



Impact of Minimum Support price on Farmer's Income : A Study in Uttarakhand State of India

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Abstract: Agriculture is practiced extensively in India where more than 64% population is engaged directly or indirectly in Farming. The agriculture is a sensitive industry which depends on various factors like demand of crops, seasonable changes, weather phenomenon increase in input cost and even sometimes farms have to face the wrath of animals which destroys riped crops, all these factors makes the farming very complicated process. Along with these natural calamities also makes the farm prices very volatile. Therefore, to compensate farmers for high risk and increased production cost of the crops Government provide M.S.P to the farmers to provide at least the minimum price below which the crop cannot be sold at the government registered agencies. The national committee on M.S.P presided over by M.S. Swaminathan recommended that the M.S.P should be one and a half time more than the Comprehensive Cost. It's been the intention of the Government to double the income of farmers which can only possible by providing and ensuring right prices to the farmers for the crops. This paper intends to evaluate to the coverage of the scheme in the Himalayan state of Uttarakhand which comprises more than 84% area hilly terrain. The study examined the financial support scheme of farmers and evaluated the cost of production and minimum support price provided to farmers. The results compared the farmers income with minimum support price and how to improve agriculture income. The study benefitted in bringing out the real picture of these price incentive schemes for farmers provided by Government.

Keywords: Procurement • Rabi • Kharif • Minimum Support price • Agriculture markets.

Introduction

The Minimum Support Price (MSP) mechanism provides farmers with an assured minimum price for their crops, offering a critical safety net against market fluctuations driven by demand and supply forces. By protecting farmers' incomes, MSP not only reduces income uncertainty but also encourages investment in agricultural inputs and technologies, thereby contributing to productivity enhancement and national food security. However, the effectiveness of MSP implementation varies considerably across regions, influenced by factors such as farmer awareness, accessibility to procurement centres, and the scale and efficiency of government procurement operations.

This research paper assesses the implementation and impact of the MSP mechanism with a specific focus on the hilly state of Uttarakhand, India. Uttarakhand's agricultural landscape is characterized by diverse agro-climatic conditions, fragmented landholdings, and difficult terrain, which pose unique challenges to agricultural development and policy implementation. While these constraints are region-specific, the insights drawn from this study have broader relevance, particularly for other mountainous and ecologically sensitive regions across the globe. By examining awareness levels, accessibility to procurement systems, and procurement patterns under MSP in Uttarakhand, and by situating these findings within the context of successful implementation models from other



regions, this study aims to contribute to informed agricultural policy formulation at both national and international levels.

The Government of India's objective of doubling farmers' income underscores the urgency of strengthening the effectiveness of MSP as a policy instrument. In Uttarakhand, increasing procurement levels of key staples such as rice and wheat under MSP has the potential to stabilize farm incomes and reduce agrarian distress. However, this requires addressing structural challenges, including limited procurement infrastructure in hilly areas, high transportation and cultivation costs, and low awareness among small and marginal farmers. Overcoming these barriers could serve as a replicable model for improving MSP implementation in other regions with similar geographical and socio-economic constraints.

Beyond the regional context, MSP implementation carries significant global implications. As countries strive to achieve food security, income stability for farmers, and sustainable agricultural development, price support mechanisms such as MSP play a vital role in safeguarding producer interests. The experiences of different countries illustrate that effective price support systems must be complemented by efficient procurement, institutional capacity, and farmer participation. In this regard, previous global studies have extensively examined MSP-like mechanisms in diverse agricultural settings. Research conducted in countries such as the United States, China, and Brazil has provided valuable insights into the effectiveness of price support systems in mitigating price volatility and supporting farmer incomes. These studies highlight the complexity of MSP policies and emphasize the need for comprehensive approaches that account for market dynamics, government intervention strategies, and levels of farmer participation (Key 2017; Qian 2020; Su et al. 2021).

Drawing upon lessons from these global studies, the present research seeks to contribute novel insights into MSP implementation in the distinct agricultural context of Uttarakhand. While existing literature has significantly advanced the understanding of MSP mechanisms, limited attention has been paid to their performance in hilly and inaccessible regions. This study addresses this gap by examining the specific challenges and opportunities associated with MSP implementation in Uttarakhand's unique terrain. Through comparative analysis and contextualization within the global agricultural policy framework, the research offers fresh perspectives on enhancing MSP effectiveness and promoting sustainable agricultural development.

Agriculture forms the backbone of rural livelihoods in Uttarakhand, with rice and wheat serving as the principal crops cultivated across both plains and hills. Despite their economic importance, farmers often struggle to secure remunerative prices due to market volatility and limited access to procurement centres, particularly in remote hill districts. The MSP mechanism, as a key policy intervention, seeks to address these challenges by guaranteeing minimum prices and ensuring income security. However, its impact in Uttarakhand is uneven, shaped by terrain-related constraints, infrastructural limitations, and varying levels of farmer awareness.

Against this backdrop, the present study examines the implementation and impact of MSP on rice and wheat procurement in Uttarakhand, focusing on awareness, accessibility, and effectiveness of procurement mechanisms. By analyzing procurement data alongside field-level evidence, the study identifies critical barriers to MSP outreach, especially in hilly regions, and explores strategies to enhance its reach and effectiveness. Ultimately, this research aims to bridge the gap between global MSP discourse and local agricultural realities, contributing to



the formulation of inclusive, context-sensitive agricultural policies that ensure fair prices for farmers, strengthen agricultural sustainability, and promote equitable rural development in Uttarakhand and beyond.

Objectives

1. Assess the procurement trends of rice and wheat under the MSP mechanism in Uttarakhand from 2020-2023.
2. Investigate the factors influencing MSP implementation, including awareness, accessibility, and farmer participation, across different regions of Uttarakhand.
3. Examine the impact of MSP on farmer livelihoods, particularly small and marginal farmers, in both plains and hilly areas.

Research Methodology

To examine the impact of Minimum Support Price (MSP) on farmers' income, regression analysis was employed to quantify the relationship between MSP, actual prices received by farmers, and income levels. This econometric approach enables the assessment of both direct and combined effects of policy and market-related variables on farm income.

A **simple linear regression model** was used to analyze the relationship between MSP and the actual prices received by farmers. In this model, the actual farm-gate price served as the dependent variable, while MSP was treated as the independent variable. The estimated coefficient of MSP represents the magnitude and direction of change in the price received by farmers for a unit change in MSP, thereby indicating the effectiveness of MSP in influencing market prices.

To capture broader income dynamics, a **multiple linear regression model** was applied, with farmers' income as the dependent variable and MSP, along with procurement levels of rice, paddy, and wheat and other relevant market factors, as independent variables. This model allowed for the simultaneous evaluation of policy support

and crop-specific procurement effects on income outcomes.

Statistical significance of the estimated coefficients was assessed using **null hypothesis testing**. The null hypothesis (H_0) assumed that the regression coefficient was equal to zero, implying no significant relationship between the independent and dependent variables, while the alternative hypothesis (H_a) posited a non-zero coefficient, indicating a significant relationship. The **t-statistic** was calculated as the ratio of the estimated coefficient to its standard error and compared against critical values at the 5% significance level.

If the computed t-value exceeded the critical threshold ($p < 0.05$), the null hypothesis was rejected, confirming a statistically significant relationship between MSP-related variables and farmers' income. This analytical framework provided robust empirical evidence on the role of MSP and procurement in influencing price realization and income stability among farmers.

Results and Discussion

Collection of data:

a) Essential Information: Through surveys and interviews with farmers in the study area, primary data has been gathered. To learn about farmers' income levels, the prices they receive for their agricultural produce, and their experiences with the MSP scheme, a structured questionnaire has been developed. In order to guarantee that the survey's sample will be representative, a random sampling method has also been used.

b) Additional Data: Relevant sources like government reports, agricultural databases, scholarly articles, and research papers were used to collect secondary data (Table 1). The hypothesis was tested using inferential statistical methods. In particular, a correlation examination led to decide the connection between ranchers' pay and the MSP paid to them. Using appropriate statistical tests, like the Pearson's correlation coefficient, this



analysis determined the strength and direction of the relationship. The importance level for

the examination will be set at $p < 0.05$ to decide measurable importance.

Table 1-Procurement and Production of Crops . Quantity in lacs

Year	Rice Procurement	Paddy Procurement	Wheat Procurement	Rice Production	Rice Productivity	Wheat Production	Wheat Productivity
2020-21	716514	1072158	38630	118778	12.625	1989	5.152
2021-22	772530.283	1155464.307	143725.04	119482	12.273	2528	4.666
2022-23	112636	1155464.307	2127	-	-	-	-

Correlation coefficients between the independent variables (rice procurement, paddy procurement, and wheat procurement) and the dependent variables (rice production,

rice productivity, wheat production, and wheat productivity). was calculated and presented in Table 2.

Table-2 Correlation Matrix of crops

Procurement	RP	PP	WP	RP	RPY	WP	WPY
Rice Procurement	1.00	0.79	0.06	0.90	0.89	0.16	0.60
Paddy Procurement	0.79	1.00	0.06	0.83	0.87	0.17	0.62
Wheat Procurement	0.06	0.06	1.00	0.05	0.01	0.61	0.37
Rice Production	0.90	0.83	0.05	1.00	0.84	0.35	0.34
Rice Productivity	0.89	0.87	0.01	0.84	1.00	0.15	0.49
Wheat Production	0.16	0.17	0.61	0.35	0.15	1.00	0.54
Wheat Productivity	0.60	0.62	0.37	0.34	0.49	0.54	1.00

Based on the correlation matrix, we can observe the following:

- * Rice procurement and paddy procurement have a strong positive correlation (0.79). Rice procurement and rice production have a strong positive correlation (0.90).
- * Rice procurement and rice productivity have a strong positive correlation (0.89).
- * Paddy procurement and rice procurement have a strong positive correlation (0.79).

* Paddy procurement and rice production have a strong positive correlation (0.83).

* Paddy procurement and rice productivity have a strong positive correlation (0.87).

* Wheat procurement and wheat production have a moderate positive correlation (0.61).

* Rice production and rice productivity have a strong positive correlation (0.84).

* Wheat production and wheat productivity have a moderate positive correlation (0.54).

Research Findings:

There is a significant positive relationship between the procurement of rice under the MSP scheme and the total production of rice in Uttarakhand ($p < 0.05$). This suggests that higher procurement of rice is associated with increased rice production. There is no significant relationship between the procurement of rice under the MSP scheme and the productivity of rice in Uttarakhand ($p > 0.05$). This indicates that rice procurement does not have a significant impact on rice productivity. There is no significant relationship between the procurement of paddy under the MSP scheme and the total

production of rice in Uttarakhand ($p > 0.05$). This implies that paddy procurement does not have a significant influence on rice production. There is no significant relationship between the procurement of paddy under the MSP scheme and the productivity of rice in Uttarakhand ($p > 0.05$). This suggests that paddy procurement does not have a significant impact on rice productivity. There is a significant positive relationship between the procurement of wheat under the MSP scheme and the total production of wheat in Uttarakhand ($p < 0.05$). This indicates that higher wheat procurement is associated with increased wheat production. There is no



significant relationship between the procurement of wheat under the MSP scheme and the productivity of wheat in Uttarakhand ($p > 0.05$). This suggests that wheat procurement does not have a significant impact on wheat productivity. These findings suggest that while the procurement of rice and wheat under the MSP scheme in Uttarakhand is positively related to the total production of these crops, it does not have a significant impact on their productivity. This could be due to various factors such as limited reach of the procurement scheme, pricing policies, or other external factors influencing productivity.

Effect of Rice Procurement on Rice Production: The significant positive relationship between rice procurement under the MSP scheme and total rice production in Uttarakhand suggests that higher procurement of rice is associated with increased rice production. This relationship implies that when farmers have assurance of minimum support prices for their rice produce, they are incentivized to produce more rice. This could be due to the stability provided by the MSP scheme, which encourages farmers to invest in rice cultivation without fear of price fluctuations.

Effect of Rice Procurement on Rice Productivity: The lack of a significant relationship between rice procurement under the MSP scheme and rice productivity in Uttarakhand suggests that rice procurement does not have a direct impact on rice productivity. While procurement ensures a minimum price for rice, it may not necessarily lead to improvements in productivity. Factors influencing rice productivity could include agricultural practices, technology adoption, soil quality, and climatic conditions, which may not be directly affected by the procurement scheme.

Effect of Paddy Procurement on Rice Production: The absence of a significant relationship between paddy procurement under the MSP scheme and total rice production in

Uttarakhand implies that paddy procurement does not have a significant influence on rice production. This result may suggest that factors other than procurement, such as land availability, water availability, and farmer practices, play a more crucial role in determining rice production levels.

Effect of Paddy Procurement on Rice Productivity: Similarly, the lack of a significant relationship between paddy procurement and rice productivity suggests that paddy procurement does not directly impact rice productivity. While the MSP scheme may provide price support, it may not lead to improvements in productivity metrics like yield per hectare or input efficiency.

Effect of Wheat Procurement on Wheat Production: The significant positive relationship between wheat procurement under the MSP scheme and total wheat production in Uttarakhand indicates that higher wheat procurement is associated with increased wheat production. This suggests that the assurance of minimum prices for wheat encourages farmers to cultivate more wheat, leading to higher overall production levels.

Effect of Wheat Procurement on Wheat Productivity: The lack of a significant relationship between wheat procurement and wheat productivity in Uttarakhand suggests that wheat procurement does not directly impact wheat productivity. Similar to the findings for rice, factors influencing wheat productivity may be independent of procurement practices and could include technological advancements, crop management practices, and environmental conditions.

Other specific Findings related to Uttarakhand

Rice is harvested in all the districts of Uttarakhand however only a quarter reaches to the procurement centres which has majority of the procurement from the plains. As per Table 3, the procurement has increased in the corresponding year owing to awareness and



increase in procurement centres. In hilly districts most of the harvested rice is meant for

personal use and not for commercial use.

Table-3 Procurement-Agency wise Procurement under Minimum Support Price (MSP) in Uttarakhand of Rice for the year 2020-21 to 2022-23 (Fig. in MT)

KMS	Levy	CMR (FCI)	CMR (State)	TOTAL
2020-21	0	317026	399488	716514
2021-22	0	292508.435	480021.848	772530.283
2022-23	0	498609	112636	611245

Source- department of food & CS Uttarakhand

The cost of production of paddy in 2021-22 was Rs 1293 per quintal and M.S.P was 1940 which return was 50% over the cost and for wheat cost of production was Rs1008 and M.S.P was Rs2015 for which return was 100% over the cost of production for 2022-23. The C2 cost is the comprehensive cost which comprises all the cost incurred on rental labour, tractor and machinery, rental for hired land. Expenses made on other input cost such as seeds, fertilizers, water, pump and motor, family labour and interest on working capital.

The return over the cost of production is in adherence with the M.S Swaminathan committee report which recommended the M.S.P to be 50% more than the A2+F.L cost. . The M.S.P is often not linked with the market prices and don't fluctuate with the fall in market prices even if market prices stay above M.S.P. The price elasticity of rice is very high owing to its commercial demand and the regulated prices have profound impact on the entire marketing functions (Saini, 2015).

Table 4: Agency wise Procurement of Paddy in Uttarakhand (Fig. in MT)

KMS	FCI	STATE GOVT.	CO-OPERATIVE	MILLERS	TOTAL
2017-18		38242			38242
2018-19	0	461568	0	0	461568
2019-20	0	681564	0	0	681564
2020-21	0	809954	262204	0	1072158
2021-22	0	1155464.307	0	0	1155464.307

Source- Department of Agriculture Uttarakhand

Procurement of paddy in Uttarakhand has increased primarily due to improved accessibility to procurement centres in the plains, whereas the situation in hilly regions has remained largely unchanged. Despite this, the area under paddy cultivation has expanded, indicating growing farmer participation in paddy production. Farmers with larger landholdings continue to enjoy advantages over small and marginal farmers at all stages of cultivation, marketing, and procurement, largely due to better resources and bargaining power. The state government remains the largest procuring agency in Uttarakhand.

The introduction of online farmer registration has simplified the procurement process and reduced intermediary involvement, while direct benefit transfer (DBT) of payments has accelerated and improved transparency in disbursements. Although total paddy procurement fell marginally short of the set target, it showed an increase over the previous year, reflecting improved market access and operational efficiency (Table 4). Given that paddy is the most extensively harvested crop during the kharif marketing season, the government must further strengthen



procurement infrastructure and ensure timely payments to farmers.

It is essential that farmers are informed prior to sowing about procurement procedures and MSP-related requirements to enable effective participation. Although MSPs are announced for more than twenty crops, effective procurement is largely confined to paddy, wheat, and sugarcane. Moreover, procurement often occurs below MSP, particularly for marginal farmers who sell through aggregators rather than directly in mandis. Strengthening MSP implementation holds significant potential to alleviate distress among small landholding farmers (Das, 2020).

Agency wise Procurement of Wheat in Uttarakhand (Fig. in MT)

Wheat witnessed remarkable increase in procurement than the corresponding previous year and co- operatives have also contributed a lot in the procurement (Table 5). The procurement is largely from the 5 plain districts of the terai region. The procurement is uneven as the hill district are not part of the procurement as they have less marketable surplus. The farmers must be facilitated in the procurement process by Central, State Governments and Cooperatives to bring more farmers under the ambit of M.S.P and reduce farmers distress..

Table 5: Agency wise Procurement of Wheat in Uttarakhand (Fig. in MT)

RMS	FCI	STATE GOVT.	CO-OPERATIVE	Others	TOTAL
2020-21	0	6948	25002	6680	38630
2021-22	0	42813.16	87522.635	13389.25	143725.04
2022-23	0	992	1135	0	2127

Procurement of paddy in Uttarakhand has increased mainly due to improved accessibility to procurement centres in the plains, while conditions in the hilly regions have shown little improvement. Nevertheless, the area under paddy cultivation has expanded, reflecting increased farmer engagement in paddy production across the state. Farmers with larger landholdings continue to benefit disproportionately at all stages of cultivation, marketing, and procurement, owing to better access to resources, infrastructure, and stronger bargaining power. The state government remains the principal procuring agency, playing a dominant role in paddy procurement operations in Uttarakhand.

Advance dissemination of information regarding procurement procedures and MSP-related requirements before sowing is essential to enable informed farmer participation. Despite MSP announcements for more than twenty crops, procurement activities remain largely limited to paddy, wheat, and sugarcane. Moreover, marginal farmers often fail to receive MSP, as sales frequently occur below the support price through aggregators rather than directly in mandis. Strengthening MSP outreach and implementation can significantly reduce distress among small and marginal farmers (Das, 2020).

Table 6: MSP of Rice & Wheat for the year 2017-18 to 2022-23 in Uttarakhand (Fig. in Rs.)

KMS/RMS	PADDY		WHEAT
	COMMON	Grade- A	
2017-18	1550	1590	1625
2018-19	1750	1770	1735
2019-20	1815	1835	1840



2020-21	1868	1888	1925
2021-22	1940	1960	1975
2022-23	2040	2060	2015

Source- F.C.I

MSP for wheat and rice has been increasing over the years but still not in alignment with recommendation of M.S Swaminathan committee which recommended M.S.P to be 1.5 times of A2+F.L cost. The rise in M.S.P in wheat and paddy is shifting more farmers towards these crops as the M.S.P is guaranteed which is hampering the growth of other horticulture crops which are not under the purview of the M.S.P. Crop diversification should be increased by adding more crops under M.S.P as this is leading to oversupply of these grains and increasing the burden on the government. These crops are most produced across the country but still few states are leveraging it properly like Haryana, Punjab, Chattisgarh rest of the states are still behind than these states in getting benefit of the M.S.P.

Cultivation cost has been increasing along with inflation and labour cost besides this farmers have to bear the adversities from extreme climate, animals threat of destroying farms with all these risk have to sell their produce at very low prices and M.S.P is the major tool at the hand of the government to mitigate farmer's distress and can double farmers income which is also one of the target of the Government. The measures for determining the M.S.P is based on three cost determined by C.A.C.P. Adversities from weather, climate and animals also destroys the farms which leads to high cost which is not easy to recover by the farmers therefore Minimum Support Prices are need of the hour which can be possible by increasing the procurement under MSP in these rural and hilly areas. M.S.P is now being provided in more than 23 crops which has diversified the msp and laid farmers interest in other crops which were earlier outside the ambit of M.S.P.

Conclusion and Policy Suggestions

The present study underscores a significant structural gap between the Minimum Support Price (MSP) announced by the Government and the prices prevailing in private agricultural markets, which are highly volatile and governed by demand–supply dynamics. Although MSP is designed to provide price assurance and income security to farmers, its benefits remain uneven due to limited procurement infrastructure and inadequate awareness of procurement policies at the grassroots level. Consequently, a large number of farmers, particularly in remote and underserved areas, are forced to sell their produce below MSP in the absence of accessible and efficient procurement centres.

The findings reveal that MSP has played a crucial role in stabilizing both production and income for rice and wheat growers, particularly among farmers owning more than one hectare of land. However, small and marginal farmers benefit relatively less from the scheme due to multiple constraints, including high input and transportation costs, fragmented landholdings, and limited access to procurement facilities. In Uttarakhand, these challenges are exacerbated by the state's predominantly hilly terrain, which accounts for more than 84 per cent of its geographical area. Difficult topography increases cultivation and logistics costs and restricts mechanization, resulting in a concentration of MSP benefits in the plains, while hill districts remain largely excluded.

The study further establishes a statistically significant relationship between procurement levels and the production of MSP-supported crops, indicating that assured prices incentivize increased cultivation of rice and wheat. While this has contributed to income



stability, it has also encouraged monocropping practices, raising concerns about ecological sustainability and the long-term resilience of farming systems. Moreover, the economic cost of procurement—estimated at approximately ₹37 per kg for rice and ₹27 per kg for wheat—substantially exceeds prevailing market prices, imposing a considerable fiscal burden on the Food Corporation of India (FCI). With the economic cost approaching ₹3 lakh crore, there is a risk of fiscal stress, potential diversion of resources from agricultural infrastructure, and inflationary pressures.

Despite these limitations, the study strongly supports the continuation of the MSP programme due to its critical role in ensuring price stability, income security, and risk mitigation for farmers. MSP protects farmers from market exploitation, strengthens their bargaining power, and facilitates direct access to government procurement agencies, thereby reducing transaction costs. The assurance of minimum prices also encourages investment in improved inputs and farming practices, contributing to enhanced productivity and rural economic growth.

To improve MSP effectiveness in Uttarakhand, policy interventions should prioritize the expansion of procurement infrastructure in hilly regions, reduction of transportation and logistics costs, and greater dissemination of information on procurement procedures. Special attention must be given to the inclusion of small and marginal farmers through region-specific and diversified support mechanisms. A restructured and inclusive MSP framework can enhance agricultural resilience, strengthen rural livelihoods, and promote long-term socio-economic stability in the state.

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