

Empowering Rural Livelihoods: A Comparative Analysis of Smallholder Farmers in Himachal Pradesh Before and After Cooperative Membership

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ABSTRACT

Small farmers are known for their dispersed small land holdings, low capital and asset counts, low livestock numbers, propensity for mobility, and susceptibility to natural disasters. This study investigated the livelihood status of smallholder farmers in Kangra, Mandi, and Shimla districts of Himachal Pradesh. This paper explores the impact of agricultural cooperatives on the livelihoods of 309 smallholder farmers in Kangra, Mandi, and Shimla districts. Personal interviews and group discussions were applied for data collection. To measure the livelihood security of the farmers, an index was proposed by Guilford (1954) used with modifications. The index was based on 5 sub-indicators of Livelihood Security i.e., human capital, natural capital, social capital, physical capital, and financial capital. In all five dimensions, it was observed that most of the farmers had low-security levels before their membership in the cooperative. In contrast, an improvement of a significant amount was observed post-membership, especially in terms of social, financial, and physical capital. Overall, the study marks the potential power of agricultural cooperatives in empowering smallholder farmers as well as contributing to rural development in Himachal Pradesh.

Keywords: Cooperatives, Agriculture Cooperatives, Livelihood, Small farmers, Livelihood index.

INTRODUCTION

Cooperatives play an important role in improving the livelihoods of rural people all over the world (Mhembwe and Dube, 2017). According to UN estimates, cooperatives throughout the world contribute to the survival of more than half of the world's population and have over a billion members. Agriculture is the primary source of income for the rural people, particularly in developing nations. As a result, agricultural cooperatives are a major source of local development since they enable farmers to acquire inputs at favourable prices and sell their goods on the market, or (less frequently) to raise the value of the end products (Servalic and Nikoli, 2013).

According to International Cooperative Alliance,

A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise. With assistance in resource and input utilization, water resource harvesting, marketing channels, storage facilities, distribution channels,

value addition, market information, and a regular monitoring network system, it plays a crucial role in agricultural development. Cooperatives also engage in economic operations such as credit disbursement, agricultural input distribution (seeds, fertilisers, and agrochemicals) and so on (Kumar et al., 2015; Hassang, 2006; King and Ortmann, 2007; Mhembwe and Dube, 2017)).

Agricultural co-operatives are agricultural-producer-owned cooperatives whose primary purpose is to increase member producers' production and incomes by helping better link with finance, agricultural inputs, information and output markets (Sifa, 2014). There are several types of cooperative societies functioning in India with different activities that can be grouped into four categories that are production cooperatives, marketing cooperatives, service cooperatives and allied service cooperatives. Production cooperatives are those which deal with agricultural and industrial production, such as farming cooperatives, industrial cooperatives and processing cooperatives. Marketing cooperatives are those

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cooperatives that are engaged in the marketing of agricultural produce, such as agricultural marketing societies and consumer cooperatives. Service cooperatives are the ones that provide services necessary for their members, such as cooperative credit societies and cooperative banks and also housing cooperatives. Allied service cooperatives which are dealing with activities necessary for daily life and business of the agriculturists, artisans, etc (Sahoo, 2020). Supply of agricultural inputs, joint production and agricultural marketing are the three primary types of agricultural co-operatives (Sifa, 2014). Cooperatives offer natural benefits in addressing issues such as poverty reduction, food security, and job creation. It is seen to have enormous potential to supply products and services where both the public and commercial sectors have failed. Cooperatives, with the exception of a few major ones, are "local institutions" that meet "local needs," employ "local talent," and are governed by "local leaders." (Kumar et al., 2015).

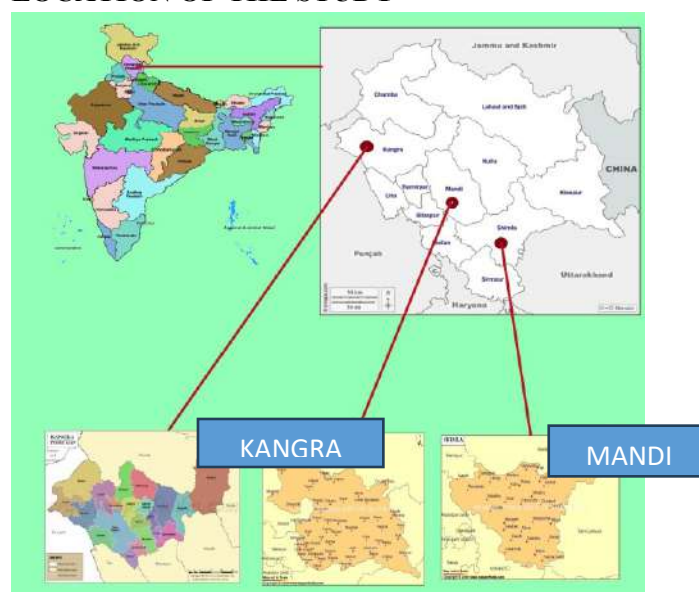
The future of sustainable agriculture growth and food security in India depends on the performance of small and marginal farmers. Small farmers confront a number of obstacles, including a lack of access to quality inputs, financing facilities, public resources, technology, restricted quantity production, and a lack of guaranteed market and income security (Dev, 2012; Ahmed and Mesfin, 2017; Tefera et al., 2017). It is difficult to estimate the value of agricultural cooperatives in improving the livelihood of millions of smallholder farmers and their families. A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living (Chambers and Conway, 1992). Smallholder farmers can bargain better contract farming terms and lower rates for agricultural inputs like seeds, fertiliser, and equipment because they are part of a larger group (FAO, 2011; Sevarlic and Nikolic, 2013; Ibitoye and Stephen, 2012).

The role of cooperatives includes the overall economic and social development by creating jobs, generating income to members, reducing poverty, women empowerment, social integration, creating rural markets, human capital development and helping their members to organize for their sustainable livelihood.

MATERIALS AND METHODS

The present study was conducted in Himachal Pradesh. In Himachal Pradesh, the small and marginal populations and cooperatives are spread across 12 districts. Out of these districts, three districts, Kangra, Mandi, and Shimla, were chosen purposively because they have the highest number cooperative societies in the state, accounting for almost 50 per cent of the total. Ten per cent of the Primary cooperative societies that were registered were chosen from each district. Three members from each selected cooperative were selected as the population of the members is unknown. Thus, a total of 309 respondents were selected. In order to get the necessary data, an interview schedule that was carefully developed and organised based on the particular research goals was used to collect the data. In the non-sampling region, a pretest of the interview schedule was conducted with a homogeneous population of similar socioeconomic position. The required modifications were made to the "Interview-schedule" in response to the input received from the non-sampling region, and as a result, it was utilised to collect data from the respondents. Significant findings and logical conclusions were reached by scoring, compiling, tabulating, and subjecting the acquired data to a variety of suitable statistical methods.

LOCATION OF THE STUDY



ANALYTICAL TECHNIQUES

A livelihood assessment index (LAI) was created using the DFID's sustainable livelihood framework (SLF) to compare farmers' livelihood status in two scenarios. The SLF simplifies people's livelihood plans by addressing their access to many assets, including personal, social, financial, physical, and

environmental resources. In the context of stress, shock, and seasonality, SLF prioritizes livelihood as an integrated function of capitals (Sarker et al., 2020). Chuong et al. (2015) suggest that examining the direct and indirect effects on people's living situations is more realistic than relying just on one-dimensional productivity or income indicators. Farmers' livelihood index was built from five components, namely human capital, natural capital, social capital, physical capital, and financial capital, using current literature. The five main components each provided an equal contribution to the index, even though they are composed of different subcomponents. Since every component has a unique scale, standardisation was completed with the Eq.

$$Index_{SV} = (S_V - S_{min}) / (S_{max} - S_{min})$$

where S_V is the original subcomponent value of situation V , S_{min} is the minimum value of subcomponents, and S_{max} is the maximum value of the subcomponents.

After finding an index value for each subcomponent, the index value of each component was calculated using the following equation:

$$M_{vJ} = \frac{\sum_{i=1}^n INDEX_{sv_i}}{n}$$

where M_{vJ} is the value of major component J for situation V , Index S_{v_i} denotes the value of subcomponents, indexed by i , of major component M_J ; and n represents the number of subcomponents in major component M_J .

Table 1: Farmers' livelihood components and sub-components

S. No	Major Capitals	Sub-Components	Value of Sub-Components
1	Human capital	Skill development and training	0=No 1= Yes
2		Nutritious food for family members is affordable	0=No 1= Yes
3		Utilization of modern ICT tools by farms	0=No 1= Yes
4		Utilization of Agri-Clinic	0=No 1= Yes
5	Natural Capital	Building of water harvesting tanks	0=No 1= Yes
6	Social Capital	Interaction with the key informants or progressive farmers	0=No 1= Yes
7		Keeping contact with sarpanch /agriculture officers	0=No 1= Yes
8		Participation in kisan melas	0=No 1= Yes
9		Adequate and timely information about the different schemes given by the government	0=No 1= Yes
10		Participation in government-implemented programs	0=No 1= Yes
11	Physical Capital	Access to power sprayer	0=No 1= Yes
12		Provision of power tiller	0=No 1= Yes
13		Facilities of sprinklers	0=No 1= Yes
14		Provision of drip irrigation	0=No 1= Yes
15		Supply of seeds	0=No 1= Yes
16		Supply of agro-chemicals	0=No 1= Yes
17		Provision of storage facility	0=No 1= Yes
18		Provision of transport facilities	0=No 1= Yes
19		Provision of marketing	0=No 1= Yes
20	Financial capital	Agriculture credit	0=No 1= Yes

After calculating values for each of the five key capital categories for a specific circumstance (for example, before joining the cooperative), they were averaged using Eq. (4) to generate the Livelihood index for situation V :

$$LAI_V = \frac{\sum_{i=1}^n W_{MJ} M_{vJ}}{\sum_{i=1}^n W_{MJ}} \tag{Equation 4}$$

Eq. (4) can also be written as follows:

$$LAI_V = \frac{W_H H_V + W_N N_V + W_S S_V + W_P P_V + W_F F_V}{W_H + W_N + W_S + W_P + W_F}$$

where LAI_V is the livelihood assessment index of situation V ; W_{MJ} is the weight of component J ; and $W_H, W_N, W_S, W_P,$ and W_F are weight values of human, natural, social, physical, and financial capital, respectively. $H_V, N_V, S_V, P_V,$ and F_V are the index values of human, natural, social, physical, and

financial capital in situation V (Rahman et al., 2021; C e et al., 2020, Kumar et al.,2018, Sharma, 2022).

RESULT AND DISCUSSION

The Farmers' Livelihood Index (FLI) was constructed using five key components: human capital, natural capital, social capital, physical capital, and financial

capital. These components were selected based on a comprehensive review of relevant literature. The FLI is a non-negative index that ranges from 0 to 1, where a higher value indicates a better standard of living and a lower value signifies a poorer standard of living (Girish et al. 2020).

Table 2: Livelihood status of farmer members

S. No	Sub-Components	Value of Sub-Components		Major Capitals	Value of Sub-Components	
		Before	After		Before	After
1	Skill development and training	0.18	0.45	Human capital	0.35	0.55
2	Nutritious food for family members is affordable	0.93	0.98			
3	Utilization of modern ICT tools by farms	0.15	0.44			
4	Utilization of Agri-Clinic	0.16	0.35			
5	Building of water harvesting tanks	0.15	0.45	Natural Capital	0.15	0.45
6	Interaction with the key informants or progressive farmers	0.92	0.97	Social Capital	0.64	0.85
7	Keeping contact with sarpanch /agriculture officers	0.93	0.96			
8	Participation in kisan melas	0.22	0.56			
9	Adequate and timely information about the different schemes given by the government	0.58	0.87			
10	Participation in government-implemented programs	0.57	0.89			
11	Access to power sprayer	0.24	0.39	Physical Capital	0.30	0.56
12	Provision of power tiller	0.18	0.33			
13	Facilities of sprinklers	0.24	0.42			
14	Provision of drip irrigation	0.20	0.40			
15	Supply of seeds	0.59	0.79			
16	Supply of agro-chemicals	0.49	0.80			
17	Provision of storage facility	0.24	0.60			
18	Provision of transport facilities	0.27	0.65			
19	Provision of marketing	0.28	0.74	Financial capital	0.18	0.65
20	Agriculture credit	0.18	0.65			
Overall Livelihood Status						
Before Joining Agricultural Cooperative				0.33		
After Joining Agricultural Cooperative				0.61		

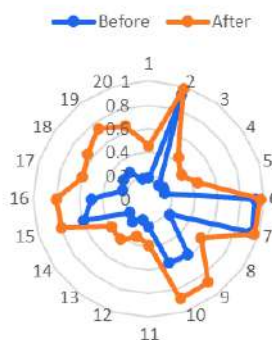


Fig.1 represents the comparative livelihood status of respondents before and after joining the primary agricultural cooperatives

Table 2 and Figure 1 represents the comparative livelihood status of respondents before and after joining the primary agricultural cooperatives. The overall livelihood index for respondents (0.61) increased after joining agricultural cooperatives compared to before joining agricultural cooperatives (0.33). The total livelihood index has increased by 0.28 after joining the primary agricultural cooperative compared to before joining the primary agricultural cooperative.

The perusal of Table 2 indicated that the overall average livelihood security index value was 0.61 after joining the cooperative. The average livelihood

security index value was 0.85 in social capital which is at first followed by the average livelihood security index for financial capital (0.65), physical Capital (0.56), human capital (0.55) and natural capital (0.45) respectively. These findings were in agreement with the findings of Mukherjee et al. (2020) indicating that social capital (0.385) was found as highest among the most important dimensions. This indicates a robust social network, strong relationships, and high levels of trust among members of agricultural cooperatives. This might be because members actively join organizations and engage in collaborative activities such as organizing awareness camps, conducting short training courses, and providing management and financial assistance. These cooperative activities contribute to the development and strengthening of social capital within the agricultural cooperatives. The mentioned activities, facilitated by high social capital, contribute positively to the livelihood security of cooperative members. By working together, sharing resources, and fostering strong social connections, members enhance not only their economic well-being but also their overall livelihoods.

CONCLUSION

In agricultural cooperatives, farmers usually join forces to exchange information, pool resources, and carry out a variety of agricultural tasks. The study's conclusions suggest that in addition to enhancing agricultural productivity and developing farmer capacity, agricultural cooperatives play a vital role in rural development and agriculture by offering their members better seeds and fertiliser, fighting poverty, enhancing farmers' technical knowledge, rewarding hard work, promoting self-employment, and offering marketing training. These cooperatives give farmers access to shared equipment, buying power in bulk, marketing possibilities, and a forum for information sharing. Cooperatives have the power to mobilise its members and mobilise them in support of a sustainable way of life. Cooperatives, however, require further assistance in order to implement the effective model for guaranteeing members' livelihoods. Examining the cooperative's policies and procedures is also necessary to allow for flexibility in order to meet local needs and support the many initiatives needed to enhance rural livelihood.

Authors Contribution

Rachna and Dr Rashmi Chaudhary conceived of the presented idea. Rachna wrote the manuscript with

support from Dr Rashmi Chaudhary, Vaishali Thakur, Priyanka Sharma and Rebecca Nelson. All authors provided critical feedback and helped shape the research, analysis and manuscript.

Declaration of competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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