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Behavioural Determinants of Functionality of Farmer Producer Organisations in Punjab

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ABSTRACT

Small and marginal farming communities of Indian agriculture account for more than 85% of the total farming households. They face the challenges of land fragmentation, high cost of inputs and inability to market their produce efficiently. To tackle these challenges, policy makers came up with the model of farmers' mutual cooperation through Farmer Producer Organisations (FPOs). This study conducted in Punjab analyses the behavioural factors responsible for functionality of FPOs. A random selection of 150 members from 5 functional and 5 non-functional FPOs (*i.e.*, 15 respondents from each selected FPO) was made and the respondents were interviewed personally. The findings revealed that the members (including management) of the functional FPOs had higher risk bearing capacity, greater economic motivation and more innovativeness as compared to the respondents from nonfunctional FPOs. Similarly, respondents from functional FPOs were socially, economically and managerially more empowered than the non-functional FPOs. Business skills of the members, including the managerial members, of functional FPOs were also better as compared to those from the non-functional FPOs. Regression estimates revealed that the functionality, better academic qualification, bigger land holding and joint family system were responsible for the higher net annual income of the respondents.

INTRODUCTION

More than half (58%) of the rural population in India is dependent on farming as the primary source of their livelihood. Very large proportion of the farmers in the country is small/marginal (>85%) while about 66 per cent of them have less than one hectare of land holdings (Census, 2011; Singh, 2012). About 15 to 20 lakh small and marginal farmers are being added every year due to fragmentation of land holdings (NAC 2012-13). Due to uneconomical scale of operations small holder farmers are financially losing in the process of input as well as output markets (Sawairam, 2015). Further, poor handling of pre and post-harvest farm produce, lack of processing, logistics and export infrastructure constitutes other constraints for such farmers (Kumar et al., 2019; Deka et al., 2020; Sahu et al., 2021). vis benefits of farmers' collectives, the government of India came up with the idea of Farmer Producer Companies (FPCs) with the amendment in Section IX A of the Indian Companies Act 1956. These FPCs are solely run and owned by the farmers and financially supported by the government and managed by the professionals. Policy makers have also ensured that these FPCs sustain the uniqueness of cooperatives while their regulatory structure is similar to that of the private limited companies (Mukherjee et al., 2020; Mwambi et al., 2020; Sawairam, 2015). FPC is a group of primary producers/ farmers that come together as a Farmer Producer Organisation (FPO) and register themselves under the Indian Companies Act 1956 as a producer company. FPO can be registered in initial stages as a society, co-operative society, trust and section-8 company according to their business activities and can convert

Past experiences of farmers' cooperatives in the state vis-à-

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from one form to another accordingly. The village level farmers' clubs/ groups can also come together and form an FPO and start under taking their collective activities in order to have adequate bargaining power. An FPO can address the challenges of small holder farmers by aggregating their produce in order to fetch better prices. The economies of scales in purchase of inputs, transport facilities, primary and secondary processing etc. results in reduction of cost of production/ marketing (Partiban et al., 2015; Mukherjee et al., 2019; 2020; Vinayak et al., 2019). Moreover, many government initiatives help the FPOs to develop their agri-infrastructure like siloes, processing plants, cool-chain logistics etc.

The concept of FPOs appears very appealing and attractive to ensure economic empowerment of small holder farmers through innovative and entrepreneurial initiatives. Entrepreneurial initiatives and farmers' innovations to fulfil this aim has been studied and documents by various authors (Shirur et al., 2016; Nain et al., 2018; Shirur et al., 2018; Nain et al., 2019; Shirur et al., 2019; Kobba et al., 2020; Nain et al., 2021). However, all the established FPOs are not in a position to operate efficiently and sustainably (Deka et al., 2020). It was imperative to study the determinants of sustainability of the operations of various FPOs as tremendous amount of public energy and resources have been deployed in this movement. Hence, this study attempts to analyse the determinants of the sustainability/ success of FPOs so that the policy makers can formulate better plans in the future.

METHODOLOGY

The study was conducted in the state of Punjab. List of registered FPOs in Punjab was obtained from the Small Farmers Agribusiness Consortium (SFAC) and the National Bank for Agriculture and Rural Development (NABARD). At the time of data collection (June 2019) 74 FPOs were registered under SFAC and NABARD. All FPOs' representatives were personally contacted in order to check the exact status of FPOs' functioning. The FPOs were classified under the categories of functional and non-functional FPOs. From this final list 5 functional and 5 nonfunctional FPOs were selected randomly, thus a total of 10 FPOs were selected for the present study. From each selected FPO, 15 members were randomly selected regardless of their designation/ positions in the FPO. Overall, a total of 150 respondent farmers constituted the sample of the study. An interview schedule incorporating all the variables pertaining to the purpose of the study was developed and data collected through personal interviews from the selected respondents. The entrepreneurial behaviour of the respondents was studied in terms of risk bearing capacities, economic motivation and innovativeness of the members of the FPOs. The risk bearing capacity of the respondents was taken as the degree to which the respondent was oriented towards risk and uncertainty and had courage to deal with the unforeseen problems emerging while working in the FPO. The economic motivation was taken as the degree to which an individual desires to increase income and maximize his profit while working in FPO. These variables were measured by modifying the scales developed by Supe (1969). The innovativeness of the respondents was studied as the degree to which an individual was relatively quick in adopting an innovation compared to the other persons of their social system.

It was measured by modifying a scale developed by Singh (1972). The responses to the statements of scales were recorded on a fivepoint continuum *viz*. strongly agree, agree, neutral, disagree and strongly disagree. On the basis of total score obtained the respondents were categorized into three categories *viz*. low, medium and high. A total of 5 statements were used to assess risk bearing ability of the respondents while 6 and 4 statements were used to study economic motivation and innovativeness, respectively (Annexure-1).

The impact of FPOs on empowerment of the respondents, in relation to their social, economic and managerial empowerment, was measured on three-point continuum *i.e.*, improved, remained same and can't say using frequency and percentage. Similarly, to study the business skills of the respondents the statements were analysed in order to measure the empowerment of the respondents, several statements were used. However, taking into considerations the adequacy of responses two most prominent statements for each of the three attributes of empowerment (social, economic and managerial) were selected (Table 2). Members of the FPOs also include management as the management positions are elected/ selected by the members from themselves only. Hence, whenever, findings of the study are discussed in terms of members the management is included among them unless it is imperative to specify.

For studying the effect of various socio-economic variables on the level of net annual family income of respondents, simple regression analysis was carried out. Chi square text was used to study the independence of responses, largely between the functional and non-functional FPOs. In order to study interdependence of various variables on each other Karl Pearson's Correlation coefficient (r) were also estimated.

RESULTS AND DISCUSSION

Entrepreneurial characteristics

The entrepreneurial characteristics in this study have been studied and discussed under three heads *viz.*, risk bearing capacity, economic motivation and innovativeness of the respondents.

A perusal of the data presented in Table 1 indicates that in case of respondents of functional FPOs, more than half of the respondents (53%) had high risk bearing capacity followed by 38.67 per cent with medium and only 8 per cent having low risk bearing capacity. However, in case of non-functional FPOs, large proportion (47%) of respondents had medium risk bearing capacity followed by 36 per cent with high and 17 per cent with low level risk bearing capacity. From these observations, it can be concluded that risk bearing capacity is an important factor behind sustainability/ continuity of the FPOs in the long run. Supe (1969) viewed economic motivation as profit maximization and the relative value placed by the farmers on financial goals. Six statements were taken to study the economic motivation (Annexure-I). The results presented in Table 1 show that 56 per cent respondents of the functional FPOs and 42.67 per cent respondents of the nonfunctional FPOs had higher economic motivation. It is worth mentioning here that in-spite of higher economic motivation of nearly 43 per cent respondents under non-functional FPOs the desired results could not be achieved due to non-availability of the

 Table 1. Distribution of respondents according to their entrepreneurial characteristics

| Entrepreneurial characteristics | | ctional (n ₁ =75) | Non-functional FPOs $(n_2 = 75)$ | | |
|---------------------------------|----|---------------------------------|----------------------------------|-------|--|
| | f | % | f | % | |
| Risk bearing capacity* | | | | | |
| Low (< 2.26) | 6 | 8.00 | 13 | 17.33 | |
| Medium (2.26-3.74) | 29 | 38.67 | 35 | 46.67 | |
| High (> 3.74) | 40 | 53.33 | 27 | 36.00 | |
| Economic motivation | | | | | |
| Low (< 2.50) | 4 | 5.33 | 10 | 13.33 | |
| Medium (2.50-3.50) | 29 | 38.67 | 33 | 44.00 | |
| High (> 3.50) | 42 | 56.00 | 32 | 42.67 | |
| Innovativeness* | | | | | |
| Low (< 2.19) | 19 | 25.33 | 26 | 34.67 | |
| Medium (2.19-3.81) | 17 | 22.67 | 24 | 32.00 | |
| High (> 3.81) | 39 | 52.00 | 25 | 33.33 | |

Note: Chi square test indicates that the entrepreneurial behaviour of the members of functional vis-a-vis non-functional FPOs were independent at * (10% level of significance)

needed platform to them in the form of a functional FPO. About 39 per cent of the respondents under functional FPOs and 44 per cent under non-functional FPOs were having medium level of economic motivation. Overall, it can be concluded that the respondents of functional FPOs were having higher level of economic motivation to remain active in the FPOs as compared to the members of the non-functional FPOs. The innovative behaviour of the respondents was measured by getting the responses on different statements given in Annexure-I. The findings given in the Table 1 reveal that majority of the respondents of the functional FPOs (52%) and non-functional FPOs (33%) were having high innovativeness followed by 23 per cent respondents of functional FPOs and 32 per cent respondents of the non-functional FPOs having medium level of innovativeness. Nearly 30% respondents of functional FPOs and 35 per cent respondents of the nonfunctional FPOs had low level of innovativeness. Overall, it can be concluded that the respondents from functional FPOs were having higher level of innovativeness compared to the respondents from the non-functional FPOs.

Impact of FPOs on empowerment of respondents/ members

The impact of the FPOs on social, economic and managerial empowerment of the respondents was estimated and results are presented in Table 2. The finding reveals that the respondents from functional FPOs improved their links with the key persons responsible for managing different activities of running an FPO by 92 per cent. Similarly, the bargaining power and marketing skills of the respondents from functional FPOs improved by 51 per cent. However, the performance of respondents from non-functional FPOs was much lower. On the front of economic empowerment about 57 per cent of the respondents from functional FPOs experienced enhancement in their purchasing power. The respondents from functional FPOs also got higher debt repayment capability/ higher saving ability (61% respondents). However by and large, there was a little change in the economic empowerment of the respondents from non-functional FPOs. In case of managerial empowerment, it was observed that 37% respondents from functional FPOs and 36 per cent respondents from non-functional FPOs improved their decision-making abilities. However, majority of respondents from functional and non-functional FPOs (i.e., 40% and 48% respectively) this ability remained same. The proportion of respondents with participation in FPO activities remained same for 55 per cent in functional and 83 per cent in non-functional FPOs. Interestingly 28 per cent respondents from functional FPOs improved their participation in FPO activities against nil in nonfunctional FPOs. Overall, it can be concluded that social, economic and managerial empowerments of respondents from functional FPOs was higher than those from the non-functional FPOs.

Business skills

Business skills constitute an important entrepreneurial characteristic of the persons. It is usually assumed that the innovators and early adopters have better business skills. Since business skills have a strong influence on the behaviour of an entrepreneur, it was considered important to analyse the selected respondents on this aspect too. It was studied on the basis of the responses of the respondents to the statements given in Table 3. It was found that the business skills of the respondents from the functional FPOs were better than the business skills of the respondents from the non-functional FPOs which ultimately affect the performance of the organisation.

Correlation analysis of the key studied variables was carried out in order to understand the interdependence between them for the respondents of this study. A strong negative correlation was

Table 2. Distribution of the respondents according to the impact of functional and non-functional FPOs on their empowerment

| Parameters | Functional FPOs $(n_1 = 75)$ | | | Non-functional FPOs $(n_2=75)$ | | |
|---|------------------------------|--------------------|-------------------|--------------------------------|--------------------|-------------------|
| | Improved f(%) | Remained same f(%) | Can't say f(%) | Improved f(%) | Remained same f(%) | Can't say f(%) |
| Social empowerment | | | | | | |
| Links with key person(s)*** | 69(92.00) | 3(4.00) | 3(4.00) | 17(22.67) | 49(65.33) | 9(12.00) |
| Empowerment in bargaining power/marketing skills*** | 38(50.67) | 12(16.00) | 25(33.33) | 12(16.00) | 57(76.00) | 6(8.00) |
| Economic empowerment | | | | | | |
| Enhancement in purchasing power*** | 43(57.33) | 18(24.00) | 14(18.67) | -(0.00) | 72(96.00) | 3(4.00) |
| Debt repayment capability/Higher savings ability*** | 46(61.33) | 13(17.33) | 16(21.33) | -(0.00) | 73(97.33) | 2(2.67) |
| Managerial empowerment | | | | | | |
| Decision making ability | 28(37.33) | 30(40.00) | 17(22.67) | 27(36.00) | 36(48.00) | 12(16.00) |
| Participation in FPO activities*** | 21(28.00) | 41(54.67) | 13(17.33) | -(0.00) | 62(82.67) | 13(17.33) |

Note: Chi square test indicates that the studied statements were independent in case of functional vis-à-vis non-functional FPOs at *** (1% level of significance)

Table 3. Distribution of the respondents according to the business skills among farmers

| Skills | Functional FPOs (n ₁ =75) | | Non-functional FPOs (n ₂ =75) | |
|--|--------------------------------------|------------|---|------------|
| | Frequency | Percentage | Frequency | Percentage |
| Do you package your produce attractively? | | | | |
| Always | 43 | 57.33 | 39 | 52.00 |
| Sometimes | 19 | 25.33 | 21 | 28.00 |
| Never | 13 | 17.33 | 15 | 20.00 |
| Do you seek information regarding produce prices from other markets? *** | | | | |
| Always | 19 | 25.33 | 12 | 16.00 |
| Sometimes | 39 | 52.00 | 27 | 36.00 |
| Never | 17 | 22.67 | 36 | 48.00 |
| Do you with hold supply of your produce till you get remunerative prices? *** | | | | |
| Always | 17 | 22.67 | 7 | 9.33 |
| Sometimes | 36 | 48.00 | 29 | 38.67 |
| Never | 22 | 29.33 | 39 | 52.00 |
| Do you adopt proper records of production/ marketing of your produce? *** | | | | |
| Always | 59 | 78.67 | 37 | 49.33 |
| Sometimes | 9 | 12.00 | 32 | 42.67 |
| Never | 7 | 9.33 | 6 | 8.00 |
| Do you go for collective sale of produce to generate bargaining power? ** | | | | |
| Always | 45 | 60.00 | 30 | 40.00 |
| Sometimes | 15 | 20.00 | 18 | 24.00 |
| Never | 15 | 20.00 | 27 | 36.00 |
| Do you opt to sell your produce in more than one market? ** | | | | |
| Always | 13 | 17.33 | 7 | 9.33 |
| Sometimes | 47 | 62.67 | 37 | 49.33 |
| Never | 15 | 20.00 | 31 | 41.33 |
| Do you estimate demand before sowing of the crops? *** | | | | |
| Always | 11 | 14.67 | 7 | 9.33 |
| Sometimes | 23 | 30.67 | 9 | 12.00 |
| Never | 41 | 54.67 | 59 | 78.67 |
| Do you plan and invest in agri-enterprises with higher future profitability? *** | | | | |
| Always | 17 | 22.67 | 8 | 10.67 |
| Sometimes | 43 | 57.33 | 35 | 46.67 |
| Never | 15 | 20.00 | 32 | 42.67 |

Note: Chi Square test indicates that the studied statements were independent in case of functional FPOs vis-à-vis the non-functional FPOs at *** (1% level of significance) and ** (5% level of significance)

Table 4. Karl Pearson Correlation coefficients (r) of various attributes

| | Age | Family size | Academic qualification | Land holding | Participatory decision making | Functional sustainability | Family type |
|-------------------------------|-----------|----------------|------------------------|-----------------|-------------------------------|---------------------------|----------------|
| Age | 1 | | | | | | |
| Family size | -0.070 | 1 | | | | | |
| Academic qualification | -0.795*** | 0.104 | 1 | | | | |
| Land holding | -0.046 | 0.586* | 0.104 | 1 | | | |
| Participatory decision making | -0.061 | 0.034 | 0.146 | 0.076 | 1 | | |
| Functional sustainability | -0.050 | 0.014 | 0.131 | 0.052 | 0.974*** | 1 | |
| Family type | -0.053 | 0.866*** | 0.106 | 0.670** | 0.050 | 0.027 | 1 |

Note: Correlation coefficients (r) indicate that interdependence between the selected variables studied in this table were statistically significant at *** (1% level of significance) and ** (5% level of significance) and * (10% level of significance)

observed between the age and academic qualification of the respondents indicating that the young members had higher academic qualification compared to the aged ones. Similarly, the bigger family size of the respondents had higher land holding size too. Participatory decision making was found to be very strong factor for functional sustainability of the FPOs in the studied area. The obvious findings such as bigger land holding size and family size of the joint families was also confirmed in this analysis (Table 4).

On an average the male members of the FPOs were earning income Rs. 35000 higher than the female members. However, the

estimate was statistically non-significant. The effect of age on income of the members of the FPO was insignificant. With every acre increase in the land holding the annual net income of the respondents increase by Rs. 63000. With each schooling year enhancement in academic qualification of the respondents the annual income increased by Rs. 80000. The average annual income of the respondents under functional FPOs was Rs. 88000 higher than the respondents under non-functional FPOs. The average annual income of the respondents living in joint families was Rs. 12000 higher than the respondents living in the nuclear family type (Table 5).

| Particulars | Coefficients | Standard error | t Stat | P-value |
|-------------------------------|--------------|----------------|--------|---------|
| Intercept | 0.704 | 1.290 | 0.546 | 0.586 |
| Age | -0.011 | 0.019 | -0.591 | 0.556 |
| Family size | 0.373 | 0.296 | 1.260 | 0.210 |
| Academic qualification | 0.805 | 0.041 | 19.790 | 0.000 |
| Land holding | 0.639 | 0.514 | 0.218 | 0.000 |
| Participatory decision making | -0.002 | 0.069 | -0.033 | 0.974 |
| Gender | 0.357 | 0.044 | 0.498 | 0.619 |
| Functionality | 0.881 | 0.395 | -1.833 | 0.009 |
| Family type | 0.124 | 0.363 | 3.834 | 0.000 |

Table 5. Estimates of regression analysis of dependence of income of the FPO members on various attributes

The coefficient of academic qualifications, land holding, functionality and family type variables were statistically significant at 99% level of tolerability.

CONCLUSION

FPOs have been proposed and supported in a big way as an important solution to the marketing problems of small and marginal farmers in India. In the state of Punjab 74 FPOs had been established by June 2019, however, a considerable number out of them had turned non-functional by that time. This study has analysed behavioural factors responsible for ensuring functionality of the established FPOs. Entrepreneurial characteristics/ behaviour was the most important factor responsible for ensuring continuity of the FPOs in the study area. Further, functionality/ continuity of the FPOs have also been responsible for improving socio-economic empowerment of the members of the FPOs. It was noticed that the managerial skills of the members have also been improved over the time in the functional FPOs. The study has clearly revealed the pattern of functional continuity of established FPOs. The results of the regression analysis showed that functionality (continuity), landholding size, academic qualification and type of family (joint families) had significantly positive effect on the overall net annual income of the respondents.

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Annexure-I S.No. Statements SA N DA SDA

Risk bearing capacity

- 1. A farmer should enrol with FPOs to avoid risk involved in marketing the produce individually.
- 2. A farmer who is willing to take greater risks than the average farmer usually does better financially.
- 3. It is good for a farmer to take risks when he knows his chance of success is fairly high.
- 4. It is better for a farmer not to try new practice unless most other farmers have used them with success.
- 5. Trying an entirely new practice in farming by a farmer involves risk but it is worth trying.

Economic motivation

- 1. The most successful farmer is one who makes the most profit.
- 2. A farmer should try new idea like enroll with FPOs which may earn him more money.
- 3. A farmer should enroll with FPOs to increase monetary profit in comparison to work individually.
- It is difficult for the farmers to enroll with FPOs unless he provides with some economic assistance like monetary help.
- 5. The sacrifices needed to get ahead financially not only help the farmer to reach that goal, but also help in building good character.
- 6. In deciding about making changes in his farm, a farmer's first consideration is the profitability in it.

Innovativeness

- 1. Whenever I come to know about new practice, I try it.
- 2. Although much is being said about the farmers' organizing like FPOs these days but who knows if they are better than old ones.
- 3. On outset of new strategies, I may or may not succeed; but I surely like to try it.
- 4. I see, I follow others before trying a new venture.

Note: SA=Strongly Agree; A=Agree; N=Neutral; DA=Disagree and SDA=Strongly disagree