people .

Modernization of agriculture is affecting the socio-cultural value of family cooperation in farming

activities which leads inefficient use of social and cultural capital for farming in the villages of Punjab.

Table 2: PSBP Data

Sr. No	Crops	Potential yields	National Average	Yield Gap
1	Wheat	6.4	2.2	4.2
2	Rice	9.5	2.0	7.5
3	Maize	6.9	1.5	5.4
4	Sugarcane	160.0	46.0	114.0

(Source: PSBP, 2005)

Table 3: FAO Statistical Data

Ser. No	Yields	China	India	Bangladesh	Pakistan
1.	Wheat	4.7	2.8	2.4	2.6
2	Rice	6.5	3.3	4.2	3.1
3	Grains	5.2	2.5	2.3	2.2
4	Oil Crops	0.6	0.3	0.4	0.3
5	Pulses	1.2	0.7	0.9	0.6
6	Roots &tuber	17.8	20.6	17.7	21.6
7	Sugarcane	65.7	66.1	43.8	52.4

(Source: FAO Statistics, 2015)

The role of kinship as a social institution in farming is another indicator of social environment of the villages. Most of the farmers try their level best to involve the children in the farming activities. In rural Punjab, it has been the socio-cultural value of rural Punjab. Without the family member's involvement in farming practices, exchange of labor for cooperation among the families and *Biraderis* is no more. Mechanized industrial agriculture has played a key role decreasing human role in agriculture. The farmers in rural Punjab have detached their children from farming activities. The

socio-cultural role of kin groups in farming determines the family farming in Punjab. In the family farms, time passes slowly and experience accumulates into individual and collective memories. In the family farms, farmer is good at storytelling, and these stories bind communities, giving meanings and direction to lives. Today, family farmers mourn the decline of rural communities, no one has time to talk any more, and many people in rural areas no longer know anything about farming (pretty, 2002). Modernization of farming was fading that culture in the rural areas.

Table 4: Cooperation in Farming

Sr. No	Questions	Yes	No	Not Applicable
1	Do you give milk to your family/relatives	45(10%)	361 (80.2%)	44(9.8%)
2	Do you give milk to your <i>Biraderi</i>	21(4.7%)	385(85.6%)	44(9.8%)
3	Do you give <i>Makhan</i> to your family relatives	53 (11.8%)	354(78.7%)	44(9.8%)
4	Do you give <i>Makhan</i> to your <i>Biraderi</i>	26(5.8%)	381(84.7%)	44(9.8%)
5	Do you give <i>Dassi Oil</i> to your family or relatives	12(2.7%)	395(87.8%)	44(9.8%)
6	Do you give <i>Dasi oil</i> to your <i>Biraderi</i>	8(1.8%)	398(88.1%)	44(9.8%)

(Source: Survey Data)

Carrying animals was considered the major component of farming in the rural areas. Dairy was also used as entity of family cooperation among *Biraderi* in the village. Exchange of dairy products among *Biraderi* and family was also culture of cooperation in rural Punjab. The family and *Biraderi* members gave milk, *Makhan* and *Dessi Oil* to their relatives and *Biraderi* members who did not have animals. Modern agriculture technology reduced the role of animals that affected the culture of cooperation in terms of dairy. In the study area, it was identified that just 10 % respondents gave e milk to their relatives and 80.2 % respondents did not give milk to their family members but 9.8 % respondents were not having animals. Just 4.7 % respondents gave milk to the *Biraderi* and 85.6 % respondents did not give milk to their *Biraderi* members, 11.8 % respondents gave "*Makhan*" to their relatives and 78.7 % respondents did not "*Makhan*" to their relatives . Just 5.8 % respondents

gave *Makhan* to their *Biraderi* and 84.7 % respondents did not give *Makhan* to their *Biraderi* , only 2.7 % respondents gave "*Dassi Oil*" to their relatives and 87.8 % respondents did not give "*Dassi Oil*" to their relative and 1.8 % respondents gave "*Dassi Oil*" to their *Biraderi* and 88.2 % respondents did not give "*Dassi Oil*" to their *Biraderi* members. Exchange of fodder was also the culture of cooperation among farming families and *Biraderi* in rural Punjab, Pakistan. Those farming community members who did not have sufficient land in the village, they wanted to carry animals but they could not grow sufficient fodder animals. They were cooperated and gifted fodder by the other family farmers.

The above statistics shows that the rural people were having modern facilities. The modernization was creating the distance among the farming families in the rural Punjab, Pakistan. According to the survey data, most of the farmers were having

TVs, VCRs and computer facilities in their homes. Such things were diverting the minds of the farmers from farming. The farmers were having the dreams to be modernized leaving the farming fields. The culture of cooperation among the farming families

was fading. The socio-cultural tradition of exchanging the dairy products, animals and indigenous technology of farming was looking no more in the villages of rural Punjab, Pakistan.

Table 5: Data about domestic facilities

Sr. No	Questions	Yes	No
1	Do you have Iron for press at your home?	419 (93.1%)	31 (6.9)
2	Do you have you electric fans?	420(93.3%)	30 (6.7 %)
3	Do you have sewing machine?	343 (76.2%)	107(23.8%)
4	Do you have washing machine?	314(69.8%)	136(30.2%)
5	Do you have TV?	356 (79.1%)	94 (20.9 %)
6	Do you have tape recorder?	28.(6.2%)	422(93.8%)
7	Do you have VCR?	31 (6.9%)	419(93.1%)
8	Do you have mobile?	417 (92.7%)	33 (7.3%)
9	Do you have computer?	40 (8.9%)	41 (91.1 %)
10	Do you have Air Cooler?	44 (9.8%)	406(90.2%)
11	Do you have Refrigerator?	101 (22.4%)	349(77.6%)
12	Do you have Microwave?	17 (3.8 %)	433(96.2%)
13	Do you have Air Conditioned?	11(2.4 %)	441(97.6%)
16	Do you have PTCL Phone?	11(2.4 %)	439(97.6%)
17	Do you have toilet facility?	422 (94.4%)	25(5.6%)

5. Conclusion

In the rural Punjab, *Biraderi* was just like a family which was the considered the basic unit of social organization. Family and *Biraderi* had been the strong social and cultural capital for farming activities. Cooperation in farming activities among the farming families had been the socio-cultural values in the rural Punjab. Cooperation occurred when the farming families interacted with each other in farming. Mechanization of agriculture minimized the role of interactive process among the family and *Biraderi* members in farming. Also modernization of agriculture curtailed the role social and cultural capital in the study area. Cultural and social capital was used by the farming community as evidenced by the Scottish farming communities. In those communities, farmers exchange machinery, labor and skills of farming. Exchange of labor does not simply generate economic capital but It also has symbolic meanings through the practices and reciprocal social capital (social obligations) in the Scottish rural communities. Small to medium and low input farmers, social and cultural capital was more beneficial (Sutherland & Burton 2011).

Specifically, cooperation among family, *Biraderi* in farming activities had been source of interaction in the rural Punjab. Through the local cooperative networks, the *Biraderi* and family were mutually involved in farming practices and on other socio-cultural occasions. There were no formal networks in the villages. Even then, the farmers knew their responsibility and did their job in the harvesting and sowing seasons. According to one study, before industrialization of agriculture in Mexican community, family members carried out sowing, cultivation, wedding, harvesting, and other activities involved in the management of traditional agriculture system and community members organized into cooperative networks or mutual aid

systems (Korsback, 1996).In rural Punjab, the farmers exchanged family labor, fodder of animals, dairy products and local agriculture technology among themselves. Such kind of cooperation occurred within the farming families and *Biraderis* in the villages. Kinship as social institution played a vital role in farming practices. Modernization of agriculture minimized the role of labor, animals and traditional farming technology in the agriculture. Farming related local cooperative networks and interaction among farming *Biraderi* also condensed. So, modern agriculture affected the local socio-cultural network of cooperation followed by change in the overall socio-cultural milieu of rural Punjab.

6. Recommendations

Keeping in view the findings of study following suggestions are being proposed to execute at various levels and making effective policy for farming communities.

(i) Individual level

Firstly, most of the farmers are small holders in villages of Punjab, Pakistan. The farmers should have to work efficiently by using the family labor that would reduce input cost of mechanization. Secondly, farmers must have to irrigate their land in indigenous way by applying traditional knowledge when they cultivate the land. Thirdly, the farmers should have to keep animals so that they may utilize the animal dung in the farming fields. In this way, they can save input cost of chemical fertilizers.

(ii) Governmental level

Firstly, government should have to motivate the small holder farmers to use mechanization and chemical fertilizers on minimum level. Government can do such kind of work through the local village councils in the rural Punjab, Pakistan. Secondly,

government should have to restrict media promoting the chemical fertilizers. Thirdly, government must have to give directions to local village political councils and NGOs to conduct farming related socio-cultural functions in the villages of Punjab, Pakistan. In this way, the government can create interest in the farmers for farming.

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