Accelerating Farm Income Growth: Opportunities and Challenges

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1 Introduction

India's agricultural sector stands as one of the biggest sectors in the world with the production of 275 million tonnes (mt) of food grains, 299 mt of fruits and vegetables and 176 mt of milk as late as 2017–18 (GOI, 2019). Some estimates indicate that India's gross production of agricultural commodities is more than one billion tonnes today. But, this spectacular achievement has not reflected in the earning of farming community, as the average monthly income of the agricultural household was only Rs. 6,426 in 2012–13 as per the estimate of Situation Assessment Survey of farmers in India (NSSO-SAS, 2014). Various studies carried out using the data from Cost of Cultivation Survey (CoCS) published by the Commission for Agricultural Costs and Prices (CACP) also revealed that the income realized by the farmers from the cultivation of different crops is very low as well as fluctuating over time (Rao, 2001; Narayanamoorthy, 2006, 2013, 2017).

The impact of reduced farm income was manifested in the form of wide spread farmers' suicides and increased indebtedness over the last two decades or so. Farmers committing suicides were not perceptible before the early 1990s, but it became a widespread phenomenon in the 2000s in many States in India. Estimates show that over three lakh farmers have committed suicides in India between 1990–91 and 2009–10 and the proportion is alarmingly high in States like Maharashtra, Andhra Pradesh and Karnataka (Sainath, 2010). Farm indebtedness is not only widespread but also increasing in the recent years (GOI, 2007; NSSO-SAS, 2005). A nationwide survey

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carried out to understand the State of farmers in India underlined that close to 40% of the farmers are willing to quit the agriculture because of poor profitability from crop cultivation (NSSO-SAS, 2005). The National Commission on Farmers (NCF, 2006) has reported that the young farmers are not willing to take up agriculture as profession because it is not profitable to them.

Sufficient income from crop cultivation is essential not only for the survival of the farmers but also facilitates to reinvest in agriculture for the next season (Dev and Rao, 2010). If the flow of income from crop cultivation is inadequate, farmers may not be able to repay their debts which would obviously lead to increased indebtedness (Deshpande, 2002; Vaidyanathan, 2006; Deshpande & Arora, 2010; GOI, 2007; Reddy & Mishra, 2009). The National Commission on Farmers (NCF) has also underlined that inadequate return from the crop cultivation is the main reason for present agrarian crisis and farm suicides (NCF, 2006).

Many initiatives were taken to solve the farm crisis and to increase the farmers' income. For instance, during 2008, Prime Minister Manmohan Singh-led UPA government had announced the biggest farm loan waiver with a cost of Rs. 52,260 crore. Between 2014 and 2018, a total of Rs. 1,82,802 crore were reportedly announced as loan waiver by seven States namely Andhra Pradesh, Uttar Pradesh, Maharashtra, Karnataka, Rajasthan, Punjab and Tamil Nadu (Narayanamoorthy & Alli, 2019).[1] However, even after such massive loan waiver, there are no evidences to prove that the loan waiver has improved the income of farmers. In fact, Sainath (2010), who studied extensively the phenomenon of farm suicides in India, wrote that farm suicides increased in most States after the announcement of loan waiver scheme. This was probably because the one time support programme (loan waiver) would alone not be sufficient to solve the problem of farmers who require increased income from crop cultivation. In fact, the indebtedness and other related problems occur mainly due to poor returns from crop cultivation (Narayanamoorthy 2007, 2013).

Why are our farmers not able to realize increased income despite significant increase in productivity and production of different crops? One of the prominent reasons for realization of low income by farmers is due to more emphasis given for production centric policies by successive governments. Farmers were treated as mere agents of production and their well-being has taken a back seat in most of the policy decisions over the years. Focus on post-production activities namely strengthening of market facilities/infrastructures and procurement by State agencies was given less importance. The poor State of agricultural markets is vividly highlighted in the recently released NITI Aayog (2015) report on "Raising Agricultural Productivity and Making Farming Remunerative for Farmers". It surmises "…Agricultural markets in India have witnessed at best limited reforms during the last three decades and the mandi system is characterised by inefficient physical operations, excessive

[1] Indebtedness among the farm households and its impact on farm suicides are discussed in detail by many scholars. However, not many have tried to study as to what would have been the scenario of farm suicides if the loan waiver scheme was not introduced in different States. A field level study on this issue may reveal very interesting facts. I am thankful to an anonymous referee of this paper for highlighting this point.

crowding of intermediaries, long and fragmented market chains and low scale. This is depriving farmers of fair share of the price paid by the final consumer. Consequently farmers are seeking MSP for almost all crops and everywhere, which is not feasible. There is a need for paradigm shift from price centric direct intervention to non-price policy instruments. The aim should be to create enabling market environment for produce for higher price realization for farmers. Many of the steps necessary to achieve this are related to the reform of the Agricultural Produce Marketing Committees Acts in the States. The farmer must be given the full right to sell her produce to whomsoever she wants in virtually all products. This would allow the farmer to minimize the number of intermediaries and receive a higher fraction of the price paid by the ultimate consumer" (p. 43).

The market plays a big role in getting the remunerative prices for the commodities sold by the farmers that ultimately helps them to augment the income from the source of crop husbandry. In many instances, the farmers sell their crops to intermediaries at a low price straight away after harvesting because of poor post-harvesting facilities, including poor arrangements for procurement of crops, poor road connectivity which puts break on transport facility, etc. The poor post-harvesting facility does even help the consumers. Because of long supply chains and high level of marketing charges (which happen due to innumerable intermediaries), the costs of produce increase considerably. All these results in very low producer's share in consumer's rupee in most agricultural commodities (for details see, MoAWF, 2017). The root cause for the widespread farm suicides and indebtedness, which started in India sometime during early part of 2000s, is the reduced margin realized by the farmers for their crops from the market. Some estimate suggests that 30–50% of wastages in the production of crops especially in fruits and vegetables occur because of poor post-harvesting infrastructure facilities.

Though a renewed thrust has been given for strengthening post-harvest infrastructure facilities in the context of doubling farm income by 2022–23 by the present Union Government, still considerable focus is given for production related activities to increase the farm income despite knowing the fact that the production is not the issue to augment the farm income. For instance, after carefully studying the State of farm income, the NITI Aayog's recent policy paper on "*Doubling Farmers' Income*" has identified seven sources of growth (Chand, 2017). They are; (i) increase in productivity of crops, (ii) raise in production of livestock, (iii) improvement in efficiency of input use (cost saving), (iv) increase in crop intensity, (v) diversification towards high value crops, (vi) improved price realization by farmers, and (vii) shift of cultivators to non-farm jobs (Chand, 2017). Most suggestions are again focusing on production side, which will have very little impact on doubling farm income. It is high time to recognize that the conventional production centric approach will no longer be useful to increase the farm income unless it is connected with the post-production related activities. Increased cost of cultivation and un-remunerative prices for produces are the two major factors affecting growth of farm income. Therefore, our future policies and strategies must focus on these two factors to achieve the goal of doubling farmers' income. In this paper, while analysing the State of farm income,

an attempt is made to provide strategies and policy options that can double farmers' income from crops cultivation.

The rest of the paper is structured as follows. Section two presents the analysis on the State of farm income in India. Section three provides detailed discussions on various strategies that can be followed to double the farmers' income. Concluding remarks are provided in section four.

2 State of Farm Income in India

Without studying the present State of farm income, it is difficult to provide strategies and policy options that can make ways to double it. Therefore, let us briefly understand the State of farm income in India.[2] Data on farm income were not available in India till the publication of Situation Assessment Survey (SAS) of farmers conducted by NSSO for the year 2002–03 (NSSO-SAS, 2005). In a similar fashion, another survey was conducted by NSSO to assess the farm income for the year 2012–13 (NSSO-SAS, 2014). Very recently, NABARD has also released data on farm income for the year 2015–16 generated from a nationwide survey which is known as NABARD All India Rural Financial Inclusion Survey (NABARD, 2018). I have used data from these three sources to assess the State of farm income. It is evident from Table 1 that the average annual farm income per household for the whole of India at current prices was only Rs. 25,380 for the year 2002–03, which also varied widely from State to State. This income increased to Rs. 77,112 per household for the year 2012–13 and further to Rs. 1,07,172 per household for the year 2015–16. During the 14 years period from 2002–03 to 2015–16, the farm income per household is estimated to have increased by about 4.22 times, which is an increase of 0.30 times per annum. The annual increase in farm income was relatively higher (0.35 times) between 2012–13 and 2015–16 as compared to the period from 2002–03 and 2012–13, which is about 0.28 times per annum.

It should be noted here that the growth in farm income would go down considerably if the income data is converted into real prices. Be that as it may, what is to be studied here is whether the goal of doubling farm income can be achieved by 2022–23 with business as usual scenario. The goal of doubling farm income was originally announced in the year 2015–16. This means that the farm income should be made double in seven years period. We have data on farm income for the year 2015–16 and 2012–13 from which an assessment can be made on the progress of farm income. As reported earlier, the average annual farm income per household was Rs. 1,07,172 for the year 2015–16, which is also the base year fixed for doubling farm income. Going by this, the farm income per household should reach Rs. 2,14,344 by the agriculture

[2] The major aim of this paper is to discuss the opportunities and challenges on accelerating the farm income growth and not on studying the trends and development of farm income. Therefore, a detailed analysis on farm income by crop, region and agro-ecological (irrigation) condition is not attempted here. A detailed treatment on farm income under different dimensions can be seen from Narayanamoorthy (2020).

Table 1 Trends in annual income of farm households in major States in India

States	Income/hh/year (Rs in current prices)			Increase in time			Average increase in income/annum (Rs)		
	2002–03	2012–13	2015–16	2012–13 over 2002–03	2015–16 over 2012–13	2015–16 over 2002–03	2002–03 to 2012–13	2012–13 to 2015–16	2002–03 to 2015–16
Andhra Pradesh	19,608	71,748	83,040	3.66	1.16	4.24	4740	2823	4531
Assam	37,932	80,340	118,536	2.12	1.48	3.12	3855	9549	5757
Bihar	21,720	42,696	86,100	1.97	2.02	3.96	1907	10,851	4599
Chhattisgarh	19,416	62,124	102,960	3.20	1.66	5.30	3883	10,209	5967
Gujarat	32,208	95,112	142,788	2.95	1.50	4.43	5719	11,919	7899
Haryana	34,584	173,208	221,952	5.01	1.28	6.42	12,602	12,186	13,383
Jammu & Kashmir	65,856	152,196	112,260	2.31	0.74	1.70	7849	-9984	3315
Jharkhand	24,828	56,652	83,892	2.28	1.48	3.38	2893	6810	4219
Karnataka	31,392	105,984	127,236	3.38	1.20	4.05	6781	5313	6846
Kerala	48,048	142,656	203,124	2.97	1.42	4.23	8601	15,117	11,077
Madhya Pradesh	17,160	74,520	95,028	4.34	1.28	5.54	5215	5127	5562
Maharashtra	29,556	88,632	123,216	3.00	1.39	4.17	5371	8646	6690
Orissa	12,744	59,712	92,772	4.69	1.55	7.28	4270	8265	5716
Punjab	59,520	216,708	277,596	3.64	1.28	4.66	14,290	15,222	15,577
Rajasthan	17,976	88,200	108,156	4.91	1.23	6.02	6384	4989	6441
Tamil Nadu	24,864	83,760	117,300	3.37	1.40	4.72	5354	8385	6603
Uttar Pradesh	19,596	59,076	80,016	3.01	1.35	4.08	3589	5235	4316
West Bengal	24,948	47,760	93,072	1.91	1.95	3.73	2074	11,328	4866

(continued)

Table 1 (continued)

States	Income/hh/year (Rs in current prices)			Increase in time			Average increase in income/annum (Rs)		
	2002–03	2012–13	2015–16	2012–13 over 2002–03	2015–16 over 2012–13	2015–16 over 2002–03	2002–03 to 2012–13	2012–13 to 2015–16	2002–03 to 2015–16
All India	25,380	77,112	107,172	3.04	1.39	4.22	4703	7515	5842

Sources Estimated using data from NSSO-SAS (2005, 2014), NABARD (2018)

Table 2 Estimate on Doubling Farm Income by 2022–23, with business as usual scenario

Sl. No.	Particulars	Rs/household
(1)	Actual Annual farm income in 2015–16 in current prices	1,07,172
(2)	Double amount of farm income to be achieved by 2022–23	2,14,344
(3)	Annual farm income in 2012–13	77,112
(4)	Income increase needed per annum to double farm income by 2022–23	15,310
(5)	Average increase in farm income per annum between 2012–13 and 2015–16 [(1)– (3)/4]	7515
(6)	As per the present rate of increase, the additional farm income increase in 7 years (7 × Rs. 7515)	52,605
(7)	Annual farm income expected to reach with present rate of increase by 2022–23 [(1) + (6)]	1,59,777
(8)	Deficit from the goal of doubling farm income by 2022–23 [(2)– (7)]	54,567

Sources Estimated using data from NSSO-SAS (2014) and NABARD (2018)

year 2022–23. In order to achieve this income level, the average farm income per annum should increase to Rs. 15,310 over a period of seven years from 2015–16 to 2022–23. But, the farm income per household has increased only to about Rs. 7515 per annum between 2012–13 and 2015–16 (see, Table 2). That is, if this trends in income growth continues, then the annual farm income per household would reach only to Rs. 1,59,777 by the agricultural year 2022–23, which is way below the mark of doubling farm income.[3] All these go to suggest that doubling farm income will be difficult to achieve with the present practice of production centric approach.

3 Strategies for Doubling Farm Income

It is clear from the past experience that production centric approach helps food security of the country and not the farmers in terms of enhancing their income. This has been clearly underlined through an estimate by Gulati (2019) in his article on "Over Rs. 45 lakh crore plundered from farmers". Farmers have been facing two big impediments on enhancing their income which are poor market support and increased cost of cultivation. While the poor market supports are not helping the farmers to get remunerative prices for the crops, the increased cost of cultivation due to escalating cost of inputs (such as labour and irrigation) reduces the profit margin of the crops. Therefore, it is very much necessary to introduce strategies that can assure better prices for crops from the market and simultaneously reduce the cost of cultivation. Some of the important strategies for doubling the farm income are discussed below.

[3] This analysis is done specifically to show whether doubling farm income is possible by 2022–23 even with use of current prices data. No doubt that the gap between the doubling farm income targeted (Rs. 2,14,344) and the farm income to be reached with its present growth (Rs.1,59,777) will be widened further, if the entire calculation is made using constant prices.

3.1 Enhanced Procurement by State Agencies

Without adequate procurement of commodities by State agencies, farmers may not be able to avail MSP announced periodically by the government. Procurement of crops is generally very low and it is also concentrated mainly on a few food grain crops like paddy and wheat. In fact, the level of procurement in pulses and oilseed crops is abysmally low in India over the years. Of the total production of food grains (minus pulses), only about 75.28 millions were procured during 2018–19, which is only about 29% of the total production (MoF, 2019). Similarly, data published by CACP (2019) shows that the procurement of tur, groundnut and soya bean has declined sharply in 2018–19 as compared to the year 2017–18. As a result of reduced procurement, market prices were ruling below the MSP in most States even in paddy crop, where procurement is considered to be relatively better than other crops (see, Table 3).

Increased procurement of crops brings two important benefits: (1) it helps the farmers to get the MSP for different crops, and (2) increased procurement will also suck the surplus of commodities available in the market that ultimately helps the farmers to get better prices for crops in the open market. Therefore, the governments (both Centre and State) must make take all possible efforts to strengthen the procurement system. Now, the procurement in most crops are concentrated only with a few States, which should be expanded to across States so that farmers from different States will get better prices for the crops. The Situation Assessment Survey (SAS) on farmers households shows that the awareness about the procurement system and MSP among the farmers is very low (NSSO-SAS, 2005). Therefore, arrangements should be made to provide the details about the duration of procurement of crops and its prices (MSP) on a regular basis. As and when MSPs are ruling below the market price, the government should make arrangements to increase the quantity of procurement and also extend the period of procurement of crops.[4]

3.2 Improved Market Infrastructure

The State of agriculture market infrastructure is very pathetic in India. Most markets do not have the basic facilities such as storage and weighing machines. Because of poor market infrastructure, farmers are often forced to sell their produces at throw away prices, which do not help to increase their farm income. Over the last few years, many initiatives were introduced to strengthen market infrastructure. For instance, in the Union Budget 2017–18, big announcements were made to "strengthening of e-NAM and to expand coverage of e-NAM to 585 APMCs". Since more than 86%

[4] There is a feeling in some quarters that the universal procurement of crops at MSPs can help increase the farm income considerably across different regions in India. A feasibility study on this issue needs to be carried out to understand the expected cost for implementing such scheme and the farm income that is expected to increase across different farm size groups.

Table 3 Market prices and MSP of paddy in major producing States in kharif 2018–19

States	No. of days market prices reported				No. of days market prices were below MSP				Days (%) when market prices were below MSP
	Oct 2018	Nov 2018	Dec 2018	Jan 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2018	
Andhra Pradesh	28	30	30	31	4	7	8	2	17.6
Assam	19	17	21	20	16	17	15	20	88.3
Chhattisgarh	31	30	31	31	27	30	30	31	95.9
Tamil Nadu	29	26	29	30	24	21	19	17	71.1
Telangana	27	0	21	31	25	0	13	13	64.6
Punjab	24	30	2	0	1	0	0	0	1.8
Uttar Pradesh	31	30	31	31	31	27	26	30	92.7
West Bengal	31	30	31	31	31	30	30	27	95.9

Source CACP (2019)

of farmers are marginal and small, they are not in a position to directly transact at APMC or in other wholesale markets. Considering this, in the Union Budget 2018–19, it was announced to "… develop and upgrade existing 22,000 rural haats into Gramin Agricultural Markets (GrAMs). In these GrAMs, physical infrastructure will be strengthened using MGNREGA and other Government Schemes. These GrAMs, electronically linked to e-NAM and exempted from regulations of APMCs, will provide farmers facility to make direct sale to consumers and bulk purchasers. An Agri-Market Infrastructure Fund with a corpus of Rs. 2000 crore will be set up for developing and upgrading agricultural marketing infrastructure in the 22,000 Grameen Agricultural Markets (GrAMs) and 585 APMCs" (MoF, 2018).

Despite efforts from the Government of India, it appears that no big changes have taken place in the level of market infrastructure in most States in India. NITI Aayog constructed an index known as "Agricultural Marketing and Farmer Friendly Reforms Index" (AMFFRI) to reflect the "…ease of doing agribusiness as well as opportunities for famers to benefit from modern trade and commerce and have wider option for her/his produce" (MoF, 2019). This index shows that most of the States/UTs could not reach even halfway marks of reform score. Because of poor implementation of market reforms, even the agriculturally well-developed State of Punjab could get only 14th rank in the composite index (see, Fig. 1). How can we double farmers' income with this kind of poor marketing infrastructure? There is a feeling in some quarters that the agricultural market is a State subject where the Centre cannot interfere; some States even blindly oppose any agri-market reform introduced by the Centre. This thinking will take the farmers nowhere. If the Centre's directives on agricultural market reforms are beneficial to farmers, there is nothing wrong in implementing it in the State. Therefore, both the Centre and States must take planned effort to improve the agricultural market infrastructure to create ease of agribusiness for farmers.

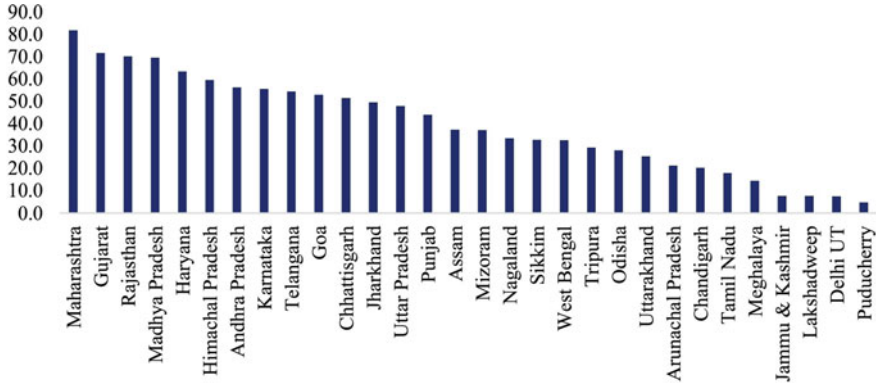

Fig. 1 Ranking of States in terms of implementation of marketing and other farmer friendly reforms. *Source* MoF (2019)

3.3 MSP Be Fixed Based on Cost C2 + 50% Formula

Providing assured and remunerative prices for crops is very important to enhance farm income. In order to support the farmers, Minimum Support Prices (MSPs) are presently provided for 23 crops. Considerable advancement has taken place in the fixation of MSPs over the years. Attention was not given for non-cereal crops like pulses and oilseeds while deciding the prices for crops till very recently, which is completely changed now. While the MSPs were fixed based on the formula of A2 cost of production during the seventies and eighties, A2 + FL cost of production were followed throughout nineties and up to 2018–19. For the first time, MSPs were fixed at least one half times of the cost of production (A2 + FL plus 50% formula) since the kharif season 2018. No doubt that "… this historic decision will prove an important step towards doubling the income of our farmers" in future, as mentioned in the Budget Speech of 2018–19 (MoF, 2018). But even after announcing the MSPs over and above 50% of cost of production, there are no evidences to show that this price hike has made any big impact on the income of farmers.[5] An unabated increase in cost of production particularly after 2000–01 has been offsetting any increase in income from crops cultivation. Farmers have been demanding for C2 cost + 50% formula for fixing the MSPs for different crops, citing the recommendation of M. S. Swaminathan led National Commission on Farmers (NCF, 2006). Our estimate also suggests a vast gap between the MSPs announced by the government and the one suggested by the National Commission on Farmers (see, Table 4). Therefore, there is a need to fix MSPs based on the formula of cost C2 plus 50% to enhance the income of farmers.[6]

3.4 Need to Implement PM-AASHA with Full Spirit[7]

For the first time in the history of Indian agriculture, a new scheme called "Pradhan Mantri Annadata Aay SanraksHan Abhiyan" (PM-AASHA) has been introduced during 2018–19 by the Union Government to improve the procurement system and address the gaps in the Minimum Support Price (MSP) scheme. The new scheme

[5] As pointed by the referees of the paper, one needs to wait and see as to what kind of long-term impacts this new pricing formula (A2 + FL plus 50%) will have on the income of farmers. We also need to carry out analytical study on the impact of these new pricing formula in increasing the income of farmers using more disaggregated data or field level survey data to have definite conclusion about the effectiveness of the this intervention.

[6] There are apprehensions that fixing MSPs at cost C2 + 50% formula may create inflationary pressure that will have a big impact on consumers and exchequer. Given the low level procurement of 23 mandated crops, how far this is true? A detailed investigation is needed to assess the implications of such pricing formula on inflation.

[7] This section is heavily drawn from the author's (written jointly with P. Alli) own article on "Will PM-AASHA benefit the farmers", *Business Line*, May 28, 2019, p. 6. I thank my coauthor P. Alli for permitting to use the content of the article in this chapter.

Table 4 Projected cost of production of selected crops and actual MSP for 2019–20

Crops	Projected Cost of Production (Rs/qtl)			Actual MSP 2019–20	C2 + 50% based MSP	Difference between actual MSP and C2 + 50% MSP
	A_2	A_2 + FL	C_2			
Paddy	894	1208	1619	1815	2527	−712
Jowar	1263	1698	2324	2550	3599	−1049
Bajra	617	1083	1463	2000	2463	−463
Maize	844	1171	1570	1760	2450	−690
Ragi	1583	2100	2672	3150	4247	−1097
Arhar (Tur)	2677	3636	5417	5800	8317	−2517
Moong	2884	4699	6359	7050	9884	−2834
Urad	2605	3477	5460	5700	8310	−2610
Groundnut	2769	3394	4352	5090	6897	−1807
Soybean	2027	2473	3422	3710	5277	−1567
Sunflower	3139	3767	4957	5650	7782	−2132
Sesamum	2767	4322	6125	6485	9368	−2883
Nigerseed	1736	3960	5913	5940	8883	−2943
Cotton	2781	3501	4678	5255	7306	−2051

Source Estimated using CACP (2019)

consists of three sub-schemes namely (1) Price Support Scheme (PSS), (2) Price Deficiency Payment Scheme (PDPS) and (3) Private Procurement Stockist Scheme (PPSS). The historic scheme appears to be a robust mechanism that would enable farmers across the States to realize MSPs in fuller measure.

The Price Support Scheme (PSS) promises to provide assured price for farmers and protect them from making distress sale during bumper harvest. The scheme proposes to strengthen physical procurement of pulses, oilseeds and copra. The State governments will be entrusted with the responsibility in deciding the type and quantity of the crop to be procured, when wholesale prices fall below MSP. Besides, the State governments will also procure 25% of the marketable surplus of farmers for eligible crops. Maharashtra government at the beginning of 2018, reportedly procured around 4.5 lakh tonnes of tur under PSS, when its farmers were getting only Rs. 4200–4400 per quintal against the MSP of Rs. 5450. Under the new scheme, the Central government will compensate the States for any losses capped at 30% of procurement cost.

The Price Deficiency Payment Scheme (PDPS) has been formulated on the lines of Madhya Pradesh government's Bhavantar Bhugtan Yojana (BBY). It promises to hedge price risks wherein farmers will be compensated for distress sale at prices below MSP. This scheme proposes to cover all oilseeds for which MSP is notified. Under this, the direct payment of the difference between MSP and the modal price of market will be made to farmers. This scheme does not involve any physical procurement of crops by the State agencies, as farmers are paid the difference between MSP

and modal price on disposal in the notified market. PDPS will create win–win situation for both farmers and government. While assuring MSP for farmers, it will reduce the accumulation of unwanted food grains and oilseeds stocks and the fiscal costs of procurement and storage will also reduce significantly.

Under the Private Procurement Stockiest Scheme (PPSS), the government is mulling to allow the entry of private players in the procurement of oilseeds on a pilot basis. The private players can procure oilseeds at the State-mandated MSP for which they would be paid a service charge not exceeding 15% of the notified support price. While some private players are already engaged in procurement of wheat, this initiative got a fresh impetus as it is expected to increase the outreach of MSP operations among all crop growers, which is essential to increase farmers' income.

The issue is that unless procurement is strengthened by various means, any hike in MSP will not proportionately benefit farmers. When markets have failed miserably to pull out farmers from the perpetual indebtedness over the years, the PM-AASHA is expected to bring a new face in the market architecture.[8] While the pace of procurement increased in the recent years, the data released by NAFED for the year 2018–19 indicates lack of coordination of State governments with procuring agencies has resulted in poor procurement of kharif and rabi pulses and oilseeds in many growing States. It is high time to realize that unless State governments work in harmony with the procuring agencies, all concerted efforts that are being taken towards making a robust and efficient procurement mechanism will fail to bring about a paradigm shift in farmers' income.

3.5 Right to Sell at MSP

Because of significant policy changes that have taken place with regard to procurement and the announcement of MSPs for crops in the recent years, number of paddy farmers benefitted from MSP at all-India level have increased from 7.42 million in 2016–17 to 7.76 million in 2018–19. States such as West Bengal, Chhattisgarh, Uttar Pradesh, Madhya Pradesh and Haryana registered a significant increase in number of beneficiary farmers (CACP, 2019). But the share of farmers benefitted from MSPs and the quantity of produce sold through State managed procurement centres are very less in different crops even today (see, Table 5). Non-availability of procurement centres are often reported as the main reason by the agricultural households for not able to avail the MSPs announced by the government (NSSO-SAS, 2014). Fixing enhanced MSPs alone will not help to increase the farm income unless assured

[8] The PM-AASHA scheme was introduced only during 2018–19. Therefore, detailed studies are not available on its overall impact on procurement of crops and the prices received for the same by the farmers in different States. Studies need to be carried out on its impacts using data from different States which will not only help to understand the reach of this scheme but also help to scale up such scheme for more crops.

Table 5 Number per 1000 of agricultural households having awareness about MSP for selected crops during January 2013–June 2013

Crop	Number per 1000 of households reporting sale of crops			Of the households sold to procurement agency		Estd. no. of households reporting sale of crop (00)
	aware of MSP	aware of procurement agency	sold to procurement agency household	% of sale at MSP to total sale	avg. sale rate received at MSP (Rs)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Paddy	315	187	100	14	13.15	54,578
Jowar	213	207	192	36	13.83	4565
Maize	118	61	29	4	11.45	19,581
Wheat	392	345	162	35	13.99	129,991
Barley	110	105	16	1	40.75	1432
Gram	126	97	39	5	29.96	33,190
Arhar (tur)	142	131	47	1	47	3517
Moong	91	37	19	2	58	6893
Masoor	181	155	20	0	36	7352
Sugarcane	454	407	366	33	3.25	20,558
Potato	121	90	6	2	8.83	24,679
Onion	153	98	6	1	17.5	5955
Groundnut	89	82	13	1	37.62	6770
Rapeseed/Mustard	155	128	29	14	30.84	36,155
Coconut	215	110	17	0	9.34	11,084
Cotton	226	177	84	3	34.15	10,753

Source NSSO-SAS (2014)

procurement arrangements are provided to farmers. Therefore, it is very much necessary to enact an act on "right to sell at MSP" so that farmers will be able to avail the MSPs across the States which will help to increase their farm income.

3.6 Changes Needed in Restrictive Policies

For many years, farmers have been exploited and penalized by imposing extremely harsh policies such as Essential Commodities Act (ECA) and Minimum Export Prices (MEP). Gulati (2019) underlines that the agricultural marketing and trade policies in India are highly distorted, restrictive and pro-consumer, often at the cost of farmers. He surmises that "Indian farmers have been "implicitly taxed' through restrictive

marketing and trade policies that have an in-built consumer bias of controlling agri-prices. If one calculates the sums involved of this 'implicit taxation", it amounts to Rs.2.65 trillion (lakh crore) per annum, at 2017–18 prices, for 2000–01 to 2016–17. Cumulatively, for 17 years, this comes to roughly Rs. 45 trillion at 2017–18 prices. No country in the world has taxed its farmers so heavily as India has done during this period. This is nothing short of plundering of the farmers' incomes by Rs.45 trillion! Until India reforms its agri-marketing laws, and frees agri-markets, it is time to atone through a structured and stable income policy for farmers for at least the next five years". Though some commodities have been dropped from the list of ECA during 2000s, a large number of commodities are still under its control which does not allow free trade, storage and movement (Chand, 2017). Similarly, in order to support the domestic consumers, MEP is imposed as and when prices of certain commodities go up sharply. These kinds of age old draconian policies are continuously hurting the farmers on realizing increased income from their harvest. Therefore, both ECA and MEP should be scratched to benefit the farmers.

3.7 Measures to Reduce Cost of Cultivation

While addressing the issues relating to agricultural market infrastructures, there is also a need to introduce measures that can reduce the cost of cultivation which has been increasing at a faster pace in the recent years, leading to reduced income from crops cultivation (for details see, Narayanamoorthy, 2016). Analysis based on the data of cost of cultivation survey shows that human labour cost required for cultivating various crops has increased considerably after the implementation of MGNREGS (see, Gulati, et al., 2013). Similarly, the irrigation cost has increased continuously over the years because of increased use of groundwater, which is cost-intensive (see, Narayanamoorthy, 2015a; b). By introducing certain policy changes, the cost of these two inputs can be reduced. First, the coverage of surface sources of irrigation water such as canal and tanks should be expanded as these sources are less cost. But, the canal irrigation development is almost stagnant starting from the late-nineties in India and this has forced the farmers to heavily rely on groundwater irrigation. Because of cost-intensive nature of groundwater irrigation, the requirement of cost for cultivating crops under groundwater irrigation is very high. There are about 437 large dams under various stages of construction besides several thousands of small dams in India (Harsha, 2019). Due to paucity of funds, the work progress of these dams is very slow. With increased allocation of fund, these dams can be completed speedily that would help increase surface irrigated area, which will ultimately reduce cost of irrigation. As suggested in the report of the Working Group on Major and Medium Irrigation for the 12th Plan (see, Planning Commission, 2012), there is also a need to increase allocation of funds required for the ongoing irrigation projects (with better monitoring by State agencies) to increase the canal irrigated area.

Increased cost of cultivation required for cultivating crops is one of the biggest problems encountered by the farmers in the recent years. While the labour cost has

been increasing over time, the implementation of the world's biggest rural employment programme namely MGNREGS during the mid-2000s has completely altered the rural labour market which also skyrocketed the cost of labour. Gulati and et al. (2013) surmise that "… MGNREGA has "pushed" up the average wage of casual workers, distorted the rural labour markets by diverting them to non-farm rural jobs, thus creating an artificial labour shortage and raising the cost of production of agricultural commodities" (p. 9). It is reported further that between 2008 and 2011, the labour cost has registered an increase of about 74% at the all-India level, 88% in Andhra Pradesh and 94% in Tamil Nadu. Since the labour cost accounts for about one-third of cost of cultivation per acre in most crops, the increased cost of labour pulls down the profitability of crops considerably. Therefore, as demanded by the farmers organizations, there is need to link MGNREGS with farm operations with some riders to reduce the cost of cultivation.[9]

4 Concluding Remarks

This paper underlines that if the government really wants to double farmer's income by 2022–23, it must move away from production centric approach to market centric approach. Past experience shows that increased production of agricultural commodities does not guarantee enhanced income for farmers even in the highly assured irrigated area. Mere announcement of MSP would not help the farmers unless procurement infrastructure is strengthened. Procurement arrangements are very poor in most crops and particularly so in the case of non-food grain crops such as oilseeds, pulses, which is clearly evident from SAS data as well. Therefore, procurement as well as State managed market infrastructures must be strengthened across India for all the important crops. NSSO-SAS (2014) data shows that because of non-availability of procurement centres, farmers are not able to avail the MSPs announced by the government. Except a few regions and in a few crops, this has been happening across India over the years. Therefore, it is necessary to enact an act on "right to sell at MSP" to benefit the farmers, after carefully studying the implications of it on inflation and common consumers. Through PM-AASHA, the Central government provides incentives to State governments for three schemes namely (1) Price Support Scheme (which promises to provide assured price for farmers and protect them from making distress sale during bumper harvest), (2) Price Deficiency Payment Scheme (which provides compensation when market prices go below MSP) and (3) Private Procurement Stockiest Scheme (which allows the entry of private players in the procurement of oilseeds on a pilot basis). State governments must come forward and implement

[9] Alternatively, the workers from non-agricultural activities under MGNREGS can be withdrawn during peak agricultural season to enhance the supply of labour for crops cultivation. This may dampen the wage rate which is rising unabatedly since the introduction of this new employment scheme. Whether this is acceptable to the farm labourers who are getting job under the employment is a big question.

these schemes with full spirit to benefit the farmers. While fixing MSP in consonance with cost of cultivation, abolishment of minimum export price for agricultural commodities, removing the age old essential commodities act will many ways help the farmers to realize higher income from farming.

The functioning of Agricultural Produce Marketing Committee (APMC) needs to be restructured completely. As rightly mentioned in the 16th Report of Committee on Agriculture on 'Pricing on Agricultural Produce', APMC "advocates inter alia provision for private markets and E-markets, contract farming, direct purchase of agricultural produce from farmers by processors/bulk retailers/wholesalers/ exporters nearer to the production centre, direct sale of produce by farmers to the consumers, etc. Such multiple options will enable the farmer to sell the produce for optimum returns without being compelled to make distress sale in local mandis" (GOI, 2014). The role of farmers in deciding the price should be promoted by directly involving them in the market activities extensively. Farmers' managed markets in States like Tamil Nadu and Andhra Pradesh have proved to be beneficial to them (see, Kallummal & Srinivasan, 2007). Therefore, producers' markets on the lines of *Ryatu Bazars* should be encouraged across every part of the country to improve the farm income and to eliminate middlemen as underlined in the National Agricultural Policy of 2000 (GOI, 2000).

In order to protect the farmers from the distress sale during the glut periods, the price behaviour of sensitive commodities needs to be monitored closely for making swift intervention through the "Market Intervention Scheme" (MIS), as suggested by Expert Group Committee on Indebtedness led by Prof. Radhakrishna (GoI, 2007).[10] Besides price and market related interventions, efforts are also needed to reduce the cost of cultivation which reduces the growth of farm income. Analysis based on the data of cost of cultivation survey shows that human labour cost required for cultivating various crops has increased considerably after the implementation of MGNREGS. Similarly, the irrigation cost has increased continuously over the years because of increased use of groundwater, which is cost-intensive (see, Narayanamoorthy, 2015a; b). Therefore, the coverage of surface sources (canals and tanks) of irrigation water should be expanded as these sources are less cost. The canal irrigation development is almost stagnant starting from the late-nineties in India, which has forced the farmers to heavily rely on groundwater irrigation (Narayanamoorthy, 2011). Therefore, as suggested in the report of the Working Group on Major and Medium Irrigation for the 12th Plan (see, Planning Commission, 2012), there is a need to increase allocation of funds required for the ongoing irrigation projects (with better monitoring by State agencies) to increase the canal irrigated area.

Many still hold the myth that the income of the farmers can be increased by augmenting the productivity of the crops. There is no doubt that any increase in

[10] It is worth mentioning here that the 'Commission on Inclusive and Sustainable Agricultural Development of Andhra Pradesh' (2016) headed by Prof. Radhakrishna has provided a number of innovative market and non-market (production and value addition) interventions with the aim to increase the farm income and empower the farming community. The recommendations are pan-India in nature and therefore, the other States can also think of implementing those recommendations to improve the overall livelihood conditions of the farming community.

productivity of crops would definitely benefit the farmers (Vyas, 2004; Chand, et al. 2015). However, augmenting productivity of crops is only a necessary condition but not a sufficient condition to increase or to double farm income. Without adopting new technologies in crops cultivation, productivity of crops cannot be increased significantly. Farmers would hesitate to adopt the new technologies unless they are capable of generating increased income with reduced cost. Increased cost of cultivation has been the major issue encountered by the farmers in the recent years, which needs to be controlled by all means. Even if MSP is announced in consonance with the cost of cultivation (cost C2) for crops, it would not guarantee better income for farmers unless procurement infrastructures are strengthened sufficiently. Therefore, along with remunerative MSPs for different crops, government should strengthen farmers' friendly market infrastructure to enhance or to double farm income.

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