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A study on trends in minimum support price and cost of production in wheat and paddy

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Abstract
Government announces Minimum Support Price for crops and procures the same. Budget 2018 ensured that Minimum Support Price will be 1.5 times the Cost of Production. The study analyzed the growth trend in minimum support price of wheat and paddy for a period of 1975-76 to 2017-18 and compared minimum support price and cost of production for a period of 2010-11 to 2016-17. The study reveals that the growth rate of minimum support price of paddy was 7.84 and that of wheat was 7.49. The study also indicated that minimum support price of wheat ranged from 1.4 to 1.2 times the cost of production. In case of paddy the growth rate of cost of production was 10.33 while that of minimum support price was 6.54 indicating decreasing profit margin over the years. Thus, there is need to increase the minimum support price in proportion to the increase in cost of production.

Keywords: Minimum support price, cost of production, wheat, paddy

1. Introduction
Minimum Support Price (MSP) is a form of market intervention by the Government of India to safeguard agricultural producers against any sharp fall in farm prices. Minimum Support Price is the price at which government purchases crops for the farmers, to safeguard the interest of farmers (data.gov.in). The minimum support prices are announced by the Government of India at the beginning of the sowing season for certain crops on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP). This price is fixed by Government of India to protect the producer - farmers - against excessive fall in price during bumper production years. The government set up Agriculture Price Commission in 1965, with the aim to advise the government on evolving a balanced and integrated price structure. In 1980, the framework of the policy was modified. This time the focus was on balancing the demand and supply of food grains. It was reflected in the revised terms of reference of APC (which was later renamed as Commission for Agricultural Costs and Prices) with a shift from maximizing the production to developing a production pattern consistent with the overall needs of the economy (Acharya, 1997) [1].

The Government announces Minimum Support Price for 28 commodities at present by the recommendation of Commission for Agricultural Costs and Prices (CACP). Same commodities are procured by the Government with wheat and rice having the lion's share in the procurement. Reason being both commodities are distributed through Public Distribution System. In the budget of 2018 the government announced increase in Minimum Support Price and pay 1.5 times the cost of production.

1.1 Thus the study was carried out with the following objectives
1. To study the growth in Minimum Support Price of wheat and paddy.
2. To compare the growth in Cost of Production and Minimum Support Price of wheat and paddy.

2. Materials and Methods
1. **Nature of data:** The study is based on secondary data. The data was collected from India Stat website. The period of study was 1975 to 2017 for study of objective one. For objective two the data was collected for a period of 2010 to 2016. The data was collected for wheat and paddy crop as they have a lion's share in procurement at Minimum Support Price by the government.
2. **Statistical tools:** The growth was calculated using Compound Annual Growth Rate (CAGR) using LINEST function in excel.

2.1 Compound Annual Growth Rate

The growth of minimum support price and cost of cultivation was calculated with help of following

$Y_t = Y_0 (1 + r) t$

Where,

"Y_0" be the value of variable under study in the base period.
"Y_t" be the value of a variable in time "t".
"r" be the value of Compound Growth Rate (CGR)

3. Results

3.1 The growth in Minimum Support Price of major agricultural commodities.

Compound annual growth rate was calculated for a period from 1975 to 2017. For analysis the whole period was divided into four sub-periods period I- 1975-76 to 1984-85, period II- 1985-86 to 1994-95, period III- 1995-96 to 2004-05 and period IV- 2005-06 to 2017-18. Growth rate was also calculated for whole period of 1975-76 to 2017-18. The compound annual growth rate was calculated for Minimum Support Price of paddy and wheat. Paddy and wheat are among the staple food of Indian population. The results are presented in table 1 below-

Table 1: Compound Annual Growth Rate of Minimum Support Price of Wheat and Paddy from 1975 to 2017.

Crop	1975-76 to 1984-85	1985-86 to 1994-95	1995-96 to 2004-05	2005-06 to 2017-18	1975-76 to 2017-18
Paddy	8.14	11.03	5.21	9.06	7.84
Wheat	5.04	10.82	5.01	7.38	7.49

Source: computed by author from data of India Stat.com

The above table reveals that in case of paddy highest growth of 11.03 percent was observed in period of 1985-95. While lowest growth of 5.21 percent was seen in period of 1995-2005. The overall growth of MSP in paddy from 1975 to 2017-18 was 7.84. In case of wheat, same trend was observed with highest growth rate of 10.82 was observed in period 1985-86 to 1994-95. While lowest growth rate as in period of 1995-96 to 2004-05. The overall growth of 7.49 percent was however lower than that of paddy. Still, the growth rates are almost similar for both crops.

To find out the reason for fluctuations in growth rate, average annual inflation was computed for the sub periods and whole period. The results are presented in table 2 below-

Table 2: Average Annual Inflation in sub periods of 1975-76 to 2017-18.

Period	1975-76 to 1984-84	1985-86 to 1994-95	1995-96 to 2004-05	2005-06 to 2017-18	1975-76 to 2017-18
Average Annual Inflation	8.40	9.07	6.41	8.31	7.80

Source: Calculated by author from inflation.eu data.

The inflation rate was highest i.e. 9.07 in sub period II (1985-86 to 1994-95) and lowest in sub period III (1995-96 to 2004-05) around 7 percent. The annual average inflation rate has tended to be lower in decade of 1995-2005 giving one of the reasons for low growth rate in minimum support price during sub period III and higher growth rate in sub period II due to higher inflation.

3.2 Comparison of Minimum Support Price and Cost of Production

The cost of cultivation is the cost incurred in producing per unit of yield. Government of India estimates cost of production for each year for different agricultural commodities in rupees per quintal. Based on the cost of production and other information like price trend, demand and supply, inter-crop price parity etc.

Commission for Agricultural Cost and Prices recommends the government Minimum Support Price for 28 agricultural commodities at present. In budget 2018 the government announced that the MSP will be 1.5 times the cost of production. An analysis was done for period from 2010-11 to 2016-17 to study that how many times the minimum support price is, of the cost of cultivation. The MSP announced is always higher than the cost of production. The crops under study were wheat and paddy. The results are presented in table 3 below-

Table 3: Comparison of Minimum Support Price and cost of production from 2010-11 to 2016-17 for wheat and paddy.

Year	Wheat			Paddy		
	Cost of production (in Rs/Q)	Minimum support price (in Rs/Q)	MSP in times of Cost of Production	Cost of production (in Rs/Q)	Minimum support price (in Rs/Q)	MSP in times of Cost of Production
2010-11	826	1170	1.41	742	1000	1.34
2011-12	927	1285	1.38	888	1080	1.21
2012-13	1066	1350	1.26	1152	1250	1.08
2013-14	1109	1400	1.26	1234	1310	1.06
2014-15	1147	1450	1.26	1267	1360	1.07
2015-16	1163	1525	1.31	1324	1410	1.06
2016-17	1203	1625	1.35	1378	1470	1.06

Source: Calculated by author from India Stat data.

The above table reveals that in case of wheat the minimum support price has remained almost stable. The minimum support price ranged from 1.4 times of cost of production in 2010-11 to 1.26 times in 2012-13 and 2013-14. However, in case of paddy the minimum support price was 1.34 times the cost of production in 2010-11 which has decreased with time

and was 1.06 times in 2016-17. This shows that every year the minimum support price remained higher than cost of production but how much higher has varied considerably. It has remained almost stable in case of wheat while in case of paddy it has decreased with time.

For further details, compound annual growth rate of cost of production and minimum support price was also calculated in order to know growth trend in both prices. The data analysed is presented in table 4 below-

Table 4: CAGR of Minimum Support Price and Cost of Production from 2010-11 to 2016-17 for wheat and paddy.

Particulars	Compound Annual Growth Rate	
	Wheat	Paddy
Cost of Production	6.09	10.33
Minimum Support Price	5.13	6.54

Source: Calculated by author from India Stat data.

The above table reveals that for a period of 2010-11 to 2016-17 significant difference in growth rate has been observed in MSP and cost of production. In case of wheat not much difference was seen as the growth rate of MSP was 5.13 while for Cost of Production was 6.09 indicating that profit margin of farmers remained nearly stable in the study period. While in case of paddy the cost of production of paddy grew at a rate of 10.33 percent while MSP growth was only 6.54 during 2010-11 to 2016-17, indicating that the profit margin of farmer has reduced in case of paddy in the study period It indicates that however minimum support price is more than cost of production but the compound annual growth rate in minimum support price was less than the growth rate in cost of production. This leads to conclusion that with time the profits of farmers have reduced if their produce is procured by government at minimum support price.

4. Discussion

Minimum support price is the mechanism by government to insulate farmers against price volatility. It helps to stabilize price of notified agricultural commodities in situation of glut and shortages. With time minimum support price increases as per increase in cost of production, price trend and other factors. The study revealed that for wheat the minimum support price reported a growth rate of 7.49 percent for a period of 1975-76 to 2017-18. While it was 7.84 percent in case of paddy. A comparison of growth rate in cost of production and minimum support price for a period of 2010-11 to 2016-17 revealed that the growth rate of cost of production was higher than the growth rate of minimum support price. Comparison of Minimum support price and cost of production revealed that incase of wheat minimum support price was 1.35 to 1.26 times the cost of production in the study period. In case of paddy minimum support price was 1.4 to 1.06 times the cost of production in the study period showing wider range as compared to wheat. In case of paddy the growth rate of cost of production was 10.33 while that of minimum support price was 6.54 indicating decreasing profit margin over the years. In case of wheat the growth rates were found to be almost similar in both price, cost of production growth rate was 6.09 while that of minimum support price was 5.13 indicating stable profits over years.

5. Conclusion

The study indicates that the announcement of minimum support price to be 1.5 times the cost of production will be beneficial to the farmers as till date it has been less than 1.5 times. Also, there seems to be a need to increase the minimum support price at higher rate in order to stabilize the profit margin or net income of farmer. In nutshell, it is suggested that however the growth rate of minimum support price for wheat and paddy are similar but there is need to increase the minimum support price in proportion to the increase in cost of production.

6. Acknowledgement

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