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Assessment of livelihood wellbeing and empowerment of hill women through Farmers Producer Organization: A case of women based Producer Company in Uttarakhand

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ABSTRACT

Hill agriculture is different from agriculture at plains, in respect to land type, altitude and climate, in addition to lack of infrastructure and fragmented land holding. Due to lack of employment opportunities hill farmers are leaving agriculture and migrating to plains. Lack of industries and marketing infrastructure has made it more difficult for farmers to excel in farm business. Farmers Producer Company (FPC) has emerged as a new agri-business model and is working in hilly areas it too. With an intention to find out the effectiveness of hill based FPC for enhancing livelihood wellbeing and empowering women farmers in hills the present study was conducted by selecting an women farmer based Organization, Mahila Umang Producer Company (MUPC) of a group of hill rural women. An *ex-post facto* research design was used. Difference in difference research design was used to calculate the actual impact of FPC. To measure the livelihood wellbeing an index were prepared by following the standard protocol. The study was conducted in Almora district of Uttarakhand from 37 randomly selected members of MUPC and 20 nonmember respondents from the same locale. The MUPC was found effective in enhancing income and empowering hill women. Joining the FPC has improved the hill women's livelihood in terms of economic, human, and political dimensions.

Key words: Agri-business, Farmers Producer Organization, Hill agriculture, Income enhancement, Women empowerment

Agriculture is mainly dominated by women in hills. Majority of agricultural operations are done by the women as their male counterpart migrate for secure jobs to other places (Chandra *et al*. 2018a). As hill women farmers are the main stakeholders and critical end-users of hill agricultural technology (Chandra *et al*. 2018b), it is important to realize their needs, objective and outlook. Today's main issue in hill agriculture is lack of employment and scope of jobs.

In this scenario, exploring innovative market led models in order to integrate the hill farm women with the value chain can ensure better return and employment from agriculture. Value chain and marketing can ensure better prices for the farm women but the access to money, specialized skill and infrastructure are essential for any business. Fragmented and dispersed small producers face numerous challenges which cannot be tackled individually. So the concept of collectivization through Farmers Producer Company came into picture.

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The Producer Company concept has emerged as a new generation farmer's organization in India. It was introduced in 2002 by introducing a new part IX A into the Companies Act 1956 on the recommendation of K Alagh Committee (Alagh 2007, Singh 2008 and Mukherjee *et al*. 2018a). Since then Indian farmers got a new opportunity to start expedition towards livelihood sustainability (Mukherjee *et al*. 2018b). The main objectives of Producer Company are procurement of inputs, production, harvesting, grading, pooling, handling, storage, marketing, selling or exporting the primary produce of the company members or import of goods or services for them in addition to processing of produce of members, manufacturing, sale or supply of machinery, consumables, conducting training and awareness programme, insurance of crop and livestock and providing guidance for efficient natural resource management etc to members (ASA 2009; Chauhan 2015). There is a rising concern that the Farmers Producer Company can act as a potential driving force for agricultural and rural development. But how far this model can help hill agriculture which is facing tremendous geographical and economic constraints is a researchable issue for that the study was conducted

in a hill state by selecting a well established women based farmers producer company, *i.e.* Mahila Umang Producer Company.

Mahila Umang Producer Company is established at Almora district of Uttarakhand, India. The organization is fully operated by the hill women of Uttarakhand. The FPO was established as a formal Farmer Producer Company in the year 2009 by the help of the promoting Non-government Organisation 'Grassroots'. Before that, it was working as a conglomerate of SHGs. Umang started the journey with the hand holding of Grassroots which helped them to mobilize the hill women to explore their potential. It was initiated in 2001 as a group of non-profit Self-Help Groups referred to as Mahila Umang Samiti. However, further support to the pilot initiatives as future plans for additional growth, efforts were created to remodel the business ventures of this non-profit group to an additional acceptable kind of organization resulting in the establishment of a for-profit Farmers Producers Company that was formally registered on 9 January, 2009, under section IX A of the Companies Act, 1956.

The objective of MUPC is "to initiate pro-poor enterprises directly controlled by producer members based on the principles of fair trade and guided by the concerns of ecology, economics and equity". The organization is guided and governed by a Board of Directors (BOD) which consists of the women farmers of hill agriculture. The aim of MUPC is to reach the maximum share of the consumer's rupee to each producer member with a belief that those who purchase their products are directly assisting resource poor households "through fair trade and not aid". Thus, BODs functioning is directed towards betterment of producers.

MUPC is fully operated and managed by hill women. The FPC is working as an institute ownership model. There are 12 BODs who take the major decisions of product development, processing, marketing and reinvestment. The guidance is taken from one CEO (part time) who helps in making company profile, dividend and tax related activities. MUPC is working with 208 Self Help Groups in 100 villages. The villages are selected based on the watershed area. There are 12 watershed area in which a range of 11-22 SHG each are formed. A total of 208 SHGs are now working together in MUPC. The offerings made by MUPC are broadly classified as following four business units: 1. Hand knit 2. Processed fruits 3. Hill foods 4. Honey and livelihood programme.

Whether this market-led model really empowering farm women and has it enhanced livelihood wellbeing of the members were felt need for research. With these research inquisitions the study was conducted. As the concept is just established and rare in hill condition no previous studies have been done regarding the impact of Farmers Producer Companies in hill farming community. In this backdrop, the study was framed with following objectives: (i) to analyze the effect of Farmers' Producer Organization membership in hill women empowerment and (ii) to study the perceived impact of Farmers Producer Organization in enhancing livelihood wellbeing of hill women.

MATERIALS AND METHODS

Conceptual framework

Empowerment is a process of acquiring power in order to realize one's rights and also to perform responsibilities in a most effective way. It is an active, multi-dimensional process which enables person to realize their potential and powers in all spheres of life. The term empowerment has the most conspicuous feature containing the word 'power' which means control over material assets, intellectual resources and ideology. Grover (2002) defined empowerment as a process both individualistic and collective. It is through self and then involvement in groups that people most often begin to develop their awareness and ability to organize to take action and bring about change.

The United Nations Development Fund for Women embraces the following aspects in its definition of women empowerment. a) knowledge acquiring and realizing of gender relations, b) developing a sense of self-worth, c) gaining the ability to generate choices and exercise bargaining power and d) developing the ability to organize and influence the direction of social change. In this study, women empowerment has been operationalized as 'dynamic, multi-dimensional process which enables women to understand their potential and powers in all spheres of life'. Empowerment is enlightenment and there is no progress without enlightenment. It is the quality of life measured not only in terms of earning money or longer life spans alone, rather by the autonomy and security enjoyed by women everywhere. The process should become visible only when there is a favourable environment for the enlightenment which is to be ensured first. Thus women empowerment is the stage which can be acquired through providing encouraging factors like opportunities, resources, skills and the process of empowerment is facilitated by specific strategies designed by the organization under study. To measure the level of empowerment an index has been developed based on six dimensions of women empowerment, viz. social empowerment, economic empowerment, political empowerment, personal empowerment, psychological empowerment and finally health and security empowerment.

Social empowerment: Social empowerment indicates more equitable social status for women in society because of the primary responsibility of any human society is to ensure human dignity to all members. Social empowerment was measured following several items culminated into two sub dimensions, (i) enhancement in social status and (ii) getting recognition from neighbourhood.

Economic empowerment: Economic empowerment is defined as making women responsive about their importance in economic development and encouraging them for attaining financial independence. Economic empowerment is a necessary condition for enabling women to seek justice and

equality, because without economic strength, women cannot exercise their rights and entitlements (Tapan 2019). In this index four sub dimensions of economic empowerment, viz. (i) saving money for future, (ii) effective business planning, (iii) effective family expenses planning and (iv) enhancement in income have been included.

Political empowerment: Political empowerment is a process that facilitates women to increase their mobility and break their isolation to develop their self-reliance and to set up their public presence in which they can participate in decision making and influence the direction of development (Roona 2009). Group or collective process always provides a support for empowerment as it exposes its members to local networks and this social interaction results in awareness about local realities which also helps them to overcome the barriers for accessing the resources.

Personal empowerment: Personal empowerment is defined as facilitating women for creating an environment of enhancing skills, gaining knowledge and sparking better thinking for society and overall development of leadership. In this index three sub dimensions, *viz*. (i) enhanced leadership capacity, (ii) enhanced knowledge on improved technologies and (iii) better thinking for the societal development were selected.

Psychological empowerment: Psychological empowerment is a process to empower women from within. It enhances self esteem and self confidence and motivation to push oneself out of the self set boundary. Here in this study two sub dimensions, *viz*. (i) increased confidence in any activity and (ii) feeling motivated was considered.

Health and security related empowerment: It is defined as a process to become aware about health and family wellbeing. Women are the custodians of food and nutritional security in a family. Empowerment related to family health indicates awareness and decision to choose quality food for ensuring food and nutritional security as well as social security in broader perspective.

Women Empowerment Index: Empowerment of farmers due to joining of FPC was measured by an index developed for the purpose. The women empowerment index was prepared following standard procedure. Twenty experts working in the top management for promoting farmers organizations, FPC were consulted and review of related studies were considered for constructing the index. This index consisted of six components of empowerment and in each components 5-7 statements with 1 to 5 point of scale were there on which the respondents were asked to give their responses.

The response of all six components in this index were normalized by z transformation and then averaged. Similar methods were also followed by Abadi (2010); and Mukherjee *et al*. (2011).

The index, prepared based on the above mentioned parameters was calculated by the following equation:

$$FPC_{WE} = \frac{SE \times W1 + EE \times W2 + PoE \times W3 + PeE \times W4 + PsyE \times W5 + H\&SE \times W6}{W1 + W2 + W3 + W4 + W5 + W6}$$

where, (1) SE = social empowerment, (2) EE = economic empowerment, (3) PoE = political empowerment, (4) PeE = personal empowerment, (5) PsyE = psychological empowerment, (6) H&S E = health and security empowerment.

Wi is respective weightage calculated based on the response of 20 experts by following Analytical Hierarchy Process (Table 1) and assigned to the six components of women empowerment by following methods of Saaty (2008) and as used by Mukherjee *et al*. (2018c).

The Table 1 represents the AHP based weights of the components of women empowerment index. The highest weight was given by the experts to economic empowerment (0.38) followed by personal, psychological (0.20) and social empowerment (0.15). The Consistency ratio of the AHP analysis was found 0.139 and Consistency Index was found 0.0984 which is good.

Study area: The study was conducted in Uttarakhand state of India. The state is situated in North-western Himalaya. A successful producer company working in hill was selected through purposive sampling based on five specific criteria, *viz.* i. the FPC is working for more than 5 years successfully; ii. the FPC has a sizeable membership (more than 2000 members), iii. the FPC's annual turnover is more than ₹ 50 lakhs; iv. the FPC has several reported success stories and v. the FPC has a unique business model. The criteria based purposive sampling was useful to select an effective and functional company working at ground level. Based on that, Mahila Umang Producer Company (MUPC) was selected for the study. The data were collected from Almora district of Uttarakhand.

Research design: In the present study, an *Ex-Post Facto* research design was used. Before and after design was used to estimate the changes occurred due to joining the Farmers Producer Organization, i.e. MUPC along with two groups with and without design, where a group of member hill women of MUPC was interviewed and similar a group of non member hill women was also interviewed with the same interview schedule to delineate the impact. Finally, the difference in difference technique was used to calculate the actual impact of FPCs.

Table 1 Calculations of weightage of dimensions of women empowerment index based on Analytical Hierarchy Process (AHP)

Dimensions of women empowerment	Eigenvector based on AHP	Weights for the index
Social empowerment	0.137	0.14
Economic empowerment	0.379	0.38
Political empowerment	0.090	0.09
Personal empowerment	0.198	0.20
Psychological empowerment	0.153	0.15
Health and security empowerment	0.043	0.04

Consistency Ratio (CR)=0.139; Consistency Index (CI)=0.0984

Livelihood wellbeing index: In case of livelihood wellbeing measurement, a livelihood wellbeing index was constructed comprising of six different dimensions, viz. natural capital (purchased new land, improved existing land); physical capital (having livestock, television, internet access, mobile phone, permanent house, two wheeler, four wheeler, power tiller, irrigation water pump, drinking water supply, electricity having main house with separate kitchen and latrine, having separate bathing shelter, etc); economic capital (having year the round income generating activity, bank account, investment in agri-business, increased savings, repaid old loans); human capital (trained in income generating activity, business planning, personal development, providing nutritional food to family members, sending children to school); social capital (live in more social groups, member in other groups, face no domestic violence, contact with other progressive farmers) and political capital (became committee member at panchayat level, participate in its project planning, project implementation, monitoring and evaluation and participate in village development activities etc). The reliability and validity of the instrument were measured through pretesting of the instrument. The reliability test of the index was performed for each dimensions using Cronbach's Alpha with the help of SPSS 20. The Cronbach's Alpha value for natural, physical, economic, human, social and political capital was calculated as 0.73, 0.81, 0.78, 0.84, 0.72 and 0.69 respectively.

The increase in each capital dimensions was indicated through index score 0-6. The before and after research design was used here to see the changes over time. As it is very difficult to rely on recall method a combination of both before after and with without, i.e the difference in difference was calculated to estimate the actual impact.

Focused group discussions (FGDs) and series of key informant interviews were carried out to identify the aspects of effectiveness. Additionally, previous effectiveness studies were also reviewed to prepare the survey instrument. The survey instrument was sent to experts for their comments and possible modifications and improvements were done based on their recommendations. The instrument was translated in Hindi (common language) and a pilot test of 20 farmers was done to further clarify the questions.

The data have been collected from 50 randomly selected members and 30 non members although due to incomplete response 12 response of members and 10 of nonmembers were discarded during analysis. So a total of 38 randomly selected members of the FPC and 20 nonmember respondents response was considered. In-depth interviews were conducted with key informants for triangulation of data. Proper care was taken to make the respondents comfortable and unbiased recording of the data.

Statistical analysis: Comparison of socio-economic characteristics of members of MUPC and non members in the study area was done through nonparametric tests, viz. (Mann-Whitney U). For the statistical analysis, the data were analyzed using MS Excel and SPSS 20 software.

RESULTS AND DISCUSSION

Comparison of members and nonmembers based on socio-economic characteristics

The Table 2 indicates the difference in socio-psychological and socio-personal characteristics of between members and non members of the FPO under study. A total of 14 characteristics were studied. In case of age and education no significant differences were found as the selection of the control group was done with due care from the same locality and considering the age factor, primary occupation, distance from market and farming experiences. It was found that social participation, extension agency contact, urban contact, training experience, members of other group, progressiveness, attitude towards FPO and most importantly income are significantly different between MUPC members and non members at 1% level of significance. The reason may be that joining FPO enhances the social participation through regular meeting, workshops and training cum exposure visits which were lacking for those who have not joined yet. Naturally, the training and interaction with the technical officers, veterinary doctors and other service providers enhanced their extension agency contact, urban contact and progressiveness. The attitude is the first factor to decide about joining or not joining in any organization. The attitude towards Farmers Producer Organization was found highly positive in case of members and moderate in case of the non members. The difference in attitude is may be due to involvement with organization and working in it. The finding is similar with Shin *et al*. (2012) and Bindl and Parker (2011).

As per the women empowerment is concerned, the six dimensions of women empowerment have been measured through 15 sub dimensions. In case of the sub dimension enhanced social status, the member farm women scored 4.50 out of 5, whereas the non member from women scored 2.90 on average. The difference was found significant in Mann Whitney U test at 1% level of significance. Similar kind of result has also been found in all sub dimensions. The member women were significantly better than their non member counterparts in all aspects except in four sub dimensions, viz. enhanced quality food intake, effective family health and security planning, better thinking for social development, enhanced leadership capacity and enhancement of income where the difference was significant at 5% level of significance. Overall it was found that in majority of cases the member hill women of MUPC significantly scored better than the non member farm women. The design with and without shows the impact of producer company over last nine years has empowered women in several aspects. If we consider the sub dimensions individually, highest score was found in case of social status enhancement. It indicates that membership in farmers producer company has enhanced women social status and respect in family and close relatives. It is a big achievement for the family member in hill culture that the women can earn with dignity and run a big organization. Saving more money for future is another

Table 2 Comparison of socio-economic characteristics of MUPC members and nonmembers

Characteristic	Members hill women (n=38)			Non members hill women (n=20)			Mann-Whitney U
	Mean	Std. error of mean	Std. deviation	Mean	Std. error of mean	Std. deviation	
Age (in years)	39.649	1.590	9.673	42.100	2.184	9.765	312.0
Education (in years)	5.757	.286	1.739	5.250	.331	1.482	321.5
Family size (in numbers)	6	.183	1.115	7	.381	1.704	236.0*
Farm size (in ha)	.151	.025	.153	.078	.015	.066	259.0*
Farming experience (in years)	27.649	1.590	9.673	30.100	2.184	9.765	312.0
Income (in lakh ₹/year)	.775	.027	.166	.304	.012	.051	.0**
Distance from agril. market (in km)	16.000	.303	1.841	16.000	.410	1.835	370.0
Social participation (highest=1, lowest=0)	.865	.057	.347	.300	.105	.470	161.0**
Extension agency contact (highest=1, lowest=0)	.919	.045	.277	.100	.069	.308	67.0**
Urban contact (highest=1, lowest=0)	.730	.074	.450	.300	.105	.470	211.0**
Training experience (highest=2, lowest=0)	1.486	.092	.559	.150	.082	.366	37.0**
Members of Other Group (yes=1, no=0)	1.000	.000	.000	.350	.109	.489	129.5**
Progressiveness (highest=5, lowest=1)	4.663	.016	.098	2.924	.039	.173	.0**
Attitude towards FPC (highest=5, lowest=1)	4.396	.024	.146	2.859	.044	.199	.0**

* indicate 5 % level of significance and ** at 1% level of significance

Table 3 Comparison of status of women empowerment of the member and non member hill women of the Farmers Producer Organization under study

Dimensions of Women Empowerment	Sub dimensions	Mean score of members farm women (n=38)	Mean score of non-members farm women (n=20)	Mann Whitney U
Social empowerment	Enhanced social status	4.50	2.90	80.5**
	Getting recognition in neighborhood/society	4.24	3.20	158.0**
Economic empowerment	Saving more money for future	4.32	2.75	69.5**
	Effective business planning	3.97	2.85	191.5**
	Effective family expenses planning	4.18	2.95	133.5**
	Enhancement of income	4.05	3.15	188.0*
Political empowerment	Initiated participation in village administration	4.24	2.75	98.0**
	Started addressing social issues and problems	4.11	2.90	160.0**
Personal empowerment	Enhanced leadership capacity	3.92	3.40	262.0*
	Enhanced knowledge on improved technologies	4.00	2.70	120.0**
	Better thinking for the societal development	3.89	2.95	183.0*
Psychological empowerment	Increased confidence in any activity	4.18	2.75	123.0**
	Feeling Motivated	4.13	3.05	153.5**
Health and security empowerment	Effectively family health and security planning	4.24	3.50	201.5*
	Enhance quality food intake	3.54	2.98	298.5*

* Indicate 5 % level of significance and ** at 1% level of significance

Table 4 Classification of hill women based on women empowerment index score

Levels of empowerment	Frequency members	Percentage members	Frequency non-members	Percentage non-members
Very high (4.01-5.00)	28	73.68	1	5.00
High (3.01-4.00)	10	26.32	3	15.00
Moderate (2.01-3.00)	0	0.00	12	60.00
Low (1.01-2.00)	0	0.00	4	20.00

Mann-Whitney U score is 159.34 which is significant at 1% level of significance

aspect that has come out in the study with mean score 4.32. This indicates the women are now saving more money from their earnings than before. The FPO has enhanced their earning and through several training and discussions the women are now aware about financial planning. Another important aspect is participation in village administration (4.24) which indicates the member women are now more willing to join hands for the development of the village like what they are doing in their FPO.

Based on the analysis (Table 4) it was observed that majority (73.68 %) of the MUPC member hill women were in the category of very high level of empowerment followed by 26.32% in high category. No hill woman was in either moderate or low levels of empowerment category. In case of non member farmers it was found that majority (60%) of the women were in moderate level of empowered followed by 20% were low. Only 1 woman scored very high score, whereas rest 3 scored as High. The difference between the two groups in terms of empowerment index score were found statistically different at 1 % level of significance. The result indicate the member women farmers were more empowered that the non members. It specify about the effectiveness of the MUPC in terms of empowering women in hills of Uttarakhand.

Perceived impact of MUPC in terms of enhancing livelihood wellbeing

The present state was measured with the same questionnaire. The difference of previous state and present state was calculated and finally, the difference between member and non member was calculated which is the actual impact due to only membership of the FPO.

The Fig 1 indicates the changes of the hill women before and after joining the MUPC. It was found that there were considerable changes in economic dimension followed by political, social, natural and human capital. Although very less improvement was recorded in the physical assets due to the membership of MUPC, but it is not the actual impact. In the time period of 2009 to 2018 there may be several government schemes, programmes etc and most importantly the nine years time which has a compounding effect on savings and economies, all these can create errors

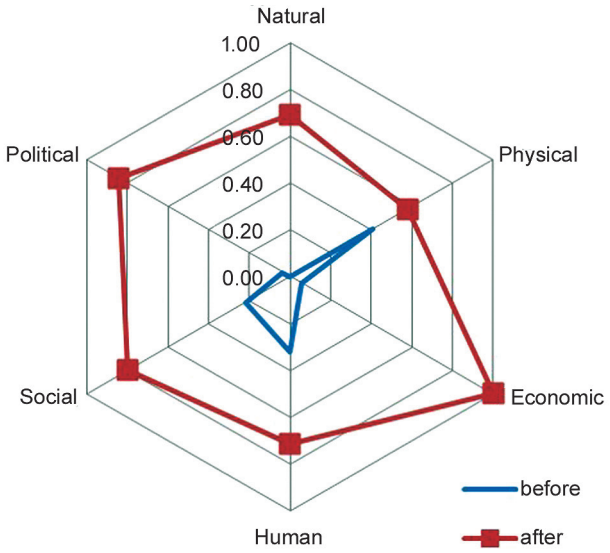


Fig 1 Changes in different dimensions of livelihood well being of members of MUPC in a period of nine years (2009-18), before and after.

in the assessment of actual impact. So the changs of the non members of hill women in this time period were considered to remove the error terms. The Fig 3 indicates the changes of different dimensions of livelihood wellbeing of non members hill women in a period of nine years (2009-2018) before and after. The figure point towards that considerable increase in all dimensions of livelihood wellbeing before 2009 and in 2018. It is due to time and different developmental schemes in hills by Government, NGOs and others.

So in this time period a considerable increase in different livelihood dimensions of non member hill women was also seen. If we would have considered the Fig 1 as impact it would be wrong estimation. Therefore, the difference in difference method was used to assess the actual impact

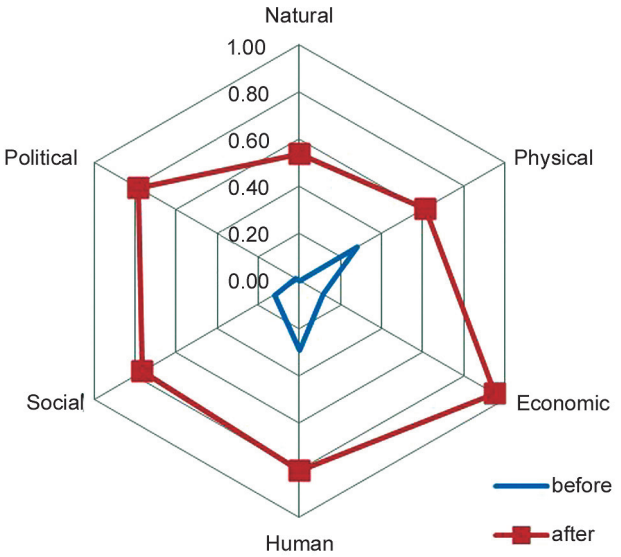


Fig 2 Changes in different dimensions of livelihood wellbeing of non member hill women in a period of nine years (2009-18), before and after.

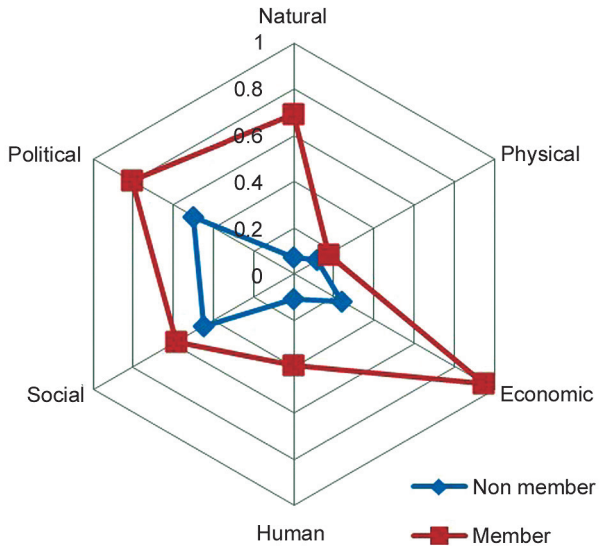


Fig 3 Difference in changes of different dimension of livelihood wellbeing of the members of MUPC and non members hill women in a period of last nine years (2009-18) before and after.

by eliminating all possible errors. The Fig 3 indicated the difference in the difference of livelihood wellbeing parameters before and after of members and nonmembers of MUPC. That indicates the actual changes in livelihood dimensions of the members only due to membership.

The figure indicates that highest changes were found in economic capital followed by political, natural and human capital. In case of physical and social capital much difference has not been found. The analysis indicates that joining the FPCs has enhanced the members economic capital as the members were more connected to social groups formed by FPCs, and in other group, there was reduction in domestic violence, social security and insurance awareness.

The membership in the Farmers Producer Organization has helped the member women farmers to enhance their economic capital. Now the women members have year the round income generating activities which has enhance their income from agriculture. They all have open bank account as the profits and dividend of the company are to be disbursed through bank account. They are now working as investors who have invested their time and money to grow a company. Through association with the other members they revealed that their savings has increased and majority of them has repaid old loans. Another very important dimension was political capital. The women farmers were found to become more active in society many of them are such empowered by holding companies position that they are now less hesitate to became committee member at Panchayat level, or participating in its project planning, implementation, monitoring and evaluation. Majority of the male in hills are working in plains and therefore the women are participating in village development activities and have become active thinker for the development of not only the FPC but the village itself. Working in organization has aware them much it have enhance the physical capital to some extent. Many of the women have purchased mobile phone, television, irrigation water pump, having separate bathing shelter and toilet facilities. These may be the reason for higher score in livelihood wellbeing index as a consequence of joining in FPC.

Conclusion

Women are playing very important role in hill agriculture. Empowerment of women and enhancement of their livelihood has immense importance for the development of overall hill agriculture. The present study has focused on various dimensions of women empowerment and livelihood wellbeing as a consequence of association with Farmers Producer Company. The MUPC is fundamentally women governed and owned micro-enterprises which have the cooperative principle as a base and very strong market outlook. The study found that hill based farmer producer company MUPC was highly effective in empowering women. It was found that the FPO has a positive impact on the livelihood well-being of hill farm women associated with them. The resource poor women have enhanced their economic capital followed by political, natural and human capital. It is one of the most important achievements for the poor women that after joining MUPC their human capital had been enriched in addition to significant economic gains. Thus it can be concluded from the research results that the hill based Farmers Producer Organization, MUPC, is working for the upliftment of poor rural women of Uttarakhand and has provided an option for livelihood enhancement to them. The MUPC can act as a model for sustainable development of rural livelihood. The other organizations can learn from the model they followed, the good practices they perform to enhance efficiency of organization and betterment of poor farmers of India, especially poor rural women working in hilly area.

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