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Original Research Article

Enhancing Farmer's Income and Farmer Producer Organizations' (FPOs) in India

Supriya Gautam[1*], L. C. Mallaiah[2]

[1]Ph.D. Research Scholar, Department of Economics, Babasaheb Bhimrao Ambedkar University, Lucknow, India
[2]Professor, Department of Economics, Babasaheb Bhimrao Ambedkar University, Lucknow, India

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***Corresponding author:** Supriya Gautam
Ph.D. Research Scholar, Department of Economics, Babasaheb Bhimrao Ambedkar University, Lucknow, India

Abstract

The agriculture sector in India has spent the last few decades primarily focusing on expanding agricultural output and enhancing food security. This approach included the following steps: first is, enhancing production through the use of high-quality seeds, agricultural chemicals, fertilizers, and irrigation. Second is, providing subsidies for farm inputs and paying fair prices for crops. Third is, Public investments in agriculture, and last is institutions that facilitate trade. Mid through the 1960s, the nation experienced a food shortage. In India, the green revolution overcome the path to address the food crisis that had persisted for the previous fifty years. India's population increased by 2.55 times while production of food increased by 3.7 times, which has made India a self-sufficient country in the food industry and able to export the net food to other countries. The strategy had no impact on the rise of farmers' income and had no provisions for their welfare. Several studies demonstrate that an increase in output should increase a farmer's income, but this was not always true. The Government of India (GoI) has announced in the union budget to double the income of farmers by 2022. Various grass root institutions are existing in India such as self-help groups, farmer's groups, farmer's interest groups, cooperatives, common interest groups, and Farmer Producer Organization (FPO). The GOI has suggested FPO as a tool, In order to mobilize the farmers and bring them under one umbrella to achieve the goal and double the farmers' income. Farmer Producer Organizations offer small and marginal farmers institutional support, assure a stable income for their agricultural output, and ultimately improve their standard of living. The main objective of this paper is to examine the structure of farmers' income in the country and how Farmer producer organizations empower the farmer's income to assess the possibility of enhancing the farmers' income and discuss the FPO's tools for increasing the farmers' incomes. The study is based on secondary data and the study is primarily exploratory. This paper addresses the issue of farmers' income and FPOs. This paper is based on 70th and 77th round NSSO Situation Assessment Surveys. The data pertains to the years 2012 and 2018-19. The information was gathered from different secondary sources, such as data on policies and other government sources, including NGOs, National and international management journals, and online sources are included. The study concludes that although boosting farmers' real earnings in six years is a challenging challenge, it may not be entirely unachievable if appropriate techniques are used. The study finds that increases over five to six years in nominal terms are already occurring. The instruments should be multifaceted and focus on increasing returns, lowering costs, and creating sustainable incomes while taking into account the dwindling natural resource base. For tracking the development, we should periodically have access to trustworthy income statistics. The income described in this paper is the gross cost of production. It can be concluded that FPOs form a core part of the strategy to sustain the life of small and marginal farmers out of poverty and enhance their income and competitiveness in agricultural markets. The expected result of this effort is to provide a single window for farmers to increase their income from farm produce through direct marketing and to gain collective bargaining power. So, the purpose of this study is to illustrate how smallholder farmers might raise their income through FPOs, which may help the farmers in doubling their income and empower them.

Keywords: Bargaining power, Economy of scale, Farmer producer organization, Mobilization, Producer Organisation (PO), Producer Company, National Bank for Agriculture and Rural Development (NABARD), Small Farmers Agribusiness Consortium (SFAC).

INTRODUCTION

India is predominantly an agricultural nation and the majority of Indian agriculture's cultivators are small and marginal farmers. The primary source of income for a farmer is agriculture. Since 1950 when it was 50 percent of the GDP, agriculture has decreased falling to 18.8 percent in 2021–22 and 43 percent of all jobs in India are derived from agriculture. India has secured second place behind China contributing 11.9 percent of the $3,320.4 billion in worldwide agricultural GVA. As a substantial component of both domestic and international trade, agriculture accounts for 12 percent of India's exports making the country a prominent agri-exporter. According to Singh (2012), 66 percent of operational holdings are less than one hectare in size and 86 percent of operational holdings are smaller than or around two hectares. From 2.28 hectares the average size has decreased to 1.16 hectares. In 2015-16, the area occupied by small and marginal farmers expanded from 19 to 44 percent. Presently, Indian agriculture is characterised by small holdings. The rise in agricultural suicides among small and marginal farmers is a sign that these farmers are suffering from various issues (National Crime Records Bureau, 2011).

According to the NITI Aayog plan of Indian Prime Minister Shri. Narendra Modi, the income of farmers should have doubled by 2022. Rising cultivation costs harm farmers' incomes, but they have also experienced low prices during market glutes. Crop prices may occasionally decline to the point that farmers are unable to sell any of their products because they would not be able to recover even their marketing costs. Many problems affect farmers such as an absence of available land and water, prompted landslides, lack of financial services, and new technologies. To increase farmers' income, there is a need to increase farm productivity, improve market access and also to develop the industrial and service sectors where the surplus farmers can find work and this is possible only through Farmer Producer Organizations (FPOs). It has been established that income will be one of the major sources of growth for farmers. It does not imply that prices need to be increased essentially; it implies that we need to improve farmers' share in consumer prices and need to minimize the chain costs and inefficiencies. The major issue of Indian agriculture is there is a lack of organization among the farmers to obtain a fair market price. So, there is a need to diversify empowering the sources of income of the farmer. The average family income for farmers in India is expected to rise from Rs 96,703 (US$ 1,505.27) in 2015–16 to Rs 219,724 (US$ 3,420.21) in 2022–23 (IBEF, 2018). To increase market participation and lower transaction costs through collective action, farmers' collectives like co-operatives and farmer-producer organisations have arisen (Markelova *et al.*, 2009; Valentinov 2007).

Therefore, it cannot be ignored in a country where the majority of farmers are small and marginal. Poor productivity and lack of modernization are sometimes attributed to the size of the farmer's holdings. Due to the limitations such as overworked labor, poor infrastructure, and insufficient resources and communication network has been unable to reach small and marginal farmers. With lakhs of individual farmers even the private extension system is overwhelmed. In this circumstance, Farmer Producer organization are a great solution for empowering the farmer's income. FPOs are a strategy to get around these prohibitions. Farmer Producer Organisation one of the most efficient methods to address agriculture's various issues is to group producers, particularly small and marginal farmers, into producer organisations. The major goal of these organizations is to improve access to capital, technology, inputs, and markets. The government of India and The Department of Agriculture released comprehensive Policy and Process Guidelines for Farmer Producer Organisation in 2013 after realizing the importance of FPOs in achieving national agricultural goals. The Department of Agriculture and Ministry of Agriculture and Farmers Welfare nominated SFAC as a Single Window Agency to support the State Governments in the development of Farmer Producer Organisations (FPOs). Furthermore, with SFAC's nationwide promotion of FPOs, 29 States currently have FPOs in operation that cover a variety of crops.

Hence, the government is working to remove barriers in the agricultural sector to double farmers' income by 2022–2023. According to the government, FPOs are the best organisational structure for farmers to mobilize and increase their power to utilize their combined production and marketing capacities. Improved agricultural technology and management help many industrialized nations but some like the European Union, Canada, and Israel have witnessed a significant rise in farmer income. India is moving in the same direction as the US. To increase their income, small-scale farmers will similarly need to join together and create a farmer Producer Organisation (FPO). As an "effective means of empowering farmers' incomes by offering enhanced access to high-quality inputs, efficient technologies, funding, and market, as well as improving their bargaining power and establishing sustainable scale to participate directly in the value chain" (NABARD), FPOs were introduced at the beginning of the 2000s. Farmer Producer Organisations (FPOs) can establish relationships between groups that share interests as well as form their organisations at the district, state, and national levels. The FPOs may construct better food processing facilities, improve product and production, and position themselves as better brands by using the best packaging and marketing techniques around the nation by gathering the requirements. The rural economy will significantly and sustainably improve as a result of FPOs. The purchasing power of people will increase and farmers will be able to find employment in the village.

There will be a need for workers when FPOs establish greater employment possibilities in their area will prevent rural residents from migrating to cities. State governments play a crucial role in the effective implementation of this important program and with the help of the federal government they will be able to support farmers in increasing their income. The future and appeal of their village will improve if small and marginal farmers join together and join FPO.

LITERATURE REVIEW

The present study is an attempt to understand the previous work carried out regarding empowering farmers through FPOs in the Indian context. The brief findings of the studies related to farmers' income, inequality of income, the viability of marginal and small farmers, and the impact of new technology on farmers' income and income distribution are presented here. Singh *et al*., (1972), examined the possibility of enhancing farm income by better-allocating resources. It was discovered that farm assets were not being utilized to their full potential under the current cropping pattern, leading to the conclusion that reorganizing the production program would boost farm income regardless of resource availability. Aggarwal (1980), examined how agricultural growth affects the income per family and person for all types of farmers and agricultural workers. She found that locations with higher levels of development gained more than their less developed counterparts. The income gap between the rich and the poor was, however, higher in more developed regions of rural society than in less developed ones. As a result, agricultural development has accelerated and the income gap between the rich and the poor has grown. The study discovered that marginal farmer's and agricultural laborers' consumption expenditures were higher than their income in addition to having lower per capita total consumption spending than small, medium, and large farmers. They were probably constantly struggling with debt to make ends meet. It signifies the underprivileged financial situation of small-scale farmers and agricultural laborers, Asante *et al*., (2011). There study observed that Farmers will join FPOs because they will be able to enhance their production and output, as well as their income if they have access to credits. Trebbin and Hassler (2012) examined according to an FAO study from 2014, different institutional arrangements have to empower small-scale producers with more social, economic, and political power as they overcome market barriers, develop their skills, and have better access to knowledge and technologies. To shield small farmers from the effects of globalisation and enable them to participate effectively in competitive markets, primary producer organisations (POs) or collectives are being discussed. Sonawane (2016) Examines that India's small and marginal farmers are especially vulnerable to risks associated with agricultural output. In order to integrate farmers and increase their income, many approaches have been developed. Producer Organisation is a different approach that offers financing facilities together with assistance with marketing, processing, and procurement. The credibility and legitimacy of the business environment are the key characteristics of the Producer Organisation. The organisation aids them in the development of sustainable agriculture by offering seeds, pesticides, fertilisers, agricultural equipment at lower rates. Mukherjee *et al*., (2018) examined the benefits of farmer-producer companies, including cost reduction due to economies of scale, increased bargaining power, member capacity building, value chain management, risk mitigation, reduced costs for information seeking, social capital creation, technical support for production, and risk mitigation. Farmer's Producer Organisations need internal social capital, market possibilities, marketing success, and external social capital to better coordinate their efforts.

The objective of the study

To examine the current structure of the farmer's income in our country and to identify the tools to empower the farmer's income through FPOs.

RESEARCH METHODOLOGY

The study is based on secondary data and the study is primarily exploratory. The information was gathered from different secondary sources, such data on policies and other government interventions was gathered from a variety of sources, including NGOs, as well as reports from government agencies. National and international management journals and online sources are included. The data for this research were derived from the NSSO Situation Assessment Surveys in the 70th and 77th Rounds. The surveys covered the corresponding years of 2012–13 and 2018–19. The only sources for accurate direct estimates of the farmers' income are surveys. We used the data at our disposal for this work because there are no other sources of farm income. However, it is important to exercise caution when interpreting the data and making inferences. The two endpoints namely 2012–13 and 2018–19 were used to estimate income trends throughout the decade. Compound growth rate (r) was computed using the formula: $r = \{1 - (Y_1/Y_0)^{1/10}\}*100$. Y_1 and Y_0 are incomes obtained during 2018-19 and 2012-13, respectively. So, the present study examined the structure of farmers' income in the country and how Farmer producer organizations enhance the farmer's income as well as the sources of income growth for farmers.

RESULT AND DISCUSSION

Situation Assessment Survey (SAS) by National Sample Survey Organization (NSSO), initially conducted in 2012–13 and repeated in 2018–19 is the main source of data on the income of farmers based on a large sample survey. Following are a few patterns based on these surveys.

Table 1: Average monthly income of agricultural households and CAGR (Nominal and Real) for the period between 2012-13 and 2018-19
(CPI- AL Base 2012-13)

Size class of Land Possessed (ha)	Total income (2012-13) Rs	Total Income (2018-19) Rs	CAGR % (Nominal)	CAGR % (Real)
< 0.01	4,561	10,950	15.72	10.1
0.01-0.40	4,152	7,333	9.94	4.6
0.41-1.00	5,247	8,495	8.36	3.1
1.01-2.00	7,348	11,375	7.55	2.3
2.01-4.00	10,730	16,289	7.21	2.0
4.01-10.00	19,637	27,841	5.99	0.8
10.00+	41,388	60,177	6.44	1.2
All sizes	6,426	10,084	7.80	2.5

Sources: Computed from NSSO (2005 and 2014). *Situation Assessment Survey*, Report No. 497(59/33/5) and 69(70/33/1).

We used the NSSO 59th and 70th rounds to estimate income trends being fully aware that the two rounds are not comparable. Now that the 77th round results are in, they are comparable to those from the 70th round. Below, we show a couple of these two rounds' income trends. According to Table 1, the average monthly income of a household engaged in agriculture was Rs 10,084, an increase of 7.80 percent when compounded annually from the level of Rs 6426 in 2012–2013. The compounded growth rate is 2.5 percent annually in real terms. The double dream cannot be supported by this slow progress.

Table 2: Source–wise share in income for the period 2002-03, 2012-13, 2015-16, and 2018-19 (%)

Particulars	AY 2002-03 (NSSO 59)	AY 2012-13 (NSSO 70)	AY 2015-16 (NAFIS)	AY 2018-19 (NSSO 77)
Income from wages & salaries	39	32	50	40
Net receipt from crop production	46	48	35	38
Net receipt from farming of animals	4	12	8	16
Net receipts from non-farm business	11	8	6	6
Total Income Rs	100	100	100	100
	2115	6426	8931	10084

Source: Author's calculation on 70th and 77th rounds of SAS

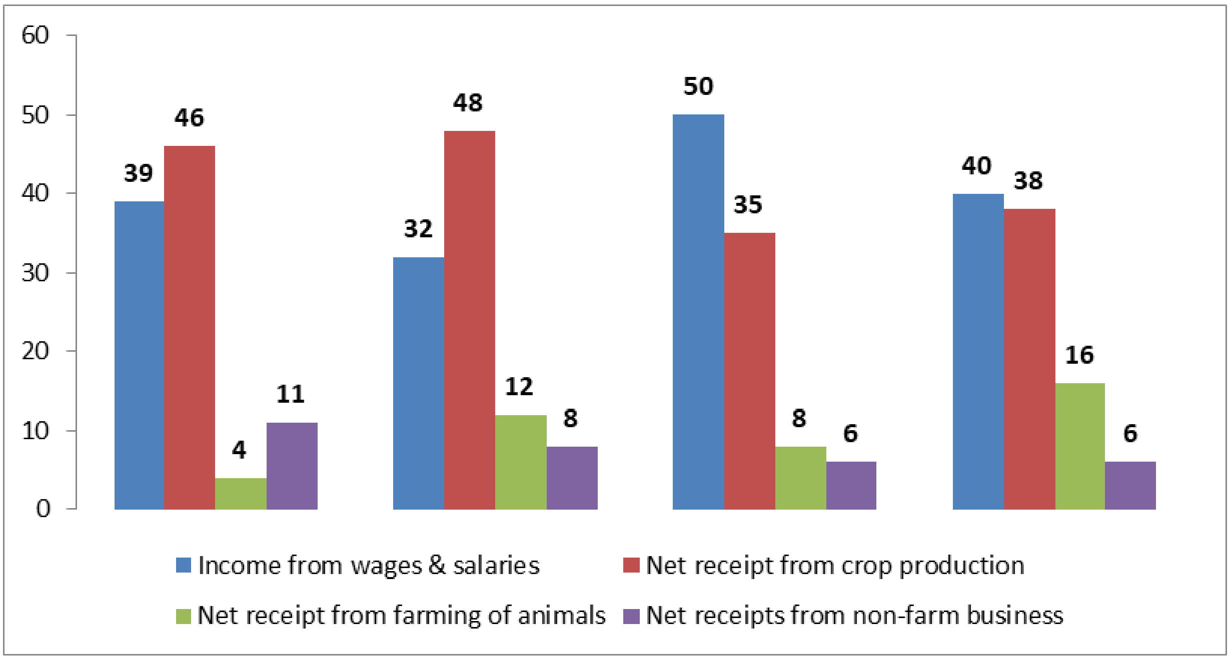

Figure 1: Source–wise share in income for the period 2002-03, 2012-13, 2015-16, and 2018-19 (%)

According to Figure 1, the average family income for farmers increased from Rs 25,380 in 2002–03 to Rs 1,22,616 in 2018–19, coming from a variety of sources. In 2018–19, wages and salaries make up 40 percent of total spending, up from 2012–13 but below the 50% NAFIS predicted. Compared to the 70th round, agricultural cultivation accounts for around 38% of the total share in the 77th round, while livestock contribution has increased through time, now amounting to 16% by 2018–19. Farm households' dependency on non-farm businesses as a source of income has decreased compared to previous rounds. These situation assessment surveys of the NSO provide incredibly useful information on the state of agriculture in the nation, but the reduced percentage of the agricultural sector in 2018–19 and state-wise heterogeneity in farm earnings are concerning.

The share of net income from agricultural activities (crop production and animal farming) per agricultural household grows as land area increases, according to data. The percentages are 91 percent for agricultural households with land larger than 10 hectares and 28 percent for those with land between 0.01-0.40 hectares. The average monthly income of agricultural households with 10 hectares or more is eight times greater than that of agricultural households with 0.40 to 1.00 hectares, a notable income gap that was formerly 10 times greater between 2011 and 2013. From AY 2012–13 to AY 2018–19, not all states experienced the same growth in average monthly income.

Table 3: Income (Rs) by the social group across different size classes of land for 2012-13 and 2018-19

Farm- size, ha	ST		SC		OBC		Others		Overall	
	2012-13	2018-19	2012-13	2018-19	2012-13	2018-19	2012-13	2018-19	2012-13	2018-19
Landless	6467	9451	4177	7840	4582	10611	3786	15865	4561	11204
Lower marginal	4815	7487	3649	7177	4170	7127	4339	8675	4152	7522
Upper marginal	4957	8030	4390	7559	5249	8573	6028	9704	5247	8571
Small	6375	9336	6138	10182	7211	11338	8761	13706	7348	11449
Semi-medium	8153	12214	7874	13307	10654	16733	12677	18573	10730	16435
Medium	14270	23451	13074	23768	18904	22426	22384	38675	19637	28292
Large	100792	145517	24961	17763	35214	56205	46030	57700	41388	60758
All sizes	5864	8979	4539	8142	6378	9977	8059	12806	6426	10218
CAGR (%)	7.35		10.22		7.74		8.02		8.03	

Source: NSO's 70th & 77th round SAS

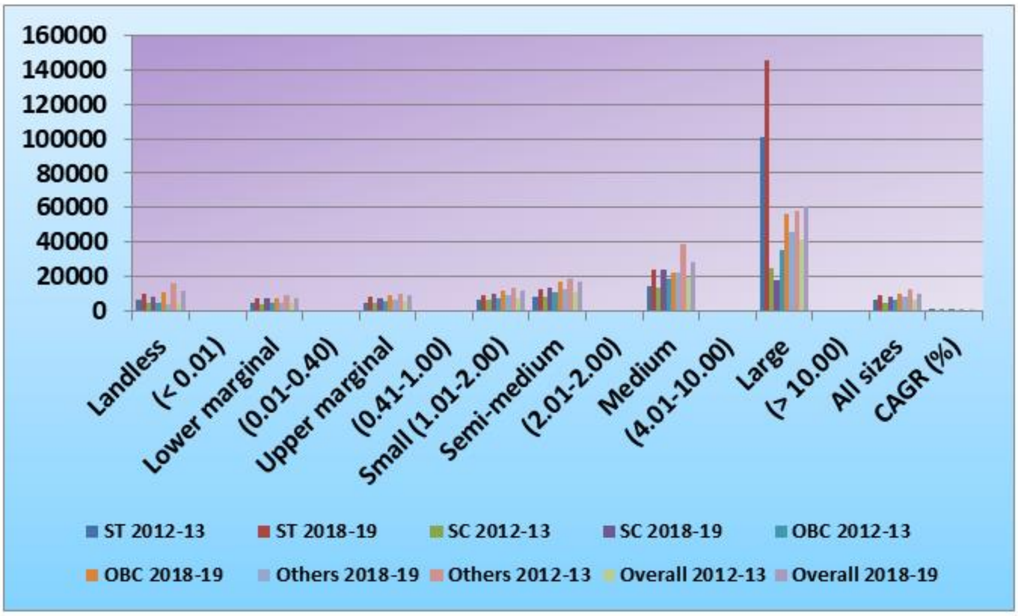

Figure 2: Income (Rs) by the social group across different size classes of land for 2012-13 and 2018-19

Table 3 details the social group's income across various land size classes for the years 2012–13 and 2018–19. The majority of individuals fall into the deprived category, and even if they went without appropriate meals for a day, this is the worst situation of the SC categories, therefore SC households have lower income levels than other categories. When compared to the years 2012–2013 and 2018–2019, farmers now earn more money. The CAGR overall is 8%.

Table 4: Income composition of social groups for 2012-13 and 2018-19

Social Category	Wages/ Salaries		Crop Cultivation		Livestock		Non-Farm		Total	
	2012-13	2018-19	2012-13	2018-19	2012-13	2018-19	2018-19	2012-13	2012-13	2018-19
ST	38.98	50.6	43.72	34.4	14.34	11.7	2.97	3.0	100	100
SC	50.89	53.0	32.52	25.2	10.13	14.0	6.43	7.1	100	100
OBC	29.54	36.9	48.82	37.7	12.78	17.8	8.86	6.7	100	100
Others	26.52	33.8	54.05	42.6	10.24	14.2	9.19	6.6	100	100
All	32.23	39.8	47.95	37.2	11.87	15.5	7.97	6.3	100	100

Source: NSO's 70th and 77th round of SAS

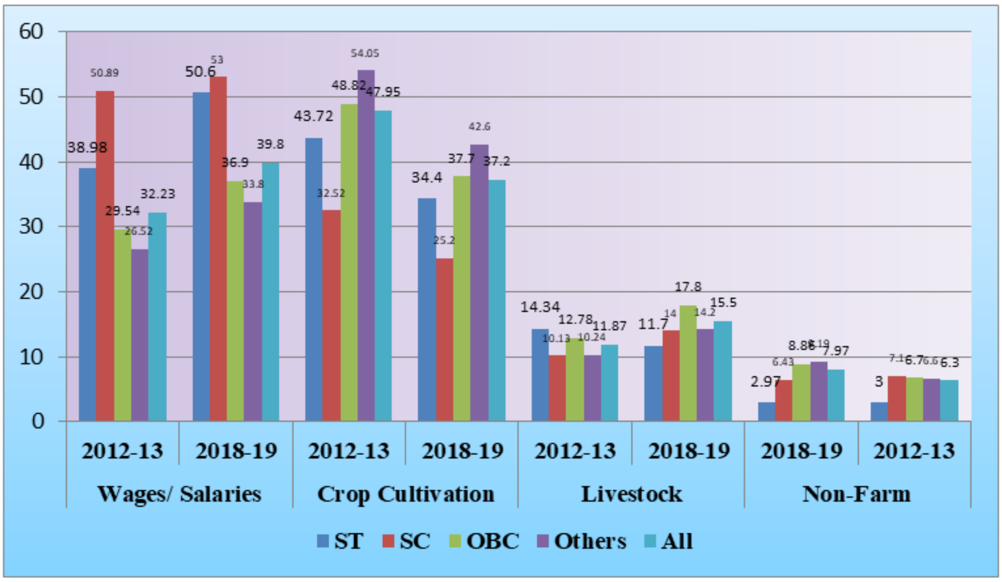

Figure 3: Income composition of social groups for 2012-13 and 2018-19

The socially disadvantaged categories may be at a disadvantage in terms of having access to resources like loans and amounts of income received, as seen in Table 4. When compared to OBC category households, SC and ST households earned less money than the norm. Compared to households falling within the "others" group, these households rely more on wage income. Other category households generate 42% of their income through crop cultivation, which is much more than OBC (37.6%), SC (25.2%), and ST (34.4%) households. The SC household growth rate was greatest in terms of income growth from 2012–13 to 2018–19, followed by other households (8.02%), OBC households (7.74%), and ST households (7.36%). The revenue from livestock doesn't differ substantially amongst social groups. In actuality, it makes up a larger portion of OBC households' overall income than any other group.

Table 5: State-wise Growth Rates of Different Income Components and Total Income of Farm Households

STATES	INCOME FROM FARMING	INCOME FROM LIVESTOCK	INCOME FROM NONFARM BUSINESS	INCOME FROM WAGES/ SALARY	TOTAL ANNUAL INCOME
ANDHRA PRADESH	5.89%	14.35%	-0.36%	3.78%	5.45%
ASSAM	0.70%	9.47%	-7.77%	-3.99%	-0.34%
BIHAR	-0.78%	-3.64%	-6.29%	1.95%	-0.75%
CHHATTISGARH	6.34%	---	-52.74%	1.74%	3.98%
GUJARAT	1.40%	7.10%	2.28%	2.81%	3.12%
HARYANA	8.77%	---	-5.87%	2.29%	8.32%
JAMMU & KASHMIR	-5.51%	1.04%	1.04%	4.86%	0.66%
JHARKHAND	-2.53%	20.13%	-6.17%	-0.95%	0.87%
KARNATAKA	5.76%	9.46%	5.28%	1.51%	4.48%
KERALA	3.64%	7.23%	5.05%	1.75%	3.20%
MADHYA PRADESH	6.10%	---	-5.28%	0.83%	6.91%
MAHARASHTRA	3.32%	8.96%	3.97%	2.09%	3.46%
ODISHA	6.48%	36.08%	5.89%	3.13%	7.57%

STATES	INCOME FROM FARMING	INCOME FROM LIVESTOCK	INCOME FROM NONFARM BUSINESS	INCOME FROM WAGES/ SALARY	TOTAL ANNUAL INCOME
PUNJAB	5.64%	12.27%	-2.70%	4.00%	5.13%
RAJASTHAN	13.84%	45.11%	4.65%	2.17%	8.10%
TAMIL NADU	2.84%	15.53%	9.64%	1.82%	4.47%
UTTAR PRADESH	4.44%	16.32%	-0.55%	-0.63%	3.31%
WEST BENGAL	-5.01%	3.82%	-2.16%	0.90%	-1.25%

Source: NSSO, situation Assessment Report

Table 5 shows that the states of Haryana (8.3%), Rajasthan (8.1%), and Odisha (7.6%) experienced the highest growth rates in total income over the past ten years, while Assam (-0.3%), Bihar (-0.8%), and West Bengal (-1.3%) experienced the lowest growth rates. While Rajasthan and Odisha saw a rise in revenue from livestock (45.1% and 36.1%, respectively), Haryana saw growth mostly from income from agriculture (8.8%). Assam has had a decline in nonfarm business incomes (-7.8%) and wage incomes (-4%) in the low-growth states. The slowdown in every area except wage income is the cause of Bihar's poor income. During this time, West Bengal has had a significant slowdown in its income from agriculture (-5%) and nonfarm business (-2.2%). The three high-growth states based on total income are also the highest-growing states in terms of income from cultivation. The five states with the lowest growth rates in terms of income from cultivation are also among the lowest-growing states in terms of total income. Incomes from agriculture have decreased in Jammu and Jharkhand as well (by 6% and 3%, respectively). This demonstrates the strong relationship between the development of farming income and the overall income growth of farm households. Additionally, there is a strong association between the growth rates of total revenue and livestock income. Even in this instance, the three states with the highest growth rates for livestock revenues are the three states with the highest growth rates for overall income. Bihar has had the lowest growth (-3.6%) in livestock incomes among the low-income states. Tamil Nadu (9.6%), Odisha (5.9%), and Karnataka (5.3%) saw the most rise in non-farm business income, while Bihar (-6.3%), Assam (-7.8%), and Chattisgarh (-52.7%) saw the lowest growth. The states with the largest wage income increase were Andhra (3.8%), Jammu (4.9%), and Punjab (4%), whereas the states with the lowest growth were UP (-0.6%), Jharkhand (-1%), and Assam (-4%). Calculations were made to determine the relationship between the growth rates of various components and overall income.

The agriculture growth rate (0.89) and livestock growth rate (0.77) had the highest correlations with the growth rate of total revenue. Total income growth rate and wage growth rate had a 0.37 association whereas non-farm business income had a 0.1 correlation. Because weather-related issues can affect both agricultural and livestock revenues, a significant association between those two variables and farm households' overall incomes may not be promising. This link could be much lower if farm households had opportunities for non-agricultural wage work and non-farm businesses during difficult times.

Table 6: State-wise estimates of Farming income-dependent farmers (in thousands)

States	Farming-Income dependent households	Total agricultural households	% of Farming income dependent households
Jharkhand	6.6	2808	0.24
Kerala	8.1	1466.9	0.55
West Bengal	75.7	6626.2	1.14
Jammu & Kashmir	12.3	658.3	1.86
Tamil Nadu	60.3	2597.7	2.32
Odisha	283.7	4815.3	5.89
Tripura	25.3	289.3	8.75
Himachal Pradesh	140.5	1034.2	13.59
Sikkim	10.4	65.2	15.95
Uttarakhand	172.9	983.4	17.58
Assam	637.6	3099.7	20.57
Andhra Pradesh	745.5	3159.4	23.60
Haryana	710	1906.7	37.24
Chhattisgarh	1302.6	2985	43.64
Rajasthan	3267.4	7041.5	46.40
Bihar	3351.6	7011.3	47.80
Madhya Pradesh	3489.9	7276.3	47.96
Uttar Pradesh	8746.5	17789.5	49.17
Maharashtra	3646.6	7289.3	50.03

States	Farming-Income dependent households	Total agricultural households	% of Farming income dependent households
Telangana	1528.2	2668.5	57.27
Punjab	884.3	1473.8	60.00
Gujarat	2499.9	4037.1	61.92
Manipur	166.4	241.2	68.99
Meghalaya	272.2	364.7	74.64
Karnataka	3664	4251.6	86.18
Mizoram	71.5	76.4	93.59
Nagaland	181.6	191.8	94.68
Arunachal Pradesh	152.40	152.4	100
ALL-INDIA	**36114**	**92360.7**	**39.1**

Source: NSSO, situation Assessment Report

For each state, we determined the number of households that are significantly dependent on farming income. Farming activity as a whole provides agricultural households with a sizeable portion of their income, 50 pent or more—of their total revenue. The table below shows that this number is just over 36 million, or around 39 percent of the 93 million or so agricultural households that the NSO estimates to exist. According to the Agricultural Census report, it is significantly lower than the 146.5 million operational holdings that the country had in 2015–16. One of the writers of the current report previously estimated that there are between 47 and 50 million farmers who depend heavily on agriculture for their income.

II. Tools to enhance the Farmer's income through FPOs-

Farmer Producer Organizations are based on the idea that farmers who produce agricultural products can organize groups and register under the Indian Companies Act. The Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, has mandated the Small Farmers' Agribusiness Consortium (SFAC) to promote state governments in the creation of Farmer Producer Organizations (FPOs). The aim is to raise farmers' income and provide them with a competitive advantage in new markets. The "Year of Farmer Producer Organizations" was declared in 2014 and the idea is slowly but steadily gaining traction. Supply of fertilizer and machinery as well as market linkages, training, networking, and financial and technical support are one of the FPO's key operations. In response to the difficulties faced by small and marginal farmers, a variety of initiatives have arisen. The first approach of FPO's encouraging small and marginal farmers in organizing collective action. Some important key factors can enhance the farmer's income through Farmer Producer Organizations (FPOs).

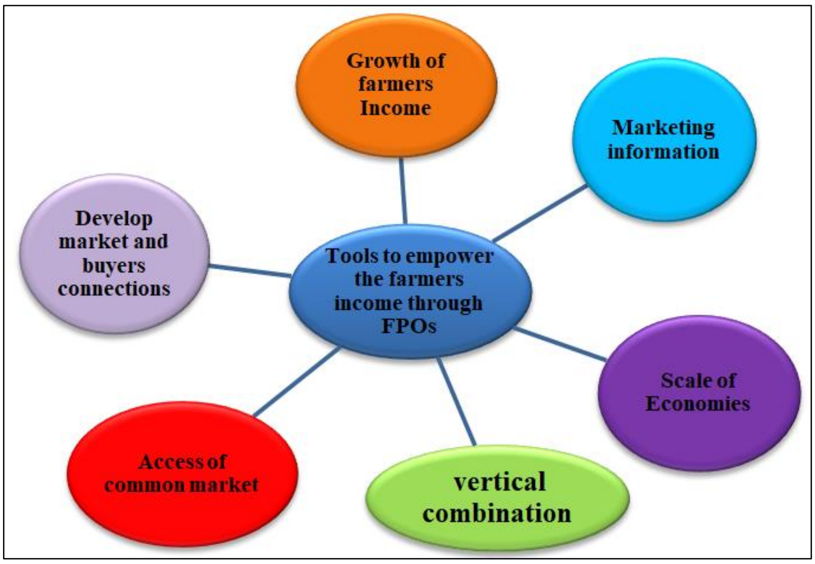

Figure 4: Tools to Enhance the Farmer's Income through FPOs

i) Growth of farmers' Income:

A FPO will assist its members in increasing their income. The FPO can buy in bulk and save money by aggregating input demand. Furthermore, transportation costs are reduced when goods are transported in bulk. As a result, the overall production cost is reduced. Similarly, the FPO may pool all members' produce and sell it in bulk, resulting in a higher price per unit of production.

ii) Proper information regarding marketing:

The FPO can also provide market information to the producers for allowing them to hold onto their produce till market prices improve. All of these measures will enhance primary producers' income. Many FPOs provide their members with information in a variety of methods, ranging from conferences and workshops to field days and focus group discussions. Information can also be found in printed forms such as newsletters, pamphlets, and websites.

iii) Scale of Economies:

Organizations with a large membership base can also benefit from collective ordering and purchasing, allowing them to provide certain common commodities to their members at a lower cost. Inventory costs, transportation costs, and economies in large-scale purchases of agricultural inputs such as seed, fertilizers, pesticides, agricultural equipment, and so on behalf of their members are all part of the cost savings. The capacity to achieve high food quality and safety standards was significantly low in smallholder agriculture because of the scale economies. The failure of smallholder-dominated production methods to meet the food safety and quality requirements of rich-country markets was the most important reason. They emphasized the importance of small-scale farmers taking collective action. While there have been some successful examples of collective action in India's spice and fishery export industries, it has been lacking in many other areas, particularly horticulture (Deininger and Sur, 2006). According to the Urban Poverty and Environment Series report (2007), group negotiation through farmers' organisations provided a valuable advantage in minimizing input costs and ensuring proper output processing by intermediaries or commanding higher output prices. It also enhanced experience sharing and provided opportunities for inter-change and training programs.

iv) Vertical Combination/Integrate:

Producer-owned organisations were good examples of economies of scale based on horizontal coordination of farmers as innovators because they illustrated that by cooperating, farmers in the upper part of the food chain could significantly improve their countervailing power and establish ownership if they could secure strict quality requirements, solid financing, loyalty, and trust in their organisations.

V) Enhancing the accessibility **of the common market for farmers:**

Market access is ensured through the purchase of members' produce, and transportation is similar to the manufacturing organization's supply chain activity. The purchasing activity also includes quality assurance and the price of raw materials. The FPO's typical value-adding processes are covered by consolidation and processing. While consolidation is concerned with bulking and storing food to sell it at a future stage for profit, the processing is concerned with increasing the value of a product by altering its form or structure. In the vegetable sector, which has significant transaction costs, the benefits of farmer organisation for market access were more apparent. Because the transaction costs associated with market access were relatively low, farmers producing an undifferentiated commodity like maize had less incentive to organize. Even though farmer organisations do not provide clear benefits in terms of accessing undifferentiated commodity markets, they can still benefit their members by providing other services (Hellin *et al.*, 2009)**.**

vi) Connections of the buyers and formation of the new market:

To become a dependable market partner, you'll need to build strong and long-term relationships with multiple buyers. Strong contractual arrangements and agreements with them are also required. Market information is essential for FPOs to make commercial decisions, as well as to transmit market signals to members to influence production decisions and define FPO supply conditions. The distributional impacts of reducing transaction costs to provide small farmers access to improved market possibilities are studied by Javier and Cavero (2012). As per the Tools of FPOs new marketing opportunities occur, individuals with more land, better education, and better organisation are best equipped to deal with the complexities of the new contractual arrangements. Farmer Producer organizations have the potential to improve services and reduce transaction costs but strong downward accountability mechanisms are required to address challenges such as poor management and elite capture, and farmers are encouraged to invest in collectively beneficial actions (Mbeche and Dorward). Hence, there are two major sources of farmers' income such as farm income and non-farm income. Farm income sources include incomes from cultivation, animal husbandry, fisheries, forestry, and agricultural wages. Non-farm income sources comprise incomes from wages, salaries, pensions, business, and remittances.

Therefore, Agricultural laborers generate income from four different sources such as crops, animals, non-farm businesses, wages, and salaries. Agriculture and allied sectors which come under the Ministry of Agriculture and Farmers Welfare's authority, clearly cover the different components (such as livestock and crops, etc) of the farmers' income. The major factors affecting the farmers' income are productivity (yield), technology adoption and technical inefficiency, and cost of cultivation.

III. Strategies to Increase Farmers' Income

Practically, increasing the income in six years is a tough undertaking that requires extensive restructuring, reorientation, and innovative efforts. A farmer's income might rise through an increase in gross income or a decrease in expenses. By boosting both their prices and overall output, farmers can raise their income. There are restrictions on area growth due to demand pressures from competing users, such as industry and housing. Raising agricultural output can only be done through increasing productivity. Continuously increasing output prices artificially is impossible without fueling inflationary pressures and upsetting the inter-sectoral balance. A very small percentage of farm households are now aware of minimum support prices (MSP), and an even lower percentage of those who are informed have realized MSP for their crops. Hence, even assuring improved price realization would only temporarily and for a small number of people increase incomes. The National Agricultural Market (NAM) could be of assistance. The two major sources of income development are diversifying the product mix in favor of more lucrative businesses and supplying employment possibilities in non-farm sectors. Lowering input use and/or input prices are two ways to Reduce production costs. Cost reduction cannot be achieved solely through price decreases. A better choice is to employ technology to reduce input utilization. There is a need for widespread adoption of techniques like System of Root Intensification (SRI), Low External Input and Sustainable Agriculture (LEISA), and several other approaches like precision farming, organic farming, and Natueco farming, among others. Together with increasing revenue and preventing drought, NABARD's Watershed Development, Wadi, and Umbrella Program on Natural Resource Management (UPNRM) are beneficial for protecting natural resources and guaranteeing sustainability.

Insurance and other risk-coping and mitigation techniques could help compensate for lost wages. In addition to the well-known threats to farmers, climate change is another risk factor that could result in a decrease in agricultural income. Therefore, it is necessary to increase investment in utilizing alternative energy sources and climate-proofing agriculture. It is crucial to have access to sound physical, economic/financial, and social infrastructure, such as processing and marketing facilities, cold storage capacity, a banking network that can provide desperately needed funds, and training facilities for transferring market-required skills. As a consequence, farms would be able to produce more, and farmers would be able to get better prices, reduce waste, extend the shelf life of their produce, adopt better technology, meet their capital needs, and improve the quality and quantity of their livelihoods as well as their employability under better conditions. Under the NITI Aayog, India's Prime Minister, Shri. Narendra Modi has emphasized doubling farmer income by 2022. In a study published in 2015, the NITI Aayog stated that five issues must be addressed to enhance farmers' livelihoods. Increased production, remunerative prices for farmers, an emphasis on land leasing and land titles, risk adaptation and mitigation, and a geographic focus on the eastern region are among these goals (S. Chandrashekhar and N. Mehrotra, 2016).

The Honourable Prime Minister has outlined seven methods to assist in doubling farmers' incomes. They are: (i) a Big focus on irrigation with large budgets, with the aim of "per drop, more crop"; (ii) Provision of quality seeds and nutrients based on soil health of each field; (iii) Large investments in warehousing and cold chains to prevent post-harvest crop losses; (iv) Promotion of value addition through food processing; (v) Creation of a national farm market and removing distortions; (vi) Introduction of a new crop insurance scheme to mitigate risks at an affordable cost; and, (vii) Promotion of ancillary activities like poultry, beekeeping, and fisheries. More strategies need to be built around natural resource management, and social sector policies such as health and education. For, farmers' expenditure on health and education is substantial enough to topple their balance sheet (Satyasai, 2015).

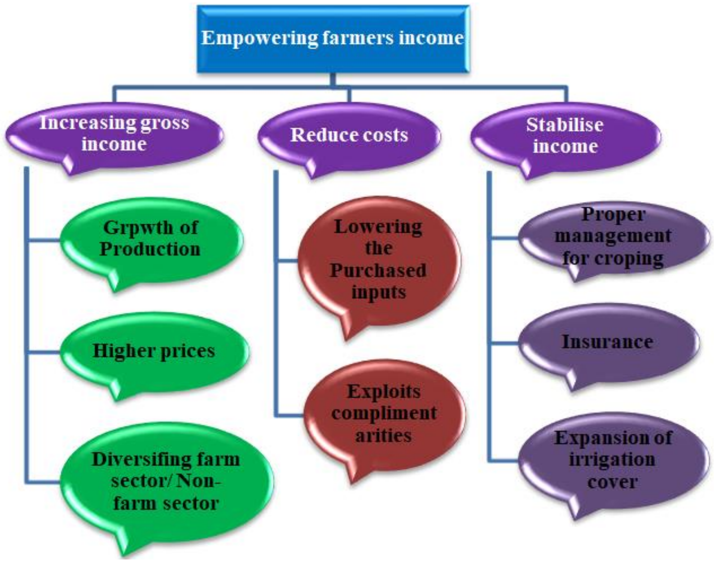

Figure 5: Strategies for increasing farmer's income

As per NABARD Monograph on 'Doubling Farmers' Income by 2022', fundamentally there are three ways through which the income of the farmers may be enhanced, that is increasing the gross income, reducing the costs, and stabilizing the income. Possible routes to achieving these objectives are shown in Figure 5.

CONCLUSION

FPOs are an essential part of the strategy to keep small and marginal farmers out of poverty and to increase their income and competitiveness in agricultural markets. FPOs are a positive step in the right direction for empowering the income of small and marginal farmers but implementation is still complex. India, a country with six lakh villages needs at least one lakh FPOs to improve agriculture. While other Asian countries have dealt with the issues with small and marginal farms by using the methods that work best for them. Japan has the concept of part-time farmers, whereas China and Thailand have adopted collective farming and the contract farming model, respectively. Farmer Producer Organisations in India have the potential to significantly aid small and medium-sized farmers. The only way for a farmer's status to improve is through commercializing and diversifying their agricultural endeavors. By strengthening the connection between small farmers and those who buy their agricultural products, support services for small farmers must be improved. FPO provides an effective approach for resolving many issues that small producers face today. FPO can support farmers both in the process of growing their crops and in the marketing of those crops. Farmers can have low-cost access to high-quality inputs, market information on various marketplaces and their prices, secure access to new technology, and participate in high-value markets through FPO. It is the best method for connecting producers with markets and ensuring adequate prices for their produce. Hence, this organisation structure is proposed, especially for small and marginal producers and a deliberate effort must be made to establish and sustain the institution. Such an effort need to involve research, capacity development, policy, and managerial assistance. It has an excellent possibility of becoming a role model for empowering the income and sustainable livelihood of small and marginal farmers in India.

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