Minimum support price in India: what determines farmers' access?

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Abstract The paper evaluates the access of farmers to Minimum Support Price (MSP) for paddy and wheat across farm size groups and states based on a large-scale farm survey conducted in 2012-13. We have assessed the efficiency of MSP policy by estimating the percentage of farmers selling paddy and wheat to Public Procurement Agencies (PPAs), the price they sold at, and the quantity of the crop sold at that price. The north-eastern states have the least access to MSP followed by the eastern states. The odds of selling to PPAs are low among small farmers, and the socially-disadvantaged households.

Keywords Minimum support price (MSP), procurement agency, access to institutions, farmers' income

JEL codes Q12, Q18, Q28

The Commission for Agricultural Costs and Prices (CACP) uses the agricultural production cost to decide the Minimum Support Price (MSP). CACP proposes three definitions of cost: the paid-out expenses of farmers in cash and kind on seeds, fertilizers, pesticides, hired labour, fuel, irrigation, and other inputs from outside (A2); A2 cost plus an imputed value of unpaid family labour (A2+FL); and rentals or interest loans, owned land, and fixed capital assets over and above A2+FL (C2). The National Commission on Farmers (NCF) suggested that the government fix the MSP at 50% over the C2, but the Cabinet proposed that the MSP be fixed at 50% over A2+FL (NCF, 2006). Shankar (2009) pointed out that MSP does not give any profit to farmers as price is fixed based on cost of cultivation.

The realized MSP varies by region and land size, and it does not always cover the cost of production. To assure the MSP at the state level, the NITI Aayog proposed the Market Assurance Scheme, Price Deficiency Procurement Scheme, and the Private Procurement and Stockist Scheme in 2018. The Market Assurance Scheme, the Private Procurement and Stockist Scheme aim to let a state or a state-authorized crop procurement agency build a transparent electronic market (e-market), and the Price Deficiency Procurement Scheme aims to compensate farmers if public procurement agencies (PPA) buy a crop below the MSP, but none of these models directly addresses the discrepancy in prices realized at regional level by farm size.

The central role of MSP is to keep a check on exploitation by the private traders and to ensure price stability. MSPs should be flexible and fixed on the conservative side having strict relevance to demand-side factors so that private business has an incentive to market the produce (Chand 2003; Dev and Rao 2010). MSP is an instrument to ensure food security, employment, and income of farmers (NITI Aayog, 2016). Remuneration of farmers needs to be made immune to the operation of the market principle and the frequent fluctuations to increase the certainty of incomes of farmers.

In this context, this paper proposes a method to evaluate the performance of the MSP policy by region and farm size group. The realization of the MSP is the ratio of farmers selling their produce of a crop at the MSP to

the farmers selling to PPAs; this paper estimates the realization. Farmers sell their produce at the MSP or below or above the MSP to PPAs; this paper calculates the quantity of each to assess the benefits to farmers by region and farm size group. Finally, this paper offers suggestions for formulating policy.

Data and methodology

We use the Situation Assessment Survey of Agricultural Households in India (hereafter SASAH) 2012–13[1] and the unit-level data from the 70th round of the National Sample Survey Office (NSSO) for 2012–13 as the primary databases. Our analysis uses variables on the institutional facilities accessed by farmers, the market price of crops, and other household-level socio-economic statistics. In this paper, we also use data on recommended MSP from Price Policy Reports for kharif and rabi marketing season of 2012-13.

We use a dataset for a particular year[2] to analyse whether farmers can sell their produce at the MSP. We estimate logistic regression models to analyse the determinants of selling crop produce at PPAs for paddy and wheat farmers. The output variable is binary, indicating selling at PPAs by agricultural households[3]. We used the fixed-effect logistic regression and the Hausman test to control for the variation across states. In logistic regression, we take the output variable 'did not sell to PPAs' as the reference point.

The NSS 70th Round data was collected for the two halves of the 2012–13 agricultural year (July 2012 to December 2012 and January 2013 to June 2013). The analysis is limited to study the functioning of MSP for paddy (July 2012 to December 2012) and wheat (January 2013 to June 2013).

The NSS 70th Round does not provide data on the input cost of individual crops, and we could not calculate the household-level cost of cultivation by crop. The questionnaire does not mention the type of paddy produced; therefore, we could not analyse the quality specificity in the realization of the MSP.

Is the minimum support price (MSP) policy efficient?

Comparing the farmer's awareness of the MSP and the percentage of farmers that sell their crop to PPAs helps us understand the efficiency of the MSP policy. Farmers' awareness of the MSP policy indicates its institutional efficiency and inclusivity.

The unit-level SASAH provides the data on household-level awareness of the MSP for each crop. For both rice and wheat, the percentage of farmers aware of the MSP exceeds the percentage of farmers who sold their produce to PPAs that year. There are two patterns of relations between the awareness of the MSP and the incidence of sale. The share of farmers who sold their produce to PPAs is low compared to the national average, although a high percentage is aware of the MSP (Figure 1). Another pattern is of moderate awareness of the MSP, and that a small percentage of farmers sold their produce to PPAs.

There is a regional imbalance in crop procurement which does not always match with the production performance of the state (Krishnaji, 1990; Raghavan 2004).

Figure 2 shows the spatial variation in awareness of MSP and selling at PPAs (Figure 2). Sales to PPAs depend on farmers' access to PPAs, the quality of the produce, the market price of a crop, and other institutional facilities. Farmers in Punjab, Haryana, and Chhattisgarh are aware of the MSP, the PPAs are efficient, and there is a direct, positive relationship between awareness and the percentage of paddy farmers that sold their produce to PPAs.

The awareness in Uttar Pradesh, Bihar, and West Bengal is much higher than the national average, but a small percentage of farmers sold to PPAs. In Kerala,

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[1] Using a stratified multi-stage design method, the NSSO randomly selected rural households. To interview members and collect data, it visited the same set of households twice—32,500 households on the first visit and 34,209 households on the second. We merged the datasets to estimate a continuous variable annually, wherever needed. Otherwise, we used individual datasets for the analysis.

[2] Data on the cost of cultivation and recommended MSP are available for every year, but there is no annual datasets available on the economic situation of agricultural households. Hence the latest large-scale survey by NSS (2012-13) on the situation of agricultural households has been considered as the reference year to estimate the efficiency of MSP policy.

[3] It is to mention that, NSS questions of selling at PPAs were asked to those who were aware of MSP. Agricultural households who were not aware of MSP are not included in the regression model.
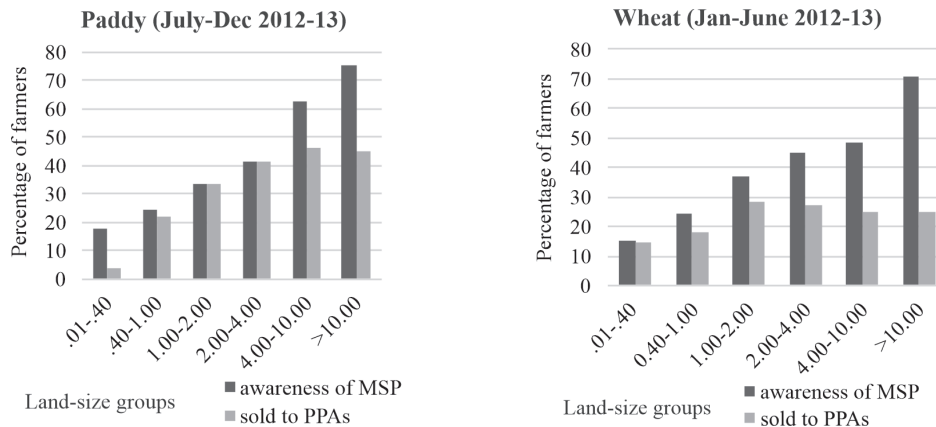
Figure 1 Awareness of MSP and selling to PPAs
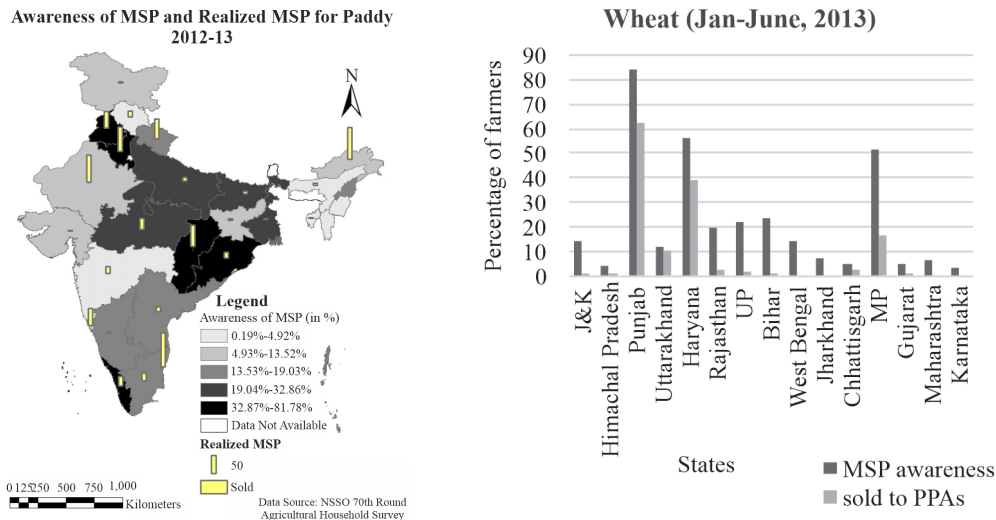*Source* Calculated by unit level data on SASAH in India, NSSO 70th round, 2012-13

Figure 2 Awareness of MSP across states
Source Calculated by unit level data on SASAH in India, NSSO 70th round, 2012-13

the awareness level is at the top quintile, but only about 29% sold to PPAs. Access to institutions is poor in the north-eastern states, as is the awareness of the MSP and the percentage of farmers who sell to PPAs. Farmers in Assam find it difficult to access procurement agencies because connectivity is poor, and the Food Corporation of India (FCI) operates only three procurement centres.

For the agricultural year 2012–13, the CACP fixed the MSP for paddy at INR 1,250 per quintal and for wheat at INR 1,350 per quintal. Figure 3 compares the mean selling rate at PPAs and mean selling rate at local

private shops, input dealers, and mandis across farm-size groups. The difference between the price offered by PPAs and non-regulated markets indicates the economic benefits of the MSP. PPAs offer marginal and small farmers a higher price than do local private shops, input dealers, and mandis however, the gap is almost nil for the large farmers. Sub-marginal farmers report the largest gap in the prices offered by PPAs and other markets. The NSS data shows that 60% of marginal farmers sell to local private shops and the reason for not selling at PPAs for pre-pledged agreement with the buyers.[4]

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[4] The pre-pledged agreement data is available only for the farmers who are aware of the MSP. Hence, the absolute figure is not able to capture the entire picture.
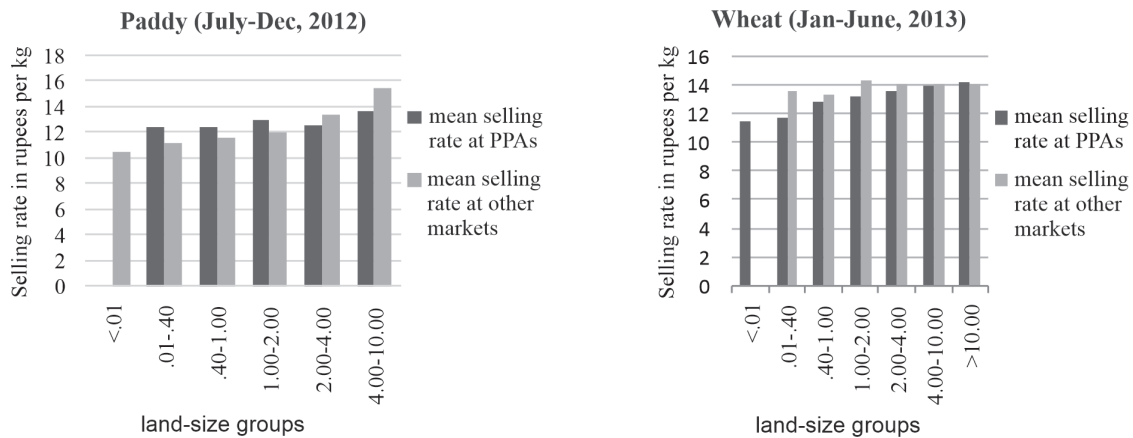
Figure 3 Comparison of mean selling rate received at PPAs and other markets
Source Calculated by unit level data on SASAH in India, NSSO 70th round, 2012-13

In estimating the MSP, the CACP considers the cost of transport and storage; it assumes that the cost of transport does not hinder farmers from selling their produce to PPAs. A farmer's distance to their nearest procurement agency varies by region and determines the transport cost, as does the scale of production. If PPAs pay small farmers the actual cost of transport in cash, they might consider it an incentive to sell to PPAs.

Assessing the performance of the MSP policy

We estimate the efficiency of the MSP policy by studying the percentage of farmers selling paddy and wheat to PPAs, the prices received and the quantity sold. To assess the performance of the MSP policy, we calculate the share of farmers who sold their produce below the MSP to PPAs. At the state level, the difference is drastic.

In Punjab, 82% of paddy farmers sold their produce to PPAs, and 67.63% sold above the MSP. In Bihar, the probability of selling to PPAs is as low as 8%; 83.4% of farmers sold paddy below the MSP (INR 1,250 per quintal) to PPAs and 55% of them below INR 1,000 per quintal. The situation in West Bengal is slightly better than in Bihar: 75% of the farmers sold paddy to PPAs below the MSP. Around 80% of the farmers in Uttar Pradesh sold paddy below the MSP to PPAs, and 80% of the farmers in Andhra Pradesh sold paddy at INR 960 per quintal. The state bonus in Kerala let 84% of the farmers sell at INR 1,700 per quintal.

About 64% of the farmers in Punjab and 86% in Haryana sold wheat at the MSP to PPAs and 83% of

farmers in Punjab sold above the MSP. In Uttar Pradesh, 90% of the farmers sold below the MSP, and 42% of farmers sold at less than INR 1,100 per quintal. In Madhya Pradesh, almost 82% of farmers sold to PPAs at or above the MSP.

In Punjab, the mean rate of sale is INR 1,350 per quintal for paddy, and a household sells 9,401 kg on average; in Uttar Pradesh, the mean rate of sale is INR 1,180 per quintal, and a household sells 2,883 kg on average to PPAs.

We consider the difference between the MSP and the price offered by PPAs, and we rank farmers by state and farm size by multiplying that difference with the quantity sold to PPAs. If an individual farmer sells above the MSP to a PPA, they benefit; if they sell below the MSP, they lose. The quantity of the products sold weights the benefit or loss. We focus on farmers who sold above or below the MSP; therefore, we neutralize farmers who sold at the MSP to zero.

$$B_H = (M_R - M_F) * Q_S$$

B_H = Benefit of the agricultural household

M_R = Mean selling rate to PPAs

M_F = Fixed MSP for both the crops for the year 2012–13

Q_S = Quantity sold

Benefits of selling to private procurement agencies (PPA)

We rank the states in descending order by the percentage of farmers who sold below the MSP (Figure
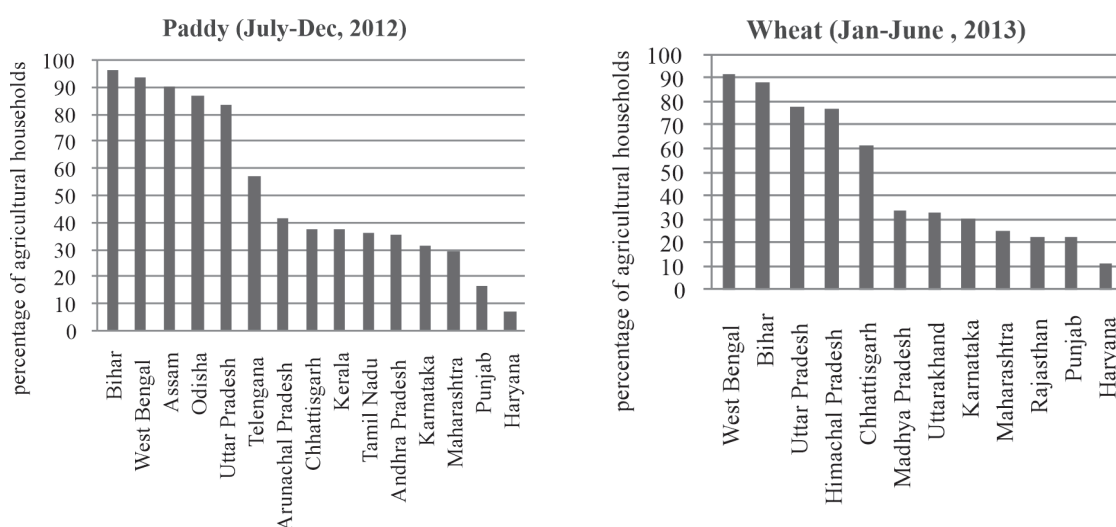
Figure 4 Percentages of farmers sold paddy and wheat below MSP at PPAs in major paddy and wheat producing states (2012–13)

Source Calculated by unit level data on SASAH in India, NSSO 70th round, 2012-13

4). Higher the negative value, greater the quantity sold below the MSP.

The concentration is highest in states in eastern India. Both West Bengal and Bihar have high negative values, although the figures are neutralized for large farmers in West Bengal and, in Bihar, negative for larger land size groups too. The ranking of paddy farmers by farm size group shows that across all farm size groups, Punjab is in either a neutral position or the profit zone, and Uttar Pradesh is in the loss zone. In Kerala, the figure is positive for the larger farm size groups and neutral for small and medium farmers. In 2012–13, the state government of Madhya Pradesh offered a bonus of INR 150 per quintal on the MSP for wheat, and farmers benefited. Around 55% of the farmers sold wheat at INR 1,500 per quintal to PPAs—above the MSP of INR 1,350 per quintal—but most of the values were neutralized in Punjab because 65% of the farmers sold at the MSP.

Now, we compare the percentage of farmers who were aware of the MSP with the percentage of farmers who sold at the MSP. In Madhya Pradesh, 52% of the farmers were aware of the MSP, and 81% of them sold to PPAs. In Punjab, 84% of farmers were aware of the MSP of wheat, and almost 85% of them sold to PPAs. Only 22% of wheat farmers in Uttar Pradesh were

aware of the MSP, and 82% of them sold below the MSP to PPAs at a high loss. The awareness of the MSP in Rajasthan was only 20%, as low as in Uttar Pradesh, but the state bonus raised the MSP to INR 1,500 per quintal, and 50% of the informed farmers sold at the MSP to PPAs. Procurement agencies pay a premium over the MSP for paddy more than for wheat because the quality of paddy varies widely, and farmers prefer to sell better quality paddy at wholesale markets.

Figure 5 shows the reasons for not selling to PPAs across farm-size groups. Many farmers across all land size groups do not sell to PPAs for 'other reasons,'[5] and small and marginal farmers do not sell to PPAs either because agencies are hard to access or they are not available. The percentage that does not sell to PPAs because they get a better price over the MSP elsewhere increases with landholding size: 10–12% for medium and large landholders and 50% for very large landholders.

Performance of procurement agencies in operating the minimum support price (MSP) policy

The government envisions food security for all. In pursuance of this vision, paddy and wheat are procured from farmers under the remunerative scheme by the

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[5] We exclude landholdings under 0.01 hectares from the sub-marginal category. The figure excludes 'other reasons' for not selling to PPAs to emphasize the available causes; exploring these reasons may be of interest, however.
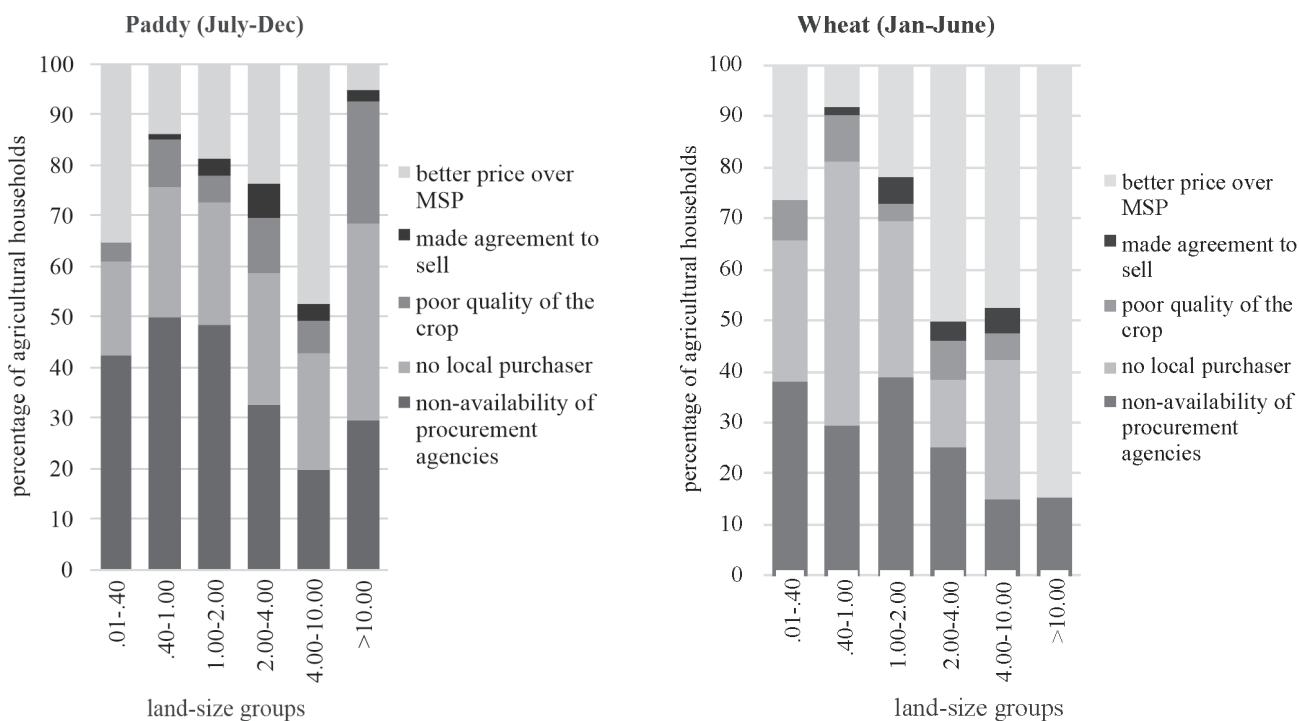
Paddy (July-Dec)   Wheat (Jan-June)

Figure 5 Reasons for not selling paddy and wheat to PPAs
Source Calculated by unit level data on SASAH in India, NSSO 70th round, 2012-13

State Food Corporation (SFC), FCI, and PPAs. These agencies implement the MSP policy with varying degrees of effectiveness and efficiency. We map their performance to show regional variation in institutional facilities. There are too few procurement agencies, and farmers are often compelled to sell below the MSP. Figure 6 and 7 show farmers' access to FCI and SFC for paddy and wheat, respectively .

In Tamil Nadu, the state Civil Supplies Corporation opened Direct Purchase Centres in villages to procure paddy from farmers. In West Bengal, the Food and Supplies Department and other state departments supervise the procurement of paddy under the MSP. In Rajasthan, Maharashtra, Punjab, and Haryana, the FCI and state agencies procure paddy and wheat. However, PPAs are few in the north-eastern states resulting in low awareness among farmers. A small percentage of paddy and wheat farmers in Gujarat sell their produce to PPAs. The institutional presence is strong in Punjab; five authorized agencies operate in the state, along with the FCI.
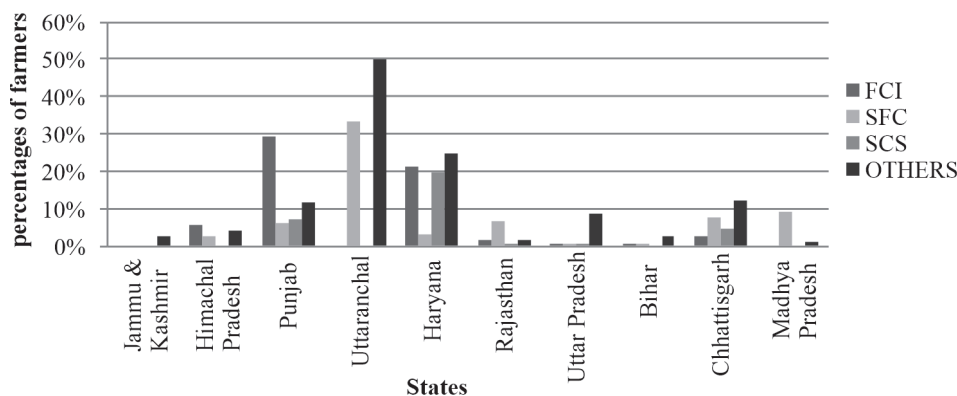

Figure 6 Access to PPAs (Wheat Jan-June, 2013)
Source Calculated by unit level data on SASAH in India, NSSO 70th round, 2012-13
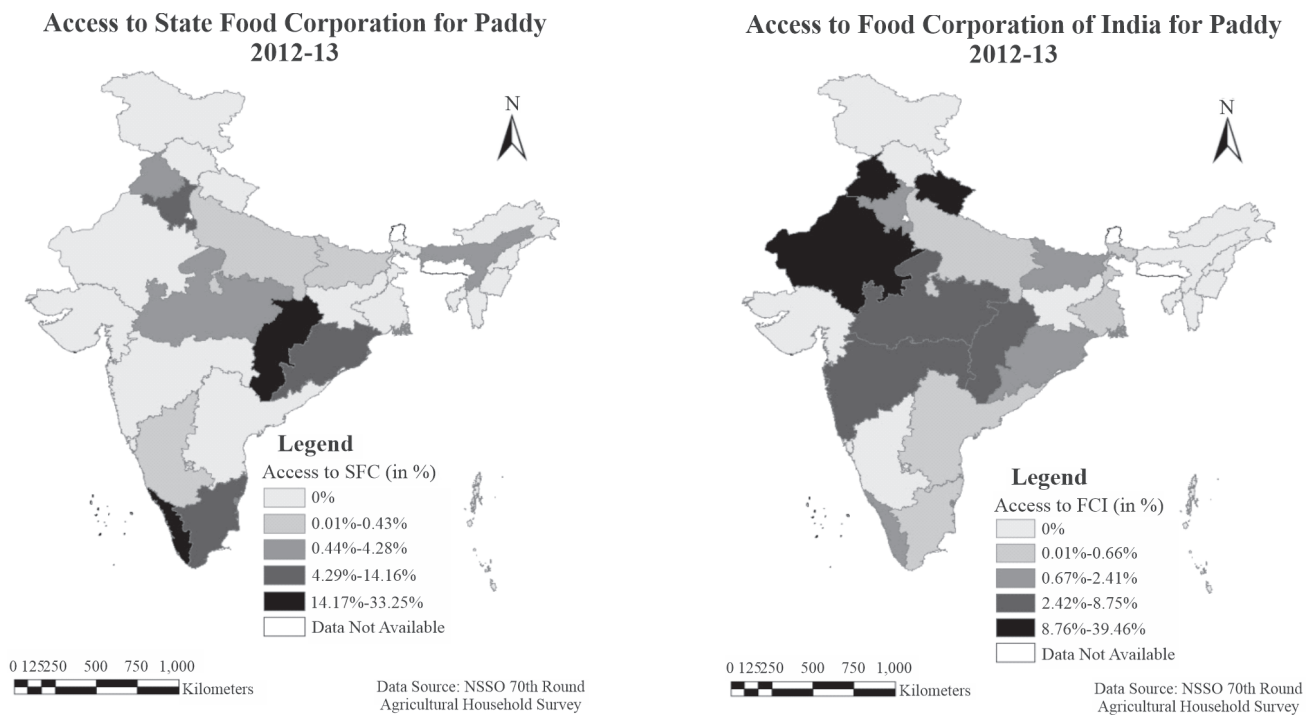
Access to State Food Corporation for Paddy 2012-13

Legend
Access to SFC (in %)
- 0%
- 0.01%-0.43%
- 0.44%-4.28%
- 4.29%-14.16%
- 14.17%-33.25%
- Data Not Available

0 125 250   500   750   1,000
Kilometers

Data Source: NSSO 70th Round
Agricultural Household Survey

Access to Food Corporation of India for Paddy 2012-13

Legend
Access to FCI (in %)
- 0%
- 0.01%-0.66%
- 0.67%-2.41%
- 2.42%-8.75%
- 8.76%-39.46%
- Data Not Available

0 125 250   500   750   1,000
Kilometers

Data Source: NSSO 70th Round
Agricultural Household Survey

Figure 7 Access to PPAs (Paddy July-Dec, 2012)
Source Calculated by unit level data on SASAH in India, NSSO 70th round, 2012-13

Determinants of the effective operation of the minimum support price (MSP) policy

From the supply side, sales to PPAs depend on the presence of procurement agencies, the operation of regulated markets, and access to institutions. The government raised the MSP in recent years, but the percentage of farmers who sold their produce at the MSP to PPAs has not grown apace. The MSP policy must be made to function in an inclusive manner, therefore, a single-minded focus on raising the MSP is not enough.

We estimate a logistic regression model to analyse the determinants of the selling to PPAs separately for paddy and wheat at household level. The independent variables are farmers' access to institutions indicated by progressiveness of farmers; farmers' access to mandis implied by connectivity; the extent of indebtedness; crop yield; landholding size; farmers' knowledge of market facilities; and the institution of caste. The binary dependent variable indicates the incidence of selling at PPAs, which already comprises households that are aware of the MSP of that crop. Hence, awareness of the MSP is a by-default base of selling to PPAs, and the analysis does not use it as an independent variable due to its collinearity with the output variable.

Farmers' access to mandis determines the probability that they can take advantage of procurement agencies. Even if the product does not meet the Fair Average Quality norm, it is vital to protect farmers from market imperfections. The awareness of the MSP and sales to PPAs vary by social groups; for both crops, awareness of the MSP among Scheduled Tribe farmers was almost 50% of that in the General category. This difference reflects the bias and discrimination of institutional facilities, and it creates a different bargaining position of farmers.

The coefficients of the logistic regression explain the change in the predicted logged odds of experiencing an event or having a characteristic for a unit change in the independent variables. Keeping all the other variables constant, access to mandis indicated by connectivity positively influences sales to PPAs by 9% for paddy and 7 % for wheat. The coefficient value for landholding size is positive; each additional unit of increase in landholding size increases the log odds of selling at PPAs by 28% for paddy and 16% for wheat.

Table 1 Results of logistic regressions

Selling to PPAs	Paddy			Wheat		
(Reference to not selling)	Coefficient	Significance P>|z|	Odds ratio	Coefficient P>|z|	Significance ratio	Odds
Progressive farmer (no=0, yes=1)	0.519	0.000	1.680	0.629	0.001	1.782
Connectivity*	0.092	0.000	1.012	0.078	0.000	1.001
Access to KVK (no=0, yes=1)**	0.532	0.000	1.702	0.278	0.352	1.345
Caste group (General cate as the reference category)						
ST (Scheduled tribe)	-0.906	0.000	0.404	-0.930	0.000	0.395
SC(Scheduled caste)	-0.752	0.000	0.471	-0.971	0.000	0.378
OBC (Other backward caste)	-0.091	0.206	0.913	-0.931	0.000	0.394
Operated land size in hectares	0.182	0.000	1.199	0.177	0.000	1.193
Tenancy (reference to pure tenant household)	0.850	0.167	2.340	0.950	0.071	2.546
Head of the household (male=0, female=1)	-0.278	0.05	0.758	-0.345	0.403	0.645
Productivity in kg per hectare (in log scale)	0.059	0.004	1.061	0.095	0.054	1.210
constant	-2.344	0.000	0.096	0.184	0.767	1.205
Number of observations (households)			16,859			10,910
Pseudo R^2			0.38			0.35

Source Calculated by unit level data on SASAH in India, NSSO 70th round, 2012-13
Notes Fixed effect model has been used after running the Hausman test and the results indicate that the unobserved state specific variables are correlated with other covariates at statistically significant level. *Connectivity (binary variable) indicates access to mandi (non-APMC market) by the agricultural household to sell their crop produce. **KVK= Krishi Vigyan Kendra.

Only 15% of ST farmers are aware of the MSP for paddy, and this small base raised the percentage of farmers that sold to PPAs higher than the other categories. If we connect it with the reason for not selling to PPAs, the data shows that the percentage of farmers aware of the MSP is the maximum in the General category, though they choose not to sell at PPAs because they earn a premium over the MSP elsewhere.

The socially-disadvantaged SC and ST households are 75-90% less likely to sell paddy at PPAs compared to the general category households. The coefficient of the variable 'amount of loan outstanding' is small for both paddy and wheat; therefore, it is not significant in explaining the sale of either crop to PPAs. Sales to PPAs of both crops are positively and significantly encouraged by progressive farmers and access to Krishi Vigyan Kendras (KVKs). Compared to female-headed households, male-headed households have a 27% higher probability of selling to PPAs. A one-unit increase in crop yield raises sales to PPAs by 5% for paddy and 9% for wheat.

Acknowledgments

Conclusions

To determine the efficiency of the MSP policy for paddy and wheat, we analyse farmers' awareness of the MSP, sales to PPAs, and the realization of the MSP by state and land size group. Our analysis is limited to the statistics of a particular year. The awareness of the MSP varies widely by states and land size group, and five discrete spatial patterns emerge.

A large percentage of farmers is aware of the MSP, and a majority of them sell their produce at the MSP to PPAs or above due to a bonus. This is the pattern in Punjab and Haryana.

A small percentage of farmers is aware of the MSP, and a large proportion of them sells their produce at the MSP to PPAs or above, due to a bonus. This is the pattern in Rajasthan and Madhya Pradesh.

A large percentage of farmers is aware of the MSP, but a small proportion of them sell their produce to PPAs. This is the pattern in Kerala, Karnataka, and Tamil Nadu.

Bihar, West Bengal, and parts of Uttar Pradesh are in the second quintile by awareness; a considerable percentage of farmers there sell their produce below the MSP to PPAs.

Access to KVKs and extension agents is less in the north-eastern states, and PPAs are few, and both awareness and sales to PPAs are poor.

The mean market rate is higher than the mean selling rate at PPAs for large farmers, but the mean selling rate at PPAs for small farmers exceeds the mean market rate. Hence, large farmers can negotiate better prices than small farmers and MSP has immense importance to address distress sales among small farmers.

We assess the administration of the MSP policy by analysing farmers' sales to PPAs and the MSP they realized. Sales to PPAs are determined largely by landholding size, institutional facilities, and a farmer's ability to negotiate. Large farmers do not sell to PPAs because the market price exceeds the MSP, but it is the lack of access to procurement agencies that hold small and marginal farmers back. The MSP policy aims to protect farmers from price fluctuations. Hence, it is essential to implement the MSP policy inclusively.

The prime agenda of the MSP is to enhance the capability of farmers to afford the growing input expenses. In reality, in most states, a high percentage of farmers does not have have access to procurement agencies. To ensure farmers benefit from MSP, the government has proposed a new initiative, the National Agricultural Market (e-NAM), which can increase the price choices of farmers by interlinking the market chain. Agencies using the e-NAM must pay farmers instantly.

References

Chand, R. 2003. Minimum support price in agriculture: changing requirements. *Economic and Political Weekly* 38 (19):3027–3028. https://www.epw.in/journal/2003/29/commentary/minimum-support-price-agriculture.html

Dev, S. M. and Rao, N. C. 2010. Agricultural price policy, farm profitability and food Security. *Economic and Political Weekly* 45(26&27):174–182. https://www.epw.in/journal/2010/26-27/review-issues/agricultural-price-policy-farm-profitability-and-food-security.html

Krishnaji, N. 1990. Agricultural price policy: a survey with reference to Indian food grain Economy *Economic and Political Weekly* 25(26): 54-63. https://www.epw.in/journal/1990/26/review-agriculture-uncategorised/agricultural-price-policy-survey-reference-indian

Swaminathan, M. S. 2006. *Serving farmers and saving farming. National Commission on Farmers Report.* Ministry of Agriculture, Government of India https://www.prsindia.org/report-summaries/swaminathan-report-national-commission-farmers.

NITI Aayog. 2016. *Evaluation study on efficacy of MSP on farmers*. Government of India, New Delhi. https://niti.gov.in/writereaddata/files/writereaddata/files/document_publication/MSP-report.pdf

Raghavan, M. 2004. Politics of procurement and price support. *Economic and Political Weekly* 39(5): 506–508. https://www.epw.in/journal/2004/05/discussion/politics-procurement-and-price-support.html

Shankar, K. 2009. Unfair minimum support price. *Economic and Political Weekly* 44(51): 86. https://www.epw.in/journal/2009/51/letters/unfair-minimum-support-price.html