ASPECTS OF THE POLITICAL ECONOMY OF CROP INCOMES IN INDIA

Biplab Sarkar, V. K. Ramachandran and Madhura Swaminathan

Biplab Sarkar (*left*) is a Senior Research Fellow at the Indian Statistical Institute, Bangalore. His current research interests include issues related to agricultural output and input prices, methodological issues in the calculation of cost of cultivation, and economics of household farming in India. Email: biplab@isibang.ac.in

V. K. Ramachandran is Professor of economics, Indian Statistical Institute, Bangalore, and National Fellow, Indian Council of Social Science Research. He is Editor of the *Review of Agrarian Studies*. Email: vkr@isibang.ac.in

Madhura Swaminathan (*right*) is Professor at the Economic Analysis Unit, Indian Statistical Institute, Bangalore, and Chairperson of the M.S. Swaminathan Research Foundation, a center for research on sustainable agriculture and rural development. Her research interest includes development economics, economics of inequality, rural development, economics of food and food security, agrarian studies, and labor economics. Email: madhura@isibang.ac.in

Abstract: This article intends to evaluate at the farm level, the nature of variation of output prices and input costs in agriculture through the lenses of socio-economic class differentiation. Official systems of the calculation of agricultural costs in India have evolved—with respect to their methodological sophistication and complexity—continuously since the early years of India's Independence. At present, there is a three-tiered system of calculation of input costs for crops, ranging from a base calculation of paid-out costs to a calculation that takes into account the shadow prices of family labor and supervision costs as well as other categories of imputed costs. The study uses detailed information from a unique dataset on agricultural outputs, prices and cost of cultivation for paddy and wheat in five villages of three states of India to (1) estimate actual costs of cultivation and the extent to which minimum support price as declared by the Government of India cover these costs and (2) examine costs of cultivation across socio-economic classes of cultivators. Official statistics deal only with averages across states and all classes, thus ignoring the sharp socio-economic differentiation and inequality prevalent in the Indian countryside.

Key words: crop incomes; cost of production/cultivation; minimum support price; farm harvest price; India

1. Introduction

The population of India is still 70 percent rural. In most villages in the country, about 80 percent of households are associated with direct crop production—as owners and operators of land, as hired workers, or as providers of inputs and other

services. Policies to ensure steady, sustainable and adequate incomes to farmers must thus be central to agricultural and rural development policy in the country. Such policies have, historically, taken the form of interventions with respect to the costs of inputs and the prices of outputs. The preferred policy mechanism, therefore, has been to regulate the market by means of administered prices, rather than through direct cash transfers as agricultural income incentives.

The distribution of household agricultural incomes in India is marked by sharp inequality (Swaminathan and Rawal 2011). Indeed, real income inequality in India, whether calculated in terms of the distribution of income across income classes or the distribution of income across socio-economic classes, can be counted to be among the highest in the world (Swaminathan and Rawal 2011). In order to ensure a measure of distributional equality with regard to income, price policy in India must, we contend, take account of this inequality.

The declared objective of price policy with regard to agricultural produce in India is to ensure remunerative prices to growers for their produce with a view to encouraging higher investment and production as well as safeguarding the interests of consumers by making cereal supplies available at reasonable prices. In each season, the Government of India announces minimum support prices (MSPs) for agricultural commodities; it is further supposed to organize purchase operations, wherever required, through public, cooperative, and other designated agencies to ensure that prices do not fall below the MSP for each commodity. It decides on the support prices for agricultural commodities taking into account the recommendations of the Commission for Agricultural Costs and Prices (CACP) on costs of production as well as certain other factors.[1]

This article uses detailed data on agricultural outputs, incomes, and the costs of cultivation for rice and wheat in five villages of three states of India to, first, estimate actual costs of cultivation and the extent to which MSP as declared by the Government of India cover these costs. Second, this article examines costs of cultivation across socio-economic classes of cultivators. Official statistics deal only with averages across states and all classes, thus ignoring the sharp socio-economic differentiation and inequality prevalent in the Indian countryside.

2. Calculating Agricultural Costs in India: The Official Methodology

The initial determinants of MSPs for agricultural commodities in India are the crop-wise surveys carried out by the Department of Economics and Statistics (DES), Ministry of Agriculture, Government of India. Since 1970–1971, the DES has conducted crop surveys under a scheme known as the "Comprehensive Scheme for Studying Cost of Cultivation/Production of Principal Crops."[2] This comprehensive scheme involves collecting data on 24 crops (annual and seasonal)

in a year.[3] At present, these surveys are conducted in 19 states of the Indian Union; in almost all cases, the actual surveys are conducted by local agricultural universities (Table A1 in Appendix). On receipt of field data from agricultural universities, the DES calculates the cost of cultivation and gives the same to the CACP.

In particular, the CACP uses the following cost concepts in determining crop incomes from the 24 crops that are tracked by the surveys:

Three-tiered system of calculation of production costs for crops:

A	A1 = all actual expenses in cash and kind incurred in production by the cultivator[4]
	A2 = A1 + rent paid for leased-in land
	A2 + FL = A1 + rent paid for leased-in land + Imputed value of family labor
B	B1 = A1 + interest on value of owned capital assets (excluding land)
	B2 = B1 + rental value of owned land and rent paid for leased-in land
C	C1 = B1 + imputed value of family labor
	C2 = B2 + imputed value of family labor
	C2* = C2 + additional value of human labor based on use of higher wage in consideration with the statutory minimum wage rate
	C3 = C2* + 10 percent of C2*

Source: Government of India (1964; 1965; 1980; 1990).

In 2000, the Government of India appointed a High Level Committee (HLC) on Long-Term Grain Policy. The committee recognized that MSP policy "was critical in India's achievement of food grains self-sufficiency" and suggested certain modifications to the existing system. Among its recommendations, one was to set MSP on the basis of C2 cost of production (all costs including imputed costs of family labor, owned capital, and rental on land) in the *more efficient regions* (GoI 2002; emphasis added). However, the HLC did suggest that at least A2 + FL (paid-out costs plus imputed value of family labor) in the high-cost regions should be covered by MSP. In other words, the price policy should be based on producers in the "efficient" or low-cost regions. Other recommendations included making MSP statutory and ensuring its effective implementation across the country.

In 2004, the Government of India appointed a National Commission on Farmers. In its landmark reports of 2004–2006, the Commission made a series of recommendations designed, inter alia, to strengthen India's food security and sovereignty, strengthen farming and related activities, ensure adequate and

sustainable incomes to the people of rural India, and make farming and related activities an attractive and remunerative option for young men and women in rural India. The National Commission on Farmers argued that implementation of MSP had to be improved for crops other than paddy and wheat; the commission recommended that MSP should be at least 50 percent more than the weighted average of costs of production C2. In other words, the costs of all major producing regions would need to be considered in estimating C2, and MSP should give a return over C2 (GoI 2004–2006). This, it was argued, would make cultivation remunerative. These recommendations, which are radical in the Indian context and were met with enthusiasm by peasant organizations in the country, have not been accepted as policy by the government.

3. Costs of Cultivation across Villages and Socio-economic Classes

The data used in this article come from the archive of the Foundation for Agrarian Studies (FAS) and were collected as part of the Project on Agrarian Relations in India (PARI).[5] This article is based on data from five villages, across three states, located in distinct agro-ecological regions of the country (Table A2 in Appendix). In each of the five villages, a census survey was undertaken.

We have selected villages based on the gross cropped area devoted to paddy and wheat (Table A3 in Appendix). Only villages in which at least 5 percent of the cropped area was sown to paddy and wheat as mono-crops were selected. Wheat was also cultivated as an intercrop in some villages, but these have not been considered in our analysis, as official data (with which we shall compare our results) do not give any estimates of costs for intercrops.

The FAS-PARI surveys are conducted at the end of an agricultural year. Data on agricultural activities in these surveys are collected for the agricultural year preceding the survey. Estimates of crop income have been calculated from detailed data reported on crop output and inputs. The items of cost broadly correspond to those collected by the Government of India. We calculate the gross value of output (GVO) and two cost measures, paid-out costs or A2 and paid-out costs plus family labor (Cost A2 + FL), and net incomes from paddy and wheat. GVO refers to the value of total production. It includes the value of the main product as well as of by-products. Cost A2 includes the costs of home-produced and purchased seeds, the value of home-produced and purchased manure, the value of chemical fertilizer, plant protection, irrigation charges, hired labor, the costs of owned and hired animal labor, the costs of owned and hired machinery, rent paid for leased-in land, marketing expenses, land revenue, interest on working capital, depreciation of own machinery, and crop insurance expenses.

The cost of family labor (FL) has been calculated by imputing a wage, since family labor is unpaid. The cost is imputed on the basis of the prevailing daily wage rate in the village. Since men, women, and children may participate in cultivation, we value days of labor performed by women and children at the prevailing daily wage rate for female labor in the village and days of labor performed by men at the prevailing male wage rate (for daily-paid casual labor tasks). Net income is calculated as the difference between the GVO and Cost (A2 + FL).

3.1. Paddy

3.1.1. Aggregate Analysis

Costs and returns of paddy cultivation are estimated for three villages: Harevli in western Uttar Pradesh, Mahatwar in eastern Uttar Pradesh, and Gharsondi in Madhya Pradesh.

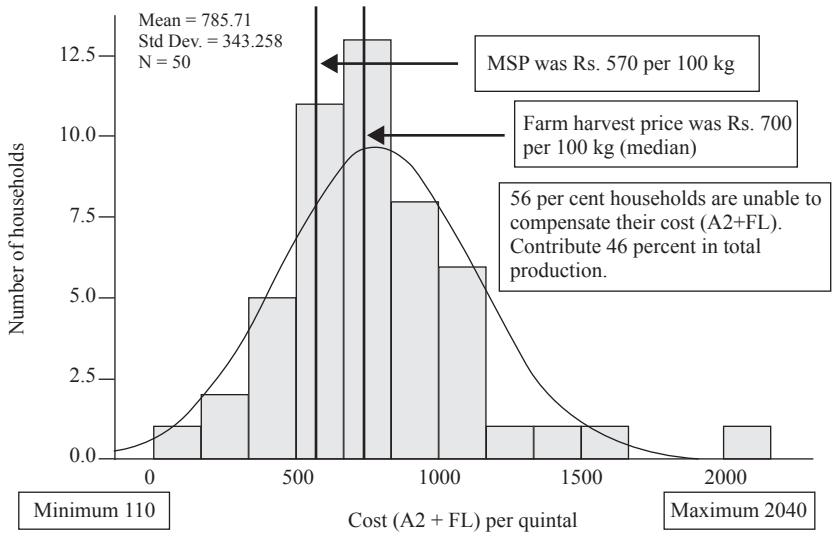
First, the mean and median farm harvest prices (FHPs) in Harevli were higher than the official MSP for the relevant year, but the median FHP was lower than MSP in Mahatwar.[6] So, MSP did act effectively as a floor price in Harevli village, which belongs to the "green revolution" belt of Punjab, Haryana, and western Uttar Pradesh. MSP did not act as a floor price in the Mahatwar village.

Second, when we compared Cost A2 + FL with actual FHP for each cultivator, then, in Harevli, for 56 percent of cultivators, the unit price obtained was below the cost (see Graph 1). The corresponding proportion was 91 percent in Mahatwar (see Graph 2). In other words, a majority of rice cultivators in Mahatwar received a market price that was even below their A2 + FL costs, not to speak of Cost C2. Not surprisingly, most cultivators in Mahatwar made a loss from paddy production in 2005–2006.

Third, the mean FHP was slightly lower than mean A2 + FL cost in Harevli, but the gap was huge in Mahatwar (average FHP was Rs 495 and average A2 + FL cost was Rs 1061). In Mahatwar village, due to lack of adequate water, the paddy crop failed in the survey year, and average yield was very low compared to the state average. An important contributor to the high cost of cultivation, as we shall see later, was the cost of buying water for irrigation.

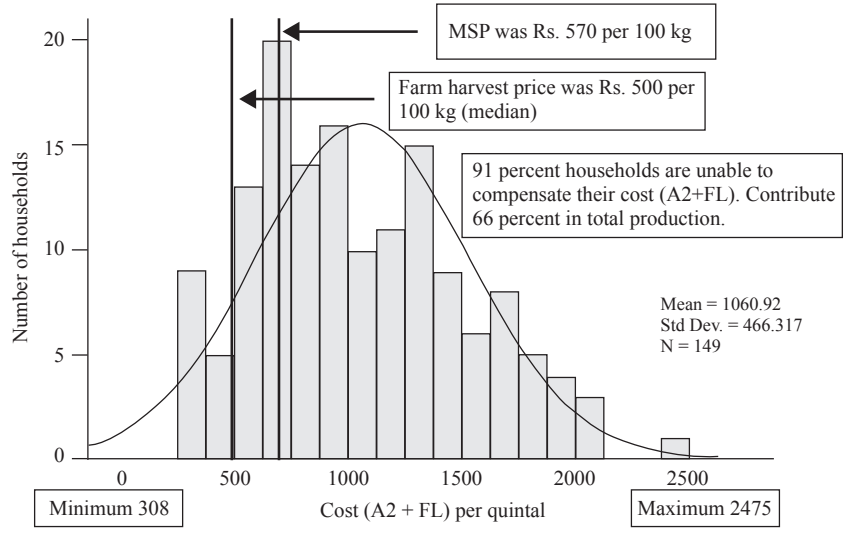
In Gharsondi village, paddy cultivators grew two types of rice and received two different prices for their output. One was for the common variety (called IR-24, Jaya, Masoori), for which the price at Rs 724 per 100 kg was lower than the announced procurement price (Rs 745 per 100 kg) for that year. However, for the long-grain basmati rice, the average price was Rs 1175 per 100 kg.[7] FHP was only slightly higher than average cost of production for non-basmati rice, but the return was sizeable in the case of basmati for almost all cultivators (see Graphs 3 and 4).

3.1.2. A Disaggregated Class-Wise Analysis



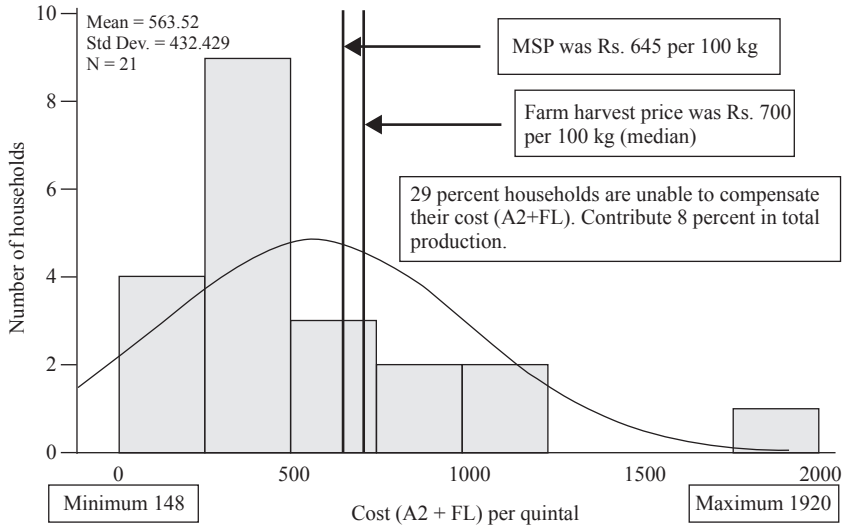
Graph 1 Distribution of cost (A2 + FL) per 100 kg of paddy in Harevli, Uttar Pradesh, 2005–2006

Note: MSP: minimum support price.



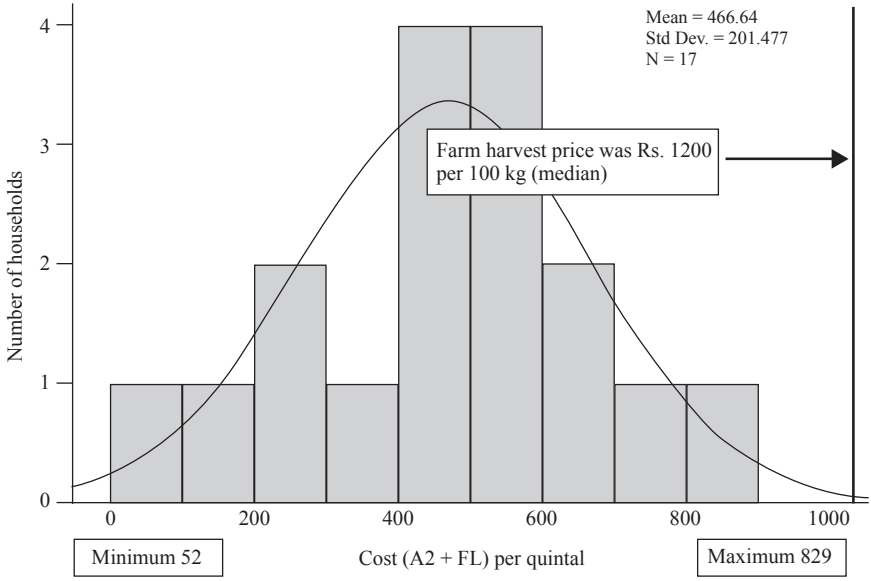
Graph 2 Distribution of cost (A2 + FL) per 100 kg of paddy in Mahatwar, Uttar Pradesh, 2005–2006

Note: MSP: minimum support price.



Graph 3 Distribution of Cost (A2 + FL) per 100 kg of non-basmati paddy in Gharsondi, Madhya Pradesh, 2007–2008

Note: MSP: minimum support price.



Graph 4 Distribution of Cost (A2 + FL) per 100 kg of basmati paddy in Gharsondi, Madhya Pradesh, 2007–2008

The discussion so far has focused on an "average" cultivator. However, the reality is of a differentiated peasantry. Graphs 1–4 show the frequency distribution of Cost (A2 + FL) across cultivators in Harevli, Mahatwar, and Gharsondi villages, respectively. The plots clearly show large variations within a village, and this section tries to argue that these variations are not random variations but follow class lines.

In the PARI, a methodology was developed to identify classes in the countryside, based on three criteria, namely, value of asset ownership, extent of use of family labor, and levels of incomes (Ramachandran, Rawal, and Swaminathan 2010).

We now examine costs of production for cultivators belonging to different socio-economic classes.

3.1.2.1. Harevli

In Harevli, households with cultivation were classified into six categories: landlords, rich peasants, upper-middle-class peasants, lower-middle-class peasants, poor peasants, and hired manual workers. For this analysis, we have combined rich and upper-middle-class peasants since there was only one rich peasant in the village. In general, households classified as rich peasants own more and better means of production and use less family labor than those classified as middle-class peasants, and similarly poor peasants own fewer assets and use more family labor than middle-class peasants.

Table 1 reports the yields per hectare, FHP, Cost A2 + FL and net incomes (gross income minus Cost A2 + FL) from paddy cultivation for cultivators from different socio-economic classes: rich peasants, middle-class peasants, poor peasants, and hired manual workers (the last category comprises tenants).

Table 1 Mean yield (100 kg per hectare), farm harvest price (FHP), A2 + FL, and net income (Rs per 100 kg) for paddy, by class, Harevli village, Uttar Pradesh 2005–2006

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Peasant: (rich + upper-middle class)	59	723	358	397
Peasant: lower-middle class	49	682	504	199
Peasant: poor	44	660	965	–251
Hired manual workers	62	700	812	–90
All classes	49	681	786	–64

Source: Survey data.

Note: We have merged rich (Peasant 1) and upper-middle-class (Peasant 2) peasant and dropped the single observation on a landlord household because of errors in data. Net income is defined as the difference between the gross value of output and Cost (A2 + FL).

The farm harvest (or market) price did not vary much across cultivators, but there were huge differences in costs, with a systematic rise in costs as we move from richer to poorer peasants and tenant cultivators. The minimum price declared by the government, Rs 570, did not cover the A2 + FL cost of a poor peasant household.

In Harevli, poor peasants comprised 54 percent of all cultivators of paddy and accounted for 55 percent of gross cropped area. The minimum price declared by government is far from covering costs of a big section of cultivators.

The landlord households leased out land on a sharecropping tenancy for cultivation of paddy. As shown by Rawal (2013), there were seasonal contracts given by large landowners to their long-term workers. The high rents paid on this contract are the main factor in the high costs of production of hired manual workers.

3.1.2.2. Mahatwar

In Mahatwar village, the following socio-economic classes were identified: landlords, rich peasants, upper-middle-class and lower-middle-class peasants, poor peasants, and hired manual workers.

In Mahatwar, the first striking result is that the FHP (market price) obtained by all cultivators was lower than the MSP (Rs 570) declared by the Government of India (see Table 2). There was no public procurement in this village. Second, even if the MSP of Rs 570 had been the floor price in this village, this would not have covered Cost A2 + FL of 87 percent of cultivators, all except a few landlord and rich peasant households.

Table 2 Mean yield (100 kg per hectare), farm harvest price (FHP), cost (A2 + FL), and net income (Rs per 100 kg) for paddy, by class, Mahatwar Village, Uttar Pradesh 2005–2006

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Landlord	22	500	351	170
Peasant 1 (rich)	20	425	763	−56
Peasant 2 (upper-middle class)	20	500	738	−218
Peasant 3 (lower-middle class)	17	508	1094	−565
Peasant 4 (poor)	17	493	1042	−516
Hired manual workers	15	477	1177	−652
All classes	17	495	1061	−536

Source: Survey data.

Third, yields were generally low but declined as one move from rich peasants to poor peasants. As mentioned earlier, the paddy crop failed due to shortage of water. At the same time, costs rose significantly as one move from rich peasants

to poor peasants and hired manual workers. In Mahatwar, tube wells, powered by diesel and electricity, were the only source of irrigation. Ownership of tube wells was concentrated among landlords and rich and upper-middle-class peasants. For poor peasants and tenant-workers, the cost of buying water from diesel-powered tube wells was very high.

3.1.2.3. Gharsondi

In Gharsondi, the following socio-economic classes were identified: landlords or big capitalist farmers and rich peasant or capitalist farmers, upper-middle-class and lower-middle-class peasants, small peasants, and hired manual workers.

Gharsondi village too suffered from shortage of water during the survey year. Of the total cultivators, for 29 percent, the MSP (Rs 645) was less than Cost A2 + FL. The biggest shortfall was among small peasants and hired manual workers. There are two distinct types of paddy cultivation in the village: the common varieties and the basmati or fine long-grain varieties.

3.1.3. Common Non-Basmati Paddy Variety

While market prices covered basic costs of production, on average, there was a shortfall among hired manual workers engaged in cultivation (see Table 3). Furthermore, MSP was lower than Cost A2 + FL of small peasants and hired manual workers engaged in cultivation (38 percent of cultivators).

Table 3 Mean yield (100 kg per hectare), farm harvest price (FHP), cost (A2 + FL), and net income (Rs per 100 kg) for paddy, by class, Gharsondi Village, Madhya Pradesh, 2007–2008

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Landlord/big capitalist farmer + rich peasant/capitalist farmer	54	724	282	448
Middle-class peasant (upper + lower-middle class)	42	716	586	154
Small peasant	32	775	695	119
Hired manual workers	32	683	967	−209
All classes	42	724	564	190

Source: Survey data.

Note: We have combined some class categories because of small numbers.

3.1.4. Basmati Paddy Variety

The picture was very different for basmati rice, where market prices were more than the covered costs (see Table 4). Basmati is a high-value paddy variety with a good domestic and export market.

Table 4 Mean yield (100 kg per hectare), farm harvest price (FHP), cost (A2 + FL), and net income (Rs per 100 kg) for paddy, by class, Gharsondi Village, Madhya Pradesh, 2007–2008

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Landlord/big capitalist farmer + rich peasant/capitalist farmer	37	1282	450	844
Middle-class peasant (upper + lower-middle class)	44	1277	512	798
Peasant 4 (small)	44	1275	753	536
Hired manual workers	52	1800	499	1332
All classes	40	1315	467	868

Source: Survey data.

Note: We have combined some class categories because of small numbers.

3.2. Wheat

In this section, we compute the costs and net income for wheat cultivators in five villages: Harevli in western Uttar Pradesh, Mahatwar in eastern Uttar Pradesh, 25F Gulabewala in Rajasthan, Gharsondi in Madhya Pradesh, and Rewasi in Rajasthan. Of these five villages, two have access to canal irrigation: Gulabewala in Rajasthan and Harevli in western Uttar Pradesh. There were serious water shortages and associated crop losses in the other three villages during the survey year.

3.2.1. Aggregate Analysis

First, except for Mahatwar village in eastern Uttar Pradesh, MSP did act as the floor price in all the other four villages (see Table 5). This suggests that with active procurement, MSP can work as the floor price.

Table 5 Minimum support price (MSP), state-level official cost estimates (Cost C2 and A2 + FL), village-level cost estimates (A2 + FL), and farm harvest price (FHP) for wheat

Village, year	*MSP, wheat*	*C2, state average, as per CACP*	*Cost (A2 + FL), state average*	*Cost (A2 + FL), average for village*	*FHP average for village*
Harevli, 2005–2006	640	559	428	983	811
Mahatwar, 2005–2006	640	559	428	720	609
25F Gulabewala, 2006–2007	650	588	365	434	860
Gharsondi, 2007–2008	750	779	443	897*	1097
Rewasi, 2009–2010	1080	709	451	1283	1302

Source: CACP reports (GoI 2009–2012) and village survey data.

Notes: CACP: Commission for Agricultural Costs and Prices.

*Excluded three households where crop had failed completely. Please see Graph 7.

Second, the MSP announced by the Government, in the relevant year, was lower than the estimated average Cost A2 + FL in four of our survey villages. The exception was 25F Gulabewala, village in Rajasthan where MSP was higher than Cost A2 + FL.

Third, in all study villages, the A2 + FL cost estimated by us, based on detailed village survey data, was higher than the official estimate at the corresponding state level. While there are variations across villages in a state, nevertheless, we believe that there is a serious underestimation of costs in official statistics. First, there are a few components of Cost A2 in our estimates that are excluded from the CACP calculation, namely, marketing expenses and crop insurance (though the latter was negligible). Marketing is an important cost for all cultivators, and the CACP has recognized that this is a detrimental exclusion. Second, even for the common cost components, our analysis suggests that costs are underestimated by official statistics.

Again, the average hides the true picture, so we examine costs for different classes of cultivators.

3.2.2. A Class-wise Analysis

3.2.2.1. Harevli

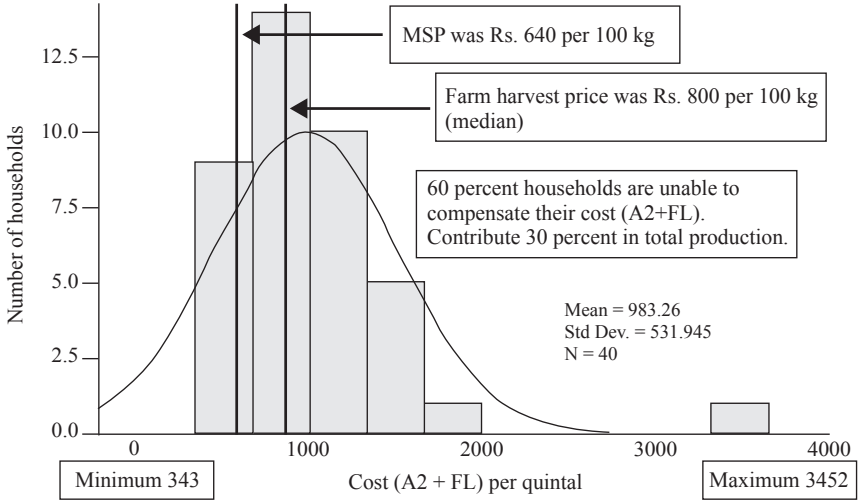
Not only is there variation in costs across households, but as Table 6 shows, this variation is systematic, rising as we move from rich-to-middle-class peasants to poor peasants. In Harevli, the MSP of Rs 640 did not cover A2 + FL costs of middle and poor peasants, who comprised 78 percent of all cultivators. Even the actual FHP failed to cover costs of 60 percent of cultivators (accounting for 30 percent of production). See Graph 5.

Table 6 Mean yield (100 kg per hectare), farm harvest price (FHP), cost A2 + FL, and net income (Rs per 100 kg) for wheat, by class, Harevli Village, Uttar Pradesh 2005–2006

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Landlord	32	750	512*	265
Peasant 1 (rich)	27	826	616	256
Peasant 2 (upper-middle class)	27	812	886	−26
Peasant 3 (lower-middle class)	27	803	967	−105
Peasant 4 (poor)	25	825	1323	−443
All classes	27	809	920*	−56

Source: Survey data.

Note: *Excluded one household, whose per quintal cost was Rs 3452. Please see Graph 5.



Graph 5 Distribution of Cost A2 + FL per 100 kg of wheat in Harevli, Uttar Pradesh, 2005–2006

Note: MSP: minimum support price.

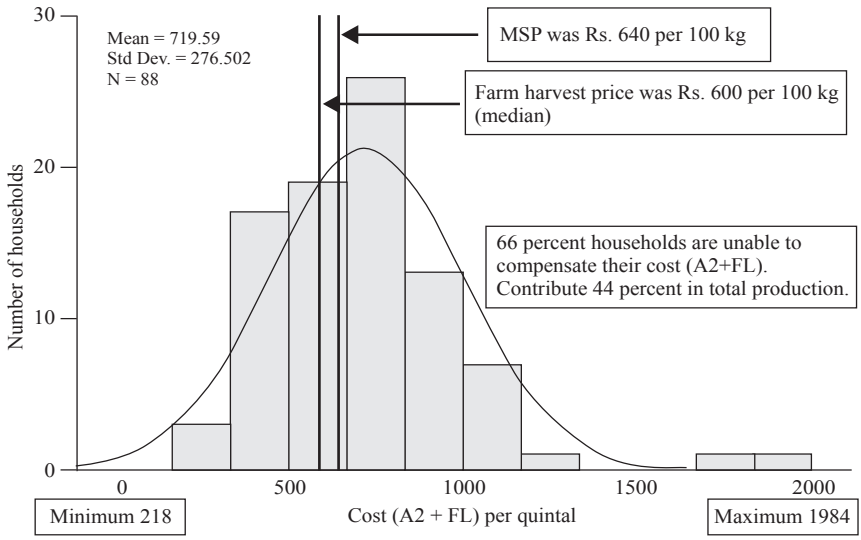
3.2.2.2. Mahatwar

A similar class-wise variation in costs of cultivation is observed in Mahatwar village. In Mahatwar, MSP (Rs 640) covers A2 + FL of all but poor peasants (see Table 7), but actual FHP failed to cover costs of 66 percent of cultivators, accounting for 44 percent of production (see Graph 6). In this village, located in a relatively backward part of India (eastern Uttar Pradesh), effective implementation of MSP would have made a difference to poor peasants.

Table 7 Mean yield (100 kg per hectare), farm harvest price (FHP), cost A2 + FL, and net income (Rs per 100 kg) for wheat, by class, Mahatwar Village, Uttar Pradesh 2005–2006

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Landlord	20	663	432	281
Peasant 1 (rich)	25	800	498	347
Peasant 2 (upper-middle class)	29	600	532	118
Peasant 3 (lower-middle class)	22	605	743	−85
Peasant 4 (poor)	22	606	807	−147
Hired manual workers	27	594	699	−50
All classes	25	609	720	−59

Source: Survey data.



Graph 6 Distribution of Cost (A2 + FL) per 100 kg of wheat in Mahatwar, Uttar Pradesh, 2005–2006

Note: MSP: minimum support price.

3.2.2.3. Gharsondi

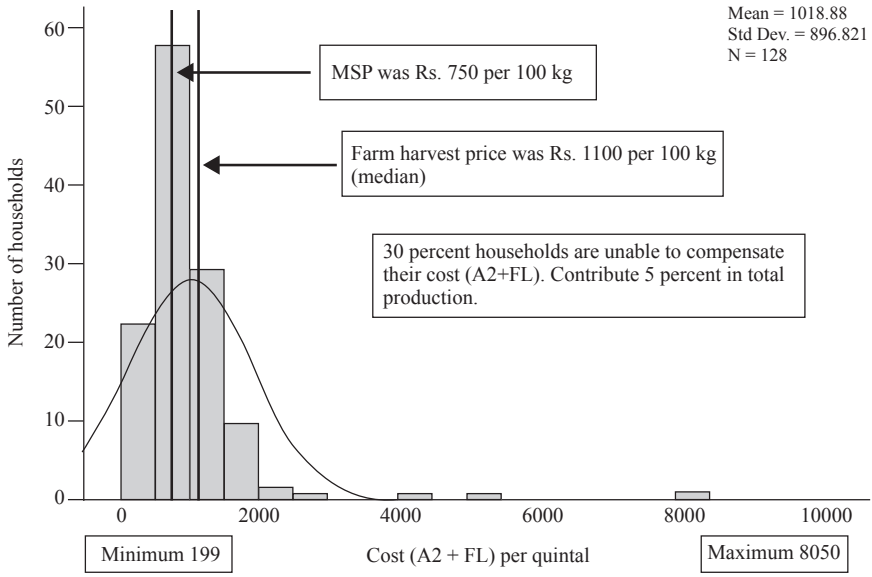
In 2007, the MSP for wheat was Rs 750, and it clearly set the floor for market prices. Market prices or FHP covered Cost A2 + FL on average, as well as for all cultivators other than those belonging to the class of manual workers. Nevertheless, MSP did not cover A2 + FL cost of middle-class and small peasants. The costs of production were significantly higher for middle-class and small peasants than capitalist farmers (see Table 8).

Table 8 Mean yield (100 kg per hectare), farm harvest price (FHP), Cost A2 + FL, and net income (Rs per 100 kg) for wheat, by class, Gharsondi Village, Madhya Pradesh 2007–2008

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Landlord/big capitalist farmer	37	1126	499	699
Peasant 1 (rich)/capitalist farmer	25	1126	579	599
Peasant 2 (upper-middle class)	22	1083	921	247
Peasant 3 (lower-middle class)	22	1100	883	334
Peasant 4 (small)	17	1085	964	200
Hired manual workers (with cultivation activity)	10	1096	1160*	79
All classes	20	1097	906*	296

Source: Survey data.

Note: *Excluded three households with crop failure. See Graph 7.



Graph 7 Distribution of Cost (A2 + FL) per 100 kg of wheat in Gharsondi, Madhya Pradesh, 2007–2008

Note: MSP: minimum support price.

3.2.2.4. Rewasi

In Rewasi, cultivators were classified as follows: landlords and rural rich; Peasants 1, 2, 3, and 4 categories; and hired manual workers. Peasants were identified as those providing family labor, but the level of income and assets was higher for Peasant 1 as compared to Peasant 2, and so on.

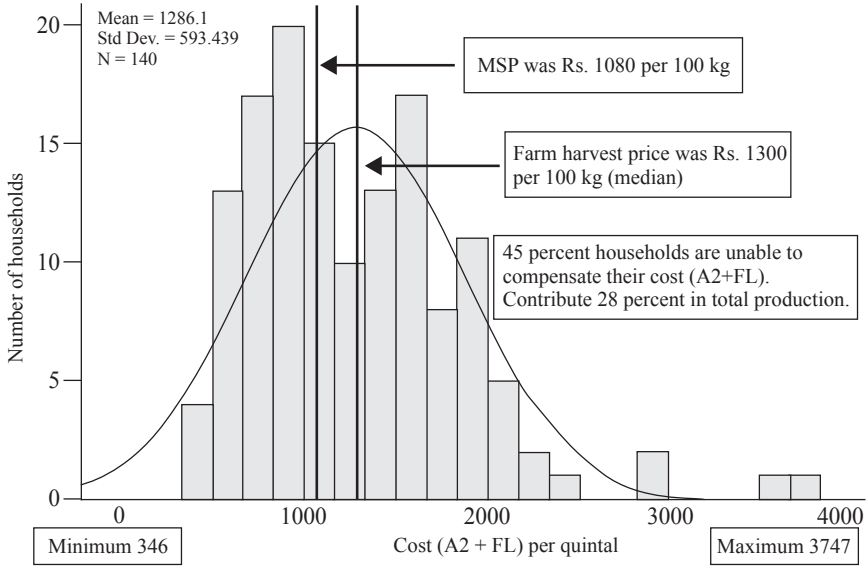
In Rewasi village, MSP (Rs 1080) did set the floor price, as FHP was higher than MSP for all cultivators (see Table 9). When we compared Cost (A2 + FL)

Table 9 Mean yield (100 kg per hectare), farm harvest price (FHP), Cost A2 + FL, and net income (Rs per 100 kg) for wheat, by class, Rewasi Village, Rajasthan 2009–2010

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Landlords and rural rich	30	1300	923	765
Peasant 1	30	1304	974	860
Peasant 2	27	1304	1180	659
Peasant 3	25	1304	1246	499
Peasant 4	27	1300	1376	348
Hired workers	25	1303	1386	416
All classes	27	1302	1251	524

Source: Survey data.

with FHP for each cultivator, then for 45 percent of cultivators, the unit price obtained was below the cost (see Graph 8). However, costs of production were high particularly for the poorest peasants (Peasant 4). More family labor was used by poorer peasants, but other paid-out costs were also higher for them. The official MSP only covered A2 + FL of the rural rich and Peasant 1 category.



Graph 8 Distribution of Cost (A2 + FL) per 100 kg of wheat in Rewasi, Rajasthan, 2009–2010

Note: MSP: minimum support price.

3.2.2.5. 25F Gulabewala

The village of Gulabewala in Rajasthan presents an interesting and different picture.

The socio-economic classification of cultivators in this village is different from that in other villages (see Table 10). All cultivators are engaged in capitalist production, and hence the term "farmer" rather than peasant, though they differ in the level of incomes and assets. Class differentiation exists, but mainly on the basis of scale (value of land and assets) not in terms of differences in cultivation practices. The four categories of big capitalist Farmer 1, big capitalist Farmer 2, Farmer 1, and Farmer 2 differ mainly in the scale of production. The less endowed Farmer 1 and 2 categories are not equivalent to middle-class and poor peasants in other villages. Households have relatively larger landholdings (14 hectares on average), and production is highly mechanized. The village reported the highest average wheat

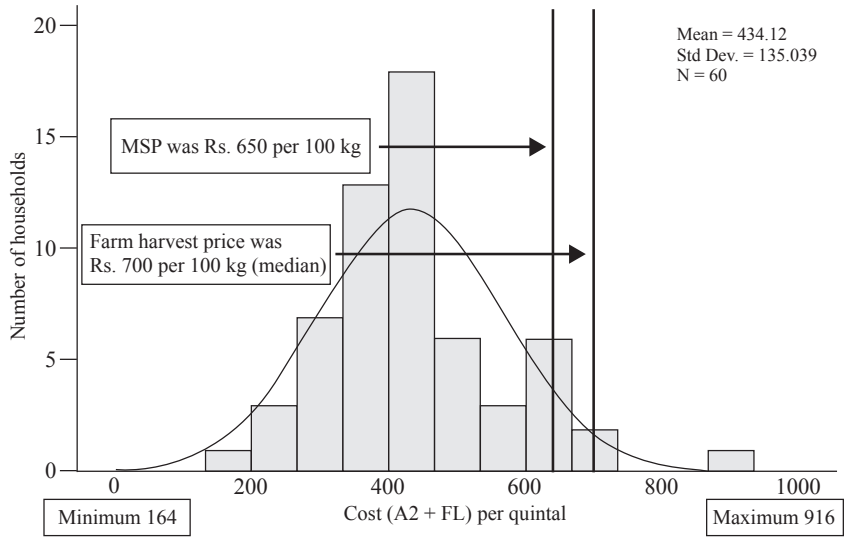
yield among the five study villages. Furthermore, there was no difference between Cost A2 and A2 + FL because there was hardly any use of family labor.

Table 10 Mean yield (100 kg per hectare), farm harvest price (FHP), Cost A2 + FL, and net income (Rs per 100 kg) for wheat, by class, 25F Gulabewala Village, Rajasthan 2006–2007

Socio-economic class	*Yield*	*FHP*	*Cost (A2 + FL)*	*Net income*
Landlords and/or big capitalist farmers: 1	42	892	394	547
Landlords and/or big capitalist farmers: 2	35	853	466	439
Farmer 1	35	856	430	490
Farmer 2	37	853	366	535
All classes	37	860	434	481

Source: Survey data.

In Gulabewala, while the announced MSP was Rs 650, all cultivators received a higher price. Big capitalist farmers got the highest price, but even those in the Farmer 2 category got Rs 850. Second, average FHP was more than twice average Cost A2 + FL, implying a reasonable return to cultivators. Even if we compared the actual FHP with Cost (A2 + FL) for each cultivator, for almost every cultivator, the unit price obtained was higher than or equal to the cost (see Graph 9). Third, cost for Farmer 2 was the lowest among the classes identified.



Graph 9 Distribution of Cost (A2 + FL) per 100 kg of wheat in 25F Gulabewala, Rajasthan, 2006–2007

Note: MSP: minimum support price.

For cultivators of wheat in Harevli, Mahatwar, Gharsondi, and Rewasi, costs rose steadily as we moved down the socio-economic ladder. To put it differently, not only is the average cost an underestimate, but the differences in costs are systematically linked to class status, implying that the underestimation in official data is particularly adverse toward poor peasants and tenants. The only exception was the village of Gulabewala where all households were engaged in capitalist farming.

Gulabewala thus constitutes an exception in terms of the relation between MSP and costs of cultivation of smaller scale producers, and this is clearly on account of the nature of productive forces and relations of production in this village. Unlike the other four villages, Gulabewala can clearly be characterized as a region of capitalist farming.

4. Concluding Remarks

In India, where a large section of households depend on agriculture for their livelihoods, it is important to have detailed estimates of costs and returns from crop cultivation. Detailed data on the costs of cultivation and farm incomes from different crops in different farming situations can assist in formulating appropriate farm policies and help in studying the impact of various policy measures on the well-being of cultivators.

Farm price policy should (though at present they do not) take into account sharp differences in the agricultural incomes earned, and the costs of cultivation incurred, by different sections of the farming population in India.

There is only one official source of data in India on the costs of cultivation, namely, reports of the CACP. These reports are based on cost of cultivation surveys conducted for 24 crops across 19 states. Based on cost estimates in these reports, the central government fixes the MSP for a range of crops. Three tiers of costs are calculated, from Cost A1, which accounts only for actual paid-out costs, to Cost C3, which includes all costs, including those of management, supervision and family labor. The most commonly used cost concept is called A2 + FL, which means all paid-out costs plus the imputed cost of family labor. Currently, the policy pursued is to set a MSP that covers Cost C2 in the least cost region. The HLC on Long-Term Grain Policy (GoI 2002) recommended that the minimum price should at least cover Cost A2 + FL in all states. A different and more radical alternative has been proposed by the National Commission on Farmers, but not accepted as policy—namely, to set MSP at 50 percent above Cost C2 in order to make farming remunerative.

In this article, we use data from five detailed village census surveys, conducted between 2006 and 2010, to estimate costs of cultivation. The advantage of this data base, provided by the FAS, is that we can identify costs incurred by cultivators in different socio-economic classes and move away from an "average" cultivator

who does not represent a highly differentiated peasantry. The following are the main findings from these village surveys.

1. In all but one village, the average FHP of paddy and wheat were higher than the corresponding MSPs in the relevant crop year. The exception was Mahatwar in eastern Uttar Pradesh, a relatively backward region of India. In Mahatwar, FHP of paddy and wheat were lower than announced MSPs. This shows that, on the one hand, MSP does work as a floor price for these two major food crops, and on the other hand, that it is not implemented effectively in all parts of the country. Procurement needs to be stepped up to ensure that producers receive at least the MSP in all parts of the country.

2. According to current policy, MSP should cover Cost C2 in the most efficient region and at least Cost A2 + FL in all growing regions. Our data indicate that MSP of both paddy and wheat did not cover A2 + FL, on average, in our survey villages with one exception. The exception was the village of 25F Gulabewala in the Gang canal region of Rajasthan, a village where landholdings are relatively large, and where wheat cultivation is well irrigated and also highly mechanized. The relatively advanced level of productive forces is combined here with capitalist forms of production.

3. In our view, the higher cost estimates obtained from our village surveys indicate gross underestimation of costs in the official data. Some of the underestimation is on account of costs excluded in the official calculation such as marketing costs (now recognized as important even in official reports) and rental payments (since the official surveys exclude unregistered tenants). We believe that other costs are also being underestimated in the official surveys, such as costs of irrigation.

4. Detailed class-wise data on costs from our village studies show that there are systematic variations in costs across classes within a village. Variation in paid-out costs within villages was higher than variations in productivity and FHPs. With one exception, Gulabewala village, costs were higher for poor and middle-class peasants and hired manual workers engaged in cultivation as compared to rich peasants and capitalist farmers. The higher costs of poor peasants and manual workers engaged in crop cultivation are partly from punishing rents on leases but also from other costs such as costs of irrigation, of machinery hire, and so on. Not surprisingly, MSP did not cover costs of poor peasants in all the villages.

5. So, taking an average cost, whether C2 or A2 + FL, for policy making implies that the costs of better-off cultivators, rich and upper-middle-class peasants and capitalist farmers are covered, while costs of poor peasants and small cultivators remain unmet.

If we are concerned about the majority of cultivators, who are lower-middle-class and poor peasants and hired manual workers who lease in land and cultivate as tenants, then we have to address their problems, of higher costs. This will require a combination of policies: higher MSP, along with other support measures

such as through subsidies or control on price of inputs and availability of credit, to ensure that poor peasants can get a minimum return from crop cultivation.

Appendix

Table A1 List of implementing agencies of comprehensive scheme

State	*Implementing agencies*	*Size of sample*
Assam	Assam Agricultural University, Jorhat, Assam	450
Andhra Pradesh	Acharya N G Ranga Agricultural University, Hyderabad, Andhra Pradesh	600
Bihar and Jharkhand	Rajendra Agricultural University, Pusa (Samastipur), Bihar	600
Gujarat	Sardar Patel University, Vallabh Vidya Nagar, Anand, Gujarat	600
Haryana	Chaudhary Charan Singh (CCS) Haryana Agricultural University, Hissar, Haryana	300
Himachal Pradesh	Himachal Pradesh University, Shimla, Himachal Pradesh	300
Karnataka	University of Agricultural Sciences, Bangalore, Karnataka	450
Kerala	University of Kerala, Thiruvananthapuram, Kerala	300
Madhya Pradesh and Chattisgarh	Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh	600
Maharashtra	Mahatma Phule Krishi Vidya Peeth, Ahmednagar, Maharashtra	600
Orissa	Orissa University of Agriculture and Technology, Bhubaneshawar, Orissa	450
Punjab	Punjab Agricultural University, Ludhiana, Punjab	300
Rajasthan	Maharana Pratap University of Agriculture and Technology, Udaipur, Rajasthan	600
Tamil Nadu	Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu	600
Uttar Pradesh and Uttarakhand	*Raja Balwant Singh* College, Agra, Uttar Pradesh	750
West Bengal	Bidhan Chandra Krishi Viswa Vidyalaya, Nadia, West Bengal	600

Source: Commission for Agricultural Costs and Prices, website: http://cacp.dacnet.nic.in/.

Table A2 Location and agro-ecology of villages surveyed

Village	*Year of survey*	*Block/tehsil/ mandal*	*District*	*Region*	*State*	*NARP* agro-climatic classification*
Harevli	2006	Najibabad	Bijnor	Western Uttar Pradesh	Uttar Pradesh	Western plain
Mahatwar	2006	Rasra	Ballia	Eastern Uttar Pradesh	Uttar Pradesh	Eastern plain zone
25F Gulabewala	2007	Karanpur	Sri Ganganagar	Ganga Canal Region	Rajasthan	Irrigated north-western plain zone
Gharsondi	2008	Bhitarwar	Gwalior	Western Madhya Pradesh	Madhya Pradesh	Gird region
Rewasi	2010	Sikar	Sikar	Western dry region	Rajasthan	Transitional plain of inland drainage zone

Note: NARP: National Agricultural Research Project.

Table A3 Village-wise share of paddy wheat and wheat intercrops in total gross cropped area (GCA)

Village	*Paddy*	*Wheat*	*Wheat intercrops*	*Total GCA*
Harevli	9.28	18.21	22.17	484.84
Mahatwar	44.54	28.48	14.99	377.53
25F Gulabewala	0.00	26.00	0.00	3195.00
Gharsondi	5.87	28.24	4.48	3444.42
Rewasi	0.00	17.00	0.00	1456.24

Source: Survey data.

Acknowledgements

We are grateful to the Foundation for Agrarian Studies team for their help in preparing this article.

Notes

1. The other factors that, according to Commission for Agricultural Costs and Prices (CACP) website, are taken into consideration when determining MSP are the following: (1) changes in input prices, (2) input–output price parity, (3) trends in market prices, (4) demand and supply of that agricultural commodity, (5) intercrop price parity, (6) effect on industrial cost structure, (7) effects on cost of living, (8) effect on general price level, (9) international price situation, (10) parity between prices paid and prices received by the farmers, (10) effect on issue prices and implications for subsidy (http://cacp.dacnet.nic.in/).
2. For a history of the revolution of this scheme, see Sen and Bhatia (2004) and Surjit (2008).
3. The 24 crops include 7 cereals (paddy, wheat, maize, sorghum or jowar, pearl millet or bajra, barley, and ragi), 5 pulses (gram, tur or arhar, moong, urad, and lentil or masur), 7 oilseeds (groundnut, rapeseed/mustard, soya bean, seasmum, sunflower, safflower, niger seed), and 5 commercial crops (copra or dried coconut, cotton, jute, sugarcane, and tobacco).
4. Cost A1 includes value of seed (both home-produced and purchased), value of manures (home-grown and purchased), value of fertilizers, insecticides and pesticides, irrigation charges, hired human labor, hired and owned bullock labor, owned and hired machine charges, marketing expenses, land revenue and other taxes, interest on working capital, depreciation of implements, and farm buildings.
5. So far, 22 villages have been surveyed under PARI. For this study, we have taken five villages into consideration—Harevli and Mahatwar in Uttar Pradesh, 25F Gulabewala and Rewasi in Rajasthan, and Gharsondi in Madhya Pradesh.
6. Farm harvest price (FHP) is defined as the average of output prices at which cultivators sold their produce to traders at the village site or nearby market during a specified marketing period after the beginning of the harvest season.
7. Basmati paddy price varied from Rs 900 to Rs 1800 per quintal. Government of India announced two kinds of paddy prices (MSP), one is for "paddy common" and another one is for "paddy (Fine)." Paddy (F) price is Rs 30 higher than paddy (common).

References

GoI (Government of India). 1964. *Report of the Foodgrains Prices Committee*. Ministry of Food, New Delhi.

GoI (Government of India). 1965. *Government Resolution on the Terms of Reference of the Agricultural Prices*. Ministry of Food and Agriculture, New Delhi.

GoI (Government of India). 1980. *Report of the Special Expert Committee on Cost of Production Estimates*. Department of Agriculture & Cooperation, Ministry of Agriculture, New Delhi.

GoI (Government of India). 1990. *Report of the Expert Committee for Review of Methodology of Cost of Production of Crops*. Department of Agriculture & Cooperation, Ministry of Agriculture, New Delhi.

GoI (Government of India). 2002. *Report of the High Level Committee on Long-Term Grain Policy*. Department of Food and Public Distribution, Ministry of Consumer Affairs, Food and Public Distribution, New Delhi.

GoI (Government of India). 2004–2006. *Serving Farmers and Saving Farming: Towards Faster and More Inclusive Growth of Farmer's Welfare, National Commission on Farmers*. Ministry of Agriculture, New Delhi.

GoI (Government of India). 2009–2012. *Reports of the Commission for Agricultural Costs and Prices*. Commission for Agricultural Costs and Prices, Department of Agriculture & Cooperation, Ministry of Agriculture, New Delhi.

Ramachandran, V. K., V. Rawal, and M. Swaminathan, eds. 2010. *Socio-Economic Surveys of Three Villages in Andhra Pradesh: A Study of Agrarian Relations*. New Delhi: Tulika Books.

Rawal, V. 2013. *Economic Policies, Tenancy Relations and Household Incomes: Insights from Three Selected Villages in India*. Written by the author during a visit to the Social and Policy Research Institute, University of Ulster. http://www.agrarianstudies.org/UserFiles/File/Rawal_Economic_Policies.pdf.

Sen, A., and M. S. Bhatia. 2004. *Cost of Cultivation and Farm Income*. Vol. 14 in *State of the Indian Farmer: A Millennium Study*. Academic Foundation in association with Department of Agriculture & Cooperation, Ministry of Agriculture, New Delhi.

Surjit, V. 2008. "Farm Business Incomes in India: A Study of two Rice Growing Villages of Thanjavur Region, Tamil Nadu." Thesis submitted to the University of Calcutta for the degree of Doctor of Philosophy (Science).

Swaminathan, M., and V. Rawal. 2011. "Is India Really a Country of Low Income-Inequality? Observations from Eight Villages." *Review of Agrarian Studies* 1 (1): 1–22.