PUBLIC DISTRIBUTION SYSTEM AND INDIAN AGRICULTURE

How Minimum Support Prices Act as a proxy for minimum wages in India's Agriculture Sector

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This project seeks to study, analyse and recommend policy thereof, for India's Public Distribution System (PDS) and Minimum Support Prices (MSP). A review of existing literature is mentioned briefly, study of the history of PDS is undertaken, followed by analysis from verified secondary sources. Quantitative analysis using piece-wise linear regression is carried out. Finally, limitations of the current PDS and MSP are discussed along with suitable policy recommendations.

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Introduction:

Minimum Support Price is a market intervention undertaken by the government with the aim of insuring agricultural producers in the event of sharp fall in farm prices. According to the (Evaluation Report on Efficacy of Minimum Support Prices (MSP) on Farmers, 2016),based on the recommendations of the Commission for Agricultural Costs and Prices (CACP), the Department of Agriculture and Co-operation, Government of India, declares Minimum Support Price (MSP) for 22 crops before the sowing season. Alongside providing guaranteed prices to the producers and establishing an assured market for their produce, MSP also insulates the farmers from price fluctuations. MSP can also be seen as giving rise to Economies of scale. Higher investment and adoption of modern technologies in agricultural activities are the resultant of the dual incentive of guaranteed price and assured market provided via this initiative.

While MSP is instrumental in incentivizing the supply side of agricultural produce, the Public Distribution System (PDS) is an Indian food Security System established under the Ministry of Consumer Affairs, Food, and Public Distribution. PDS is a collaborated responsibility of the Central and the State Government. Through Food Corporation of India (FCI), the Central Government undertakes the responsibility for procurement, storage, transportation and bulk allocation of food grains to the State Governments. The State Government assumes the operational responsibilities which include allocation within the State, identification of eligible families, issue of Ration Cards and supervision of the functioning of Fair Price Shops (FPSs) etc.

The dual instruments of PDS and MSP are thus targeted towards achieving an overall improvement in the agrarian sector by improving both the demand and supply side of the sector. Via this paper, we aim at analyzing the efficiency and effectiveness of the implementation of this system. In our analysis, we particularly focus on the crop having a comparatively higher demand and supply factors associated to it. This particular analysis, to a certain extent can be taken as being reflective of the overall functioning of the systems.

Review of Literature

Table 1: Timeline of PDS: 1930s to present

Evolution of PDS	Timeline	Details
PDS	1940s	Launched as general entitlement scheme
TPDS	1997	PDS was revamped to target poor households
Antyodaya Anna Yojana	2000	Scheme launched to target the 'poorest of the poor'
PDS Control Order	2001	Government notified this Order to administer TPDS
PUCL *vs.* Union of India	2001	Ongoing case in Supreme Court contending that "right to food" is a fundamental right
National Food Security Act	2013	Act to provide legal right to food to the poor

The evolution of the **Public Distribution System** can be classified into 3 time periods –

1. 1939-1965
2. 1965-1975
3. 1975-present

Up until 1942, the PDS was a general entitlement scheme. It was open to all consumers and did not have any specific target group. In that year, however, the PDS was revamped and was centered around the poorer families in hilly and remote areas that did not have access to food grains. This new PDS was known as Revamped PDS (RPDS). Introduced to provide equitable and satisfactory distribution of food to urban consumers during the time of the inflated prices of World War 2, the Revised Public Distribution System (PDS) was a war time rationing measure. Till the 1960's, rice and wheat constituted a large part of the food distributed.

There were food shortages during 1960 as there was great dependence on the import of food grains. To provide a more sustainable distributional framework, in 1965, the Bureau of Agricultural Costs and Prices (then known as the FCI and Agricultural Prices Commission) was established and they introduced the concept of a buffer stock to meet any situations of unexpected catastrophes. This process of procurement, stocking and distribution of food grains also brought about technological development in crops such as rice and wheat. These technological measures worked to improve the standard of living for the rural poor to increase their physical and economic accessibility to food.

The third period brought about an increase in the food production of the country, leading to an increase in food supply and hence a larger buffer stock and stability in price. 1975 was also classified as the year of increased exports and reduced imports of food grains, as 5-year plans such as Food for Work were started to prevent overstocking of go-downs. From the late seventies onwards, the net availability of food rose rapidly up until the early nineties. Crisis situations had dictated that food distribution be confined to urban citizens, and hence a target grouping approach i.e. the Targeted Public Distribution System (TPDS)towards rural areas was introduced in states such as Kerala, Gujarat, Tamil Nadu and Andhra Pradesh. Both the center and the states procured food grains and delivered them to the needy beneficiaries.

In 2001, the People's Union for Civil Liberties (PUCL) declared that 'right to food' was a necessary part to the 'right to life', and eight schemes were implemented as legal entitlements. These schemes included among many others PDS, Antyodaya Anna Yojana (AAY) and the Mid-day meal scheme. In 2013, the National Food Security Act shifted the right to food from being a general entitlement to be a legal right. The

population is divided into three groups; excluded, priority and AAY. If the entitlements are not delivered, the center and the state will be well redressed.

The **Minimum Support Price (MSP)** ensures that farmers get a support price which is affordable to consumers through the Public Distribution System. An essential part of India's agricultural policy, it is the amount at which the government buys crops from the farmers. at which the government Price support was revolutionized to give incentive to farmers to adopt new technological methods during the pre-green revolution period. However, in 1965, the Agricultural Price Commission was established to suggest prices for crops that would cover the cost of their cultivation of the famers. This motivated farmers to increase food production and replenish buffer stocks.

The MSP is represented by the Cabinet committee on Economic Affairs (CCEA). This committee decides the prices of a multitude of agricultural commodities depending on the recommendations of the Commission for Agricultural Cost and Prices (CACP).

The Government also follows a different procurement policy for certain types of crops. For crops that are essential for security, a more liberal procedure is followed, where agencies such as the FCI buy farmer's crops at MSP. The MSP is calculated by different ministries and departments. The calculation begins with the CACP making comprehensive observations about the structure and suitability of a particular commodity. Other factors may include effect on cost of living, on general price level, demand and supply etc. Information from the supply side also plays a role, and yield and production, area, cost of marketing etc.

Apparently, the increase in MSP has fallen in the past few years, with the rate 3.6% between 2014-2017. However, in the preceding years, the annual growth was around 19.3% in 2009-2013. This has led to rise in competition of low-cost imports and increasing distress of farmers. In 2019 itself, there has been an increase in MSP for many crops.

Included in the MSP policy are 22 mandated crops and fair and remunerative price sugarcane.

- Cereals (7) - paddy, wheat, barley, jowar, bajra, maize and ragi
- Pulses (5) - gram, arhar/tur, moong, urad and lentil
- Oilseeds (8) - groundnut, rapeseed/mustard, toria, soyabean, sunflower seed, sesamum, safflower seed and nigerseed
- Raw cotton
- Raw jute
- Copra
- De-husked coconut
- Sugarcane (Fair and remunerative price)
- Virginia flu cured (VFC) tobacco

Note on Cropping Patterns:

Although the issue of farm income has been discussed by researchers and policy makers extensively over one decade in India, the performance of various states in terms of farm income has not been adequately covered possibly because of data constraints. What is happening at the country level might not be the same across different states due to variations in cropping pattern, irrigation coverage, adoption of modern technologies, procurement policies, market arrangements, etc. It is always believed that the states with more area under commercial crops can generate higher farm income than the states with larger area under food grain crops. But, this issue could not be answered convincingly due to data constraints so far. Now, the data

available from SAS reports for two time points permit us to study this issue. The annual income from cultivation per farmer household varies substantially across the states in India, as expected. During 2002-03, it varied from Rs. 10,616 per household in Punjab to Rs. 1,264 in Orissa at 1986-87 prices. Similarly, the same income varied from Rs. 19,396 per household in Punjab to Rs. 1,748 in West Bengal during 2012-13. Besides substantial variation in farm income among the states, it is found to be very low in most states where paddy is cultivated predominantly during both time points. For instance, during 2012-13, the average cultivation income for the country as a whole was Rs. 5,502 per household. But, it was much lower than this in states like AP, Orissa, Bihar, Tamil Nadu, UP and West Bengal where paddy has traditionally been cultivated predominantly; these states together accounted for 53 to 56 percent of India's total paddy area during 2002-03 and 2012-13 (GOI, 2016). This in a way supports the rising dissent of paddy farmers who have been arguing over one decade from now that the income from its cultivation dwindled substantially. It is true about other crops as well. Besides low income from cultivation, its growth is also not very appreciable among the major states between 2002-03 and 2012-13. The average growth of cultivation income for the whole of India is estimated to be about 3.81 percent per annum between the two periods, but it was less than that of the India's average growth rate in 11 out of 18 states reported. In states like Chhattisgarh, Karnataka, MP, Haryana, Punjab and UP, the cultivation income grew at a faster rate over the rate of national level average. To our surprise, the growth rate of income from cultivation was negative in states like J&K, Jharkhand, Bihar and West Bengal. This poor growth in income from cultivation might have affected the livelihood conditions of the farmers living in these states. On the whole, the analysis based on the data available from SAS clearly shows that the income from cultivation per farmer household was very low and its growth rate was also nowhere nearer to the growth rate estimated by Chand et al., (2015).

Before the publication of SAS data, information on farm income was available only from the source of CACP, which has been publishing data for different crops since 1970-71 on operation-wise cost, productivity and income collected through a national level scheme called Comprehensive Scheme for Studying Cost of Cultivation of Principal Crops. As the data on each aspect of crop cultivation has been collected directly from the farmers on regular basis, CCS data has been considered as an important source of information on cost and income. The announcement of minimum support price every year for various crops by the Union Government is also primarily made using CCS data.

Many in academia and policy circles all along believe that the crops cultivated under irrigated condition generate significantly higher income than its less irrigated counterparts. They believe that since the productivity of crops is higher in irrigated area as compared to the same cultivated in less irrigated area, the profitability would also be higher. However, profitability of any crop is not determined by its productivity alone. Factors like cost of cultivation of the crop, market price of the produce, marketing facility from government agencies, etc., play an important role in deciding the profit. There is a possibility that because of increased supply (production) of agricultural output in irrigated region, the unit price of the crop can be lower than that of less irrigated region where reduced supply is common.

Since India is also a country where data on farmers isnt as readily available on a micro and macro level, the implementation of FADN regulation as done by the EU can be used for India as done for an agrarian economy like Macedonia.

Quantitative Analysis:

The authors have used piece-wise linear regression to analyse the impact of change in MSP on production of India's highest cultivate food grains – Paddy and Wheat.

Note on the variables and source of data:

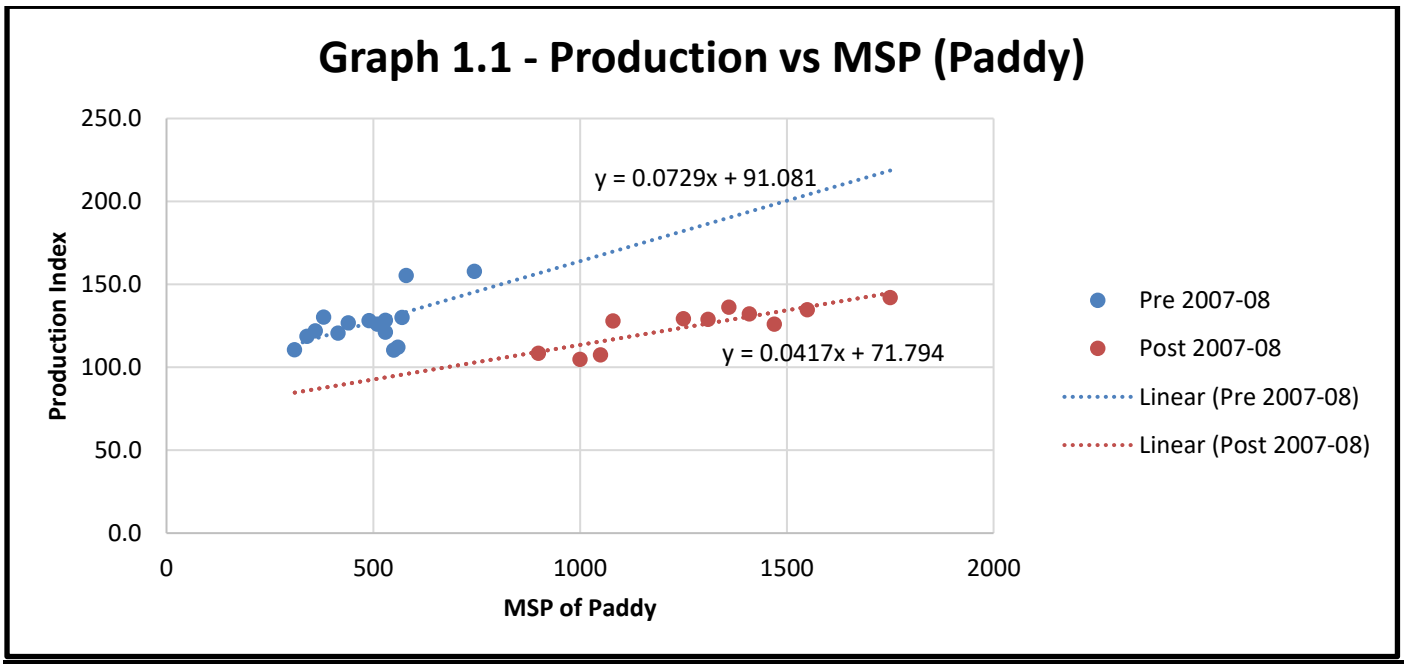
The independent variable chosen for analysis is MSP per quintal of the crop for Fair Average Quality rating. The dependent variable is the Production Index calculated by the Ministry of Agriculture & Farmers Welfare, Government of India. The data is collected for the years 1993-2018. The base year for the computation of Production Index changed from 1993-1994 to 2007-2008 and hence a piece-wise linear regression issued with a break at 2007-2008. The data is sourced from RBI Handbook of Statistics.

Results and analysis:

i) Paddy:

It was found that with an increase in MSP, production tends to increase. This can be attributed to the fact that a higher MSP for Paddy allows farmers to increase their income by producing more of it. The R-squared value in higher post 2007-08 as compared to previously, indicating that the correlation between Support Prices and production of Paddy became stronger since the change in base year. Inferring from the regression equations given in the graph we can conclude that:

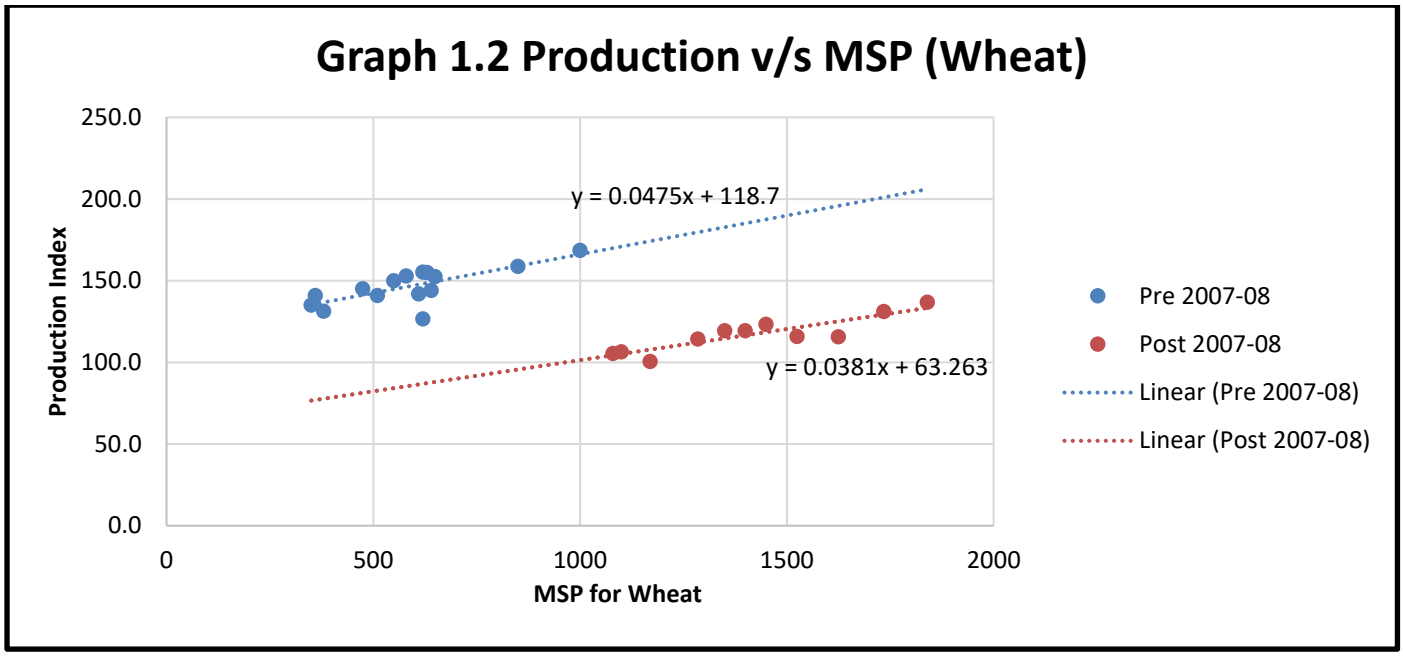
a) From 1993-2008, an increase in MSP by 100 rupees per quintal leads to an increase in the Production Index by 7.2 on average.
b) From2008-2018, an increase in MSP by 100 rupees per quintal leads to an increase in the Production Index by 4.1on average.



ii) Wheat:

It was found that with an increase in MSP, production tends to increase. Similar to Paddy, this can be attributed to the fact that a higher MSP for Wheat allows farmers to increase their income by producing more of it. The R-squared value in higher post 2007-08 as compared to previously, indicating that the correlation between Support Prices and production of Paddy became stronger since the change in base year. Inferring from the regression equations given in the graph we can conclude that:

a) From 1993-2008, an increase in MSP by 100 rupees per quintal leads to an increase in the Production Index by 4.7 on average.
b) From2008-2018, an increase in MSP by 100 rupees per quintal leads to an increase in the Production Index by 3.8 on average.



Note: p-values are less than 0.05, therefore the variables are statistically significant.

General inference:

Farmers tend to increase production towards higher priced grains to ameliorate their incomes. This trend holds true for highly cultivated crops like Paddy and Wheat. A Substitution Effect of sorts in observed as the sector substitutes cheaper grains with ones being priced higher. Thus MSP can play an effective role if the Government wishes to increase/ decrease production of certain food grains.

LIMITATIONS/PROBLEMS WITH CURRENT SYSTEM

Procurement:

1. Open-ended Procurement: All incoming grains accepted even if buffer stock is filled creating a shortage in the open market. The recent implementation of Nation food security act would only increase the quantum of procurement resulting in higher prices for grains.
2. The gap between required and existing storage capacity.

Storage:

According to the storage guidelines of the FCI, food grains are normally stored in covered godowns and silos. In case if FCI has insufficient storage space, it hires space from various agencies such as the central and state warehousing corporations (CWC, SWC), state government agencies and private parties.

1. Inadequate storage capacity with FCI.
2. Food grains rotting or damaging on the CAP or Cover & Plinth storage.

Allocation:

1. Inaccurate identification of beneficiaries.
2. Illicit Fair Price shops: The shop owners have created a large number of bogus cards or ghost cards(cards for non-existent people) to sell food grains in the open market.

Transportation:

The responsibility of distributing food grains is shared between the center and states. The center, specifically FCI, is responsible for the interstate transport of food grains from procuring to consuming states, as well as delivering grains to the state godowns. Once FCI transports grains to the state depots, distribution of food grains to end consumers is the responsibility of state governments.

1. Leakage and diversion of food grains during transportation.

POLICY RECOMMENDATIONS

1. Cash Transfers

Direct Benefit Schemes like cash transfers and Universal Income would provide impetus to slumping demand of various agricultural commodities.
"The results have substantial implications for the discourse about cash transfers. The results highlight that even in an era of growing overall incomes, the availability of subsidised cereals skews consumption towards greater cereal consumption at all income levels." (NITI Aayog, 2016)

2. Food Credit/Debit Card

A food credit card system could be a superior alternative to the prevalent system of specialized Fair Price Shops and even a food stamp system. The customers could use food credit/debit cards to buy subsidized food grains from the market and the retailers can claim the subsidy from the government. Though the issue cost of a 10 food credit card are likely to be higher than for existing ration card or the food coupon system, the running costs may be lower than for specialized Fair Price Shops as the credit/debit card can be used in any existing retail shops that accepts such cards. This will eliminate the need for an exclusive FPS system and consequently its entire overhead cost. This will partly compensate for the initial costs of setting up a leakage proof credit card system using smart card technology. The rest would be compensated for by the elimination of leakage at all stages of the current food procurement, storage and distribution system (including the FCI).

3. Procurement Prices

The procurement prices for food grains should not be fixed by the government at such a high level that can lead to accumulation of surplus stocks in FCI godowns much in excess of prescribed buffer stock norms. In this connection there is a need to strictly adhere to the recommendations of the Commission for Agricultural Costs and Prices and not resorting to fixation of procurement prices much in excess of the estimated costs of production.
The FCI can maintain a minimum level of buffer stock and then undertake open market operations within a prescribed price band, e.g. when prices increase or decrease more than 15% as compared to a prescribed average. It can conduct open market operations by releasing stocks in the open market when shortages are prevalent and prices are high. The FCI can also purchase food grains from the open market when there is excess supply and prices are depressed. However its objective should not be to procure all that is offered by the farmers but only to maintain an optimum level of buffer stock. The FCI can therefore be instructed to limit its role in the future to more manageable and optimum levels, recognising the fact that a high level of buffer stock of food grains can itself be a factor contributing to inflation and higher food prices. The FCI could also play a role in the international market for food grains by resorting to imports when stock levels are low and exporting food grains when there are surplus stocks.

4. Technology upgradation:

Use of Global Positioning System (GPS) technology to track the movement of trucks carrying food grains from state depots to FPS can help to prevent diversion. SMS-based monitoring can allow monitoring by citizens so they can register their mobile numbers and send/receive SMS alerts during dispatch and arrival of TPDS commodities

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Appendix:

Press Information Bureau
Government of India
Ministry of Agriculture & Farmers Welfare

23-October-2019 17:02 IST

CCEA approves MSP for Rabi Crops of 2019-20 to be marked in Rabi Marketing Season 2020-21

Wheat farmers to get more than double the average cost of production

The Cabinet Committee on Economic Affairs (CCEA) chaired by Prime Minister Narendra Modi has approved the increase in the Minimum Support Prices (MSPs) for all mandated Rabi Crops of 2019-20 to be marketed in Rabi Marketing Season (RMS) 2020-21.

Benefits and Major Impact:

The increase in MSP for Rabi Crops for RMS 2020-21 is in line with the principle of fixing the MSPs at a level of at least 1.5 times of the all India weighted average cost of production (CoP), which was announced in the Union Budget 2018-19.

This MSP policy whereby the farmers are assured of a minimum of 50 percent as margin of profit is one of the important and progressive steps towards doubling farmers' income by 2022 and improving their welfare substantively.

For the Rabi crops of RMS 2020-21, the highest increase in MSP has been recommended for lentil (Rs. 325 per quintal) followed by safflower (Rs. 270 per quintal) and gram (Rs. 255 per quintal) which is a major step towards increasing the income of farmers.

The MSP of Rapeseed & Mustard has been increased by Rs. 225 per quintal. For both wheat and barley, the MSP has been increased by Rs. 85 per quintal. Wheat farmers will hence get a return over cost of 109 percent (refer table below).

Cost of production is one of the important factors in the determination of MSPs. This year's increase in MSP of Rabi crops for RMS 2020-21 provides higher than 50 per cent return (except safflower) over all India weighted average cost of production. The return over all India weighted average cost of production is 109 per cent for wheat; 66 per cent for barley; 74 per cent for gram: 76 per cent for lentil; 90% for rapeseed & mustard and 50 per cent for safflower.

Minimum Support Prices (MSPs) for Rabi Marketing Season (RMS) 2020-21

Sl. No	Crops	Cost* of production RMS 2020-21	MSP for RMS 2019-20	MSP for RMS 2020-21	Absolute increase in MSP	Return over cost (in per-cent)
1	Wheat	923	1840	1925	85	109
2	Barley	919	1440	1525	85	66
3	Gram	2801	4620	4875	255	74
4	Lentil	2727	4475	4800	325	76
5	Rapeseed & Mustard	2323	4200	4425	225	90
6	Safflower	3470	4945	5215	270	50

** Refers to comprehensive cost which includes all paid out costs such as those incurred on account of hired human It/hour, bullock labour/machine labour, rent paid for leased in land, expenses incurred on use of material inputs like seeds, fertilizers, manures, irrigation charges, depreciation on implements and farm buildings, interest on working capital, diesel electricity for operation of pump sets etc., miscellaneous expenses and imputed value of family labour.*

In the case of cereals, FCI and other designated State agencies would continue to provide price support to the farmers. State Governments will undertake procurement of coarse grains with the prior approval of Government and would distribute the entire procured quantity under NFSA. The subsidy will be provided only for the quantity issued under NFSA. NAFED, SFAC and other designated Central agencies would continue to undertake procurement of pulses and oilseeds. The

losses, if any incurred by the nodal agencies in such operations may be fully reimbursed by the Government as per the guidelines.

With the intention of giving enough policy thrust to income security of the farmers, Government's focus has shifted from production-centric approach to income-centric one. Enhancing the coverage of Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) to all farmers in its first Union Cabinet meeting on 31st May 2019, is another major step in boosting the income of the farmers. The PM-KISAN Yojana was announced in the interim Budget for the year 2019-2020, where the small and marginal landholder farmer families with cultivable land holding upto 2 hectare across the country were assured of Rs 6000 per year.

The new Umbrella Scheme "Pradhan Mantri Annadata Aay SanraksHan Abhiyan" (PM-AASHA) announced by the government in 2018 will aid in providing remunerative return to farmers for their produce. The Umbrella Scheme consists of three sub-schemes i.e. Price Support Scheme (PSS), Price Deficiency Payment Scheme (PDPS) and Private Procurement &Stockist Scheme (PPSS) on a pilot basis.