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Liberalisation and Agricultural Prices: Some Disconcerting Trends

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I

INTRODUCTION

The World Trade Organisation (WTO) and various agreements associated with it attempt to establish a new trade order. In the emerging trade order cost and quality of the commodity is supposed to determine flow of trade in the world market. India by virtue of its diverse natural resource endowments and surplus labour has the potential to produce a large number of agricultural commodities. There are also studies to indicate that India efficiently produces many agricultural commodities; efficiency for many commodities, however, decreases in the post-harvest operations (World Bank, 1997). The extent of inefficiency in the post-harvest operations emphasises the need for liberalising the domestic market. Of late policy makers have undertaken few steps towards liberalising the domestic market (Jha, 2000).

The domestic liberalisation has been in the nature of removal of movement restrictions, facilitation of private trade and market functionaries; naturally one would expect that with domestic liberalisation market would integrate across space, prices in the domestic market would converge. With the opening up of the economy, world price is supposed to influence the domestic market price of the commodities; whereas, in a closed economy market prices of many agricultural commodities at least in the selected region were being influenced by the administered prices. The administered prices of farm outputs during the historical years have, in general, been moving steadily; this is primarily to balance the interest of the producers as well as consumers of agricultural commodities in the country. The domestic prices of agricultural commodities in the closed economy were thus predictable. The behaviour of international price is however erratic and depends on innumerable factors, often difficult to predicate. It is often argued that bulk of the domestic producers and consumers in India are too poor to be left to the forces of world market. In this perspective, which forces - domestic or external - affect market prices the most is an important question to ponder.

The concept of market and so market prices often varies; for the present study individual state has been considered as a market, since the set of market restrictions are state-specific. The Implications of liberalisation on market prices cannot be studied comprehensively for all the states; the state of Haryana has been selected

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purposively as this has been in the forefront of commercialised¹ agriculture; and the effect of liberalisation on market prices will be realised more emphatically in this situation. Nevertheless, for many agricultural commodities Haryana has been a prime source for distant domestic and external markets. The present discussion about agricultural prices has been divided into two sub-sections; Section II analyses the behaviour of farm output prices, administered and market; while the next section assesses the effect of domestic and trade liberalisation on the market prices.

II

BEHAVIOUR OF FARM OUTPUT PRICES

Administered Prices

In India administered prices have been influencing market prices of many commodities (Acharya, 1997). In the farm output market minimum support price (MSP)² is probably the most important price announced or administered by the Government. In order to study the behaviour of administered prices, the MSP for the last 20 years (1980-81 to 1999-2000) has been studied; this was also studied separately for two time periods, 1980-81 to 1989-90 and 1990-91 to 1999-2000. These time periods reflect different regimes as per restrictions on domestic and external markets are concerned.

The growth in MSP for important crops and its behaviour for two time periods has been presented in Table 1; the growth was the maximum for gram followed by other pulses, cotton, fine cereals, oilseeds, and coarse cereals. The growth in administered prices for pulses has some economic rationale; supply of pulses from domestic as well as external sources has not been as high as the requirements of the domestic population and administered price is often considered as an instrument for increasing domestic production of the specific commodity. The country has also been deficit in edible oil; however, in contrast to pulses it is believed that import of the selected edible oils such as palm has the potential to balance the growing disparity between domestic supply and demand; therefore, consistent price support to edible oils, which was initiated during the mid-eighties has tapered off in the 1990s. The level of pulses and oilseeds prices during the base period (early 1980s) was also low as compared to fine cereals; this is one of the important reasons behind higher growth in administered prices for these crops during the analysis period.

Administered prices for coarse cereals in spite of it being low during the base year did not experience large growth during the reference period as the importance of coarse cereals was probably not realised by the policy makers. Maize is an exception; periodic growth in the prices of maize indicate significantly higher growth in its prices during the 1990s. It appears that with the growth of feed industry maize has become important; the country also has to import maize frequently, this to some extent is reflected in a relatively higher growth in administered prices of maize during the 1990s. In cotton, slightly higher growth in the prices of hybrid cotton reflects its

importance over the *desi* cotton. A higher growth in the prices of cotton was primarily because of it being an important export item; for such exportable items, there were demands (from certain quarters) for equalisation of its prices with the international prices and administered prices were used as a tool for this process of equalisation.

TABLE I. ANNUAL COMPOUND GROWTH RATES IN MINIMUM SUPPORT PRICES (MSP) AND FARM HARVEST PRICES (FHP) OF PRINCIPAL CROPS IN HARYANA

Crops (1)	<i>(per cent)</i>					
	Period I (1980-81 to 1989-90)		Period II (1990-91 to 1999-2000)		Whole period (1980-81 to 1999-2000)	
	MSP (2)	FHP (3)	MSP (4)	FHP (5)	MSP (6)	FHP (7)
Paddy	6.50	8.64	7.92	11.43	8.77	11.94
Wheat	5.40	4.71	8.69	9.40	8.49	8.39
Maize	5.32	6.66	7.74	7.40	6.00	8.89
Jowar	5.11	7.65	6.20	6.41	5.82	8.14
Bajra	5.11	4.95	6.20	6.66	5.82	7.65
Barley	5.23	6.91	7.54	7.15	6.32	8.39
Gram	12.44	9.40	7.86	6.91	10.22	8.89
Arhar	9.94	-	8.20	-	9.00	-
Rapeseed and mustard	10.89	9.40	5.49	4.47	7.67	7.65
Cotton (Desi/F414)	10.71	6.91	9.40	10.15	9.00	9.65
Cotton (American/114)	9.82	4.71	8.60	9.90	9.00	9.65

Market Prices

In the present analysis, market price is the farm harvest price (FHP) of the commodities at the state level. The FHP available for the state is the weighted average of the district level wholesale prices; the FHP of the state has been selected purposively instead of the districts, as there are problems³ in dealing with the district level prices. The growth in market price has been estimated for the entire period (1980-81 to 1999-2000); and also separately for the decade of 1980s and 1990s and the same has been presented in Table 1.

The market price of paddy registered maximum growth followed by cotton, pulses, wheat, oilseeds and coarse cereals. A comparison of growth in market prices of commodities with that of administered prices shows that the trend growth was almost similar during the reference period. For the selected commodities like wheat, maize, rape-mustard the growth rate were almost the same. A relatively higher growth in the market prices of paddy is more because of statistical anomaly; market price of rice in Haryana consists of prices of basmati and non-basmati rice,⁴ and the proportion of basmati in total rice which even though increased since mid-1980s has been fluctuating during the reference years.

A period-wise comparison of trend growth in the market and administered prices, shows a different picture; in the 1980s market price of coarse cereals were growing at a pace higher than the administered prices, for rest of the commodities growth in market prices was lower than the administered prices. Administered price for coarse cereals was growing at a slower pace during the reference period; moreover, administered prices for coarse cereals were not relevant as there was no procurement support from the Government; whereas, for the other commodities the market price was in fact following the administered prices. The lower growth of the market prices suggests that market in the region is not in a position to support the higher growth in the administered prices of the commodities.

The pattern of growth in the administered and market prices was not equally clear in the 1990s; for the commodities like rice, wheat and cotton growth in market price has been higher than the administered prices. In rice higher growth is partly because of statistical anomaly (explained earlier), and exports demand for rice. In wheat also there have been occasional exports; this region has also been the major source for the distant domestic markets and exports as well. The Government also depends on this region for its public distribution system; all these put upward pressure on the market prices of wheat in the state. In cotton also India has been a net exporter, for many exportable commodities domestic market price usually follows the soaring international price; the market prices however, do not decrease with the decreasing world prices since administered prices, at least in the nominal term, do not decline. The downward sticky behaviour of administered price in certain regions, where public procurement is effective, provides a fillip to the market prices. This phenomenon to some extent explains the abnormal increase in the market price of a few agricultural commodities, especially exportables, during the 1990s.

In pulses, oilseeds, and coarse cereals growth in market price has been lower than the administered prices. These are the commodities, where administered price is not effective due to dearth of government procurement operation. A relatively lower growth in market prices of these commodities implies that market is not in a position to support the higher growth of the administered prices. The lower growth in market prices might have also been because of import liberalisation in these commodities during the 1990s. In general, imports help in soothing the market prices since the country is deficient in these commodities. Administered prices for these commodities are increasing at a rapid pace primarily to motivate farmers to increase land allocation under these crops; allocation of area under a crop however, depends on many factors other than the prices.

The influence of administered price on the farm harvest price is evident from Annexure Table 2. These prices have been highly associated for the comparable commodities, though it appears to be weak (0.89) for rape and mustard. With this brief background about the behaviour of domestic prices, the study attempts to analyse the influence of domestic and trade liberalisation on the market prices.

III

LIBERALISATION AND FARM OUTPUT PRICES

At the behest of the WTO, India bound import tariffs for most of the agricultural commodities; the non-tariff-barriers on imports however continued for many agricultural commodities on the ground of adverse balance of payment. The issue has finally gone to the Dispute Settlement Body (DSB) of the WTO and most of the non-tariff barriers were removed in April 2001. Successively, India has formulated a long list of the sensitive commodities, the imports of which are effectively canalised; for most of the other commodities import is being regulated by tariff. The restrictions on exports were also removed for many agricultural commodities in the mid-1990s, though for few essential commodities like wheat, rice, these restrictions have been imposed time and again (for details see Jha, 2000).

In the light of impending trade liberalisation, liberalisation of domestic market was also considered necessary to increase efficiency in the domestic market. Some important steps undertaken by the Central Government to ease restrictions on the domestic market during the decade of the nineties has been illustrated herewith in brief (for details see Jha, 2000). The zonal restrictions on the movement of selected commodities were removed. For private traders the selective credit control was eased. The Essential Commodities Act of 1955 was strengthened in the year 1981 with the special provision; this special provision which was repealed in the mid-1990s. Forward trade and future marketing for the selected commodities were initiated. All these are supposed to affect the domestic market prices of agricultural commodities, in the following sections the effect of domestic and trade liberalisation on the market prices of the selected commodities has been discussed.

Effect of Domestic Liberalisation

Reduction of most of the Government restrictions on the market is supposed to integrate the domestic markets; and with integration prices should converge. The price convergence will be reflected in an increase in correlation between the market prices across the states. The extent of correlation between the FHP of Haryana and other states of India for important crops has been presented in Table 2. In order to make the inferences robust a similar analysis has been carried out between Punjab and other states of India as well (Annexure Table 3). The correlation coefficients have been worked out separately for the decades of 1980s and 1990s, to compare the trend in price convergence.

For rice, the trend in correlation coefficients has been different for the reference states; in Haryana correlation coefficients have decreased over the decades whereas in Punjab it increased. The coefficient for Haryana may be ignored on account of statistical anomaly associated with the FHP of rice (discussed earlier). The FHP of rice in Punjab is about the non-basmati rice, so about the other states; correlation

coefficients between these states and Punjab are robust and have also been increasing over the reference period suggesting convergence of rice markets in the country.

TABLE 2. CORRELATION COEFFICIENTS BETWEEN FARM HARVEST PRICES IN HARYANA AND IMPORTANT STATES FOR THE SELECTED CROPS IN THE 1980S AND 1990S

Sr. No.	States	Paddy		Wheat		Maize		Gram		Rapeseed and mustard	
		1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1.	Andhra Pradesh	0.88**	0.73*	-	-	0.84**	0.95**	0.90**	0.71*	-	-
2.	Assam	0.96**	0.71*	0.91**	0.93**	0.88**	0.87**	-	-	0.55	0.87**
3.	Bihar	0.81**	0.76**	0.87**	0.97**	0.83**	0.92**	0.91**	0.87**	-0.56	0.77**
4.	Gujarat	0.92**	0.75**	0.79**	0.93**	0.87**	0.90**	0.80**	0.88**	0.66	0.93**
5.	Himachal Pradesh	0.70*	0.59	0.95**	0.97**	0.78**	0.94**	0.96**	0.85**	0.39	0.82**
6.	Jammu and Kashmir	0.65*	0.63	0.98**	0.96**	0.85**	0.92**	0.67	0.59	0.61	-0.36
7.	Karnataka	0.97**	0.68*	0.56	0.91**	0.69**	0.92**	0.87**	0.83**	-	-
8.	Madhya Pradesh	0.95**	0.76*	0.89**	0.94**	0.77**	0.83**	0.93**	0.95**	0.44	0.76
9.	Maharashtra	0.97**	0.76*	0.85**	0.95**	0.62	0.93**	0.64	0.58	-	-
10.	Punjab	0.83**	0.64*	0.92**	0.98**	0.78**	0.87**	0.90**	0.75*	0.39	0.79**
11.	Rajasthan	0.85**	0.77**	0.91**	0.96**	0.84**	0.87**	0.97**	0.95**	0.79	0.90**
12.	Tamil Nadu	0.94**	0.76*	-	-	0.86**	0.92**	0.88**	0.83**	-	-
13.	Uttar Pradesh	0.93**	0.73*	0.94**	0.96**	0.81**	0.92**	0.95**	0.93**	0.62	0.79**
14.	West Bengal	0.82**	0.94**	0.87**	0.95**	-	-	0.96**	0.76**	0.32	0.85**

Note: * shows level of Significance of correlation coefficient, (**) indicate Significance at 1 per cent while (*) indicate Significance at 5 per cent, dash (-) indicates that the corresponding figures are not available.

In wheat, correlation coefficients with respect to both the reference states were more than 0.80 and also for all the states except Karnataka in the 1980s; the corresponding correlation coefficients were more than 0.90 in the 1990s. These coefficients as is apparent from the decada minimum have also increased over the decade. The two reference states are in fact the main source of wheat for most of the other states in the country.

In maize, correlation coefficients with respect to Haryana have increased during the reference period. With reference to Punjab, the trend in correlation coefficients has been mixed for maize; coefficients have been increasing with the states like Bihar, Gujarat, Karnataka, Madhya Pradesh, Haryana, Rajasthan; while the coefficients have been decreasing with the states like Andhra Pradesh, Assam,

Maharashtra. The state-wise trend indicates the phenomenon of price convergence for the adjoining states. Karnataka even though not adjoining to Haryana, is a state with considerable area in maize production. In maize, price convergence was not observed for the states, which are neither important producers nor consumers of maize.

In gram, correlation coefficients with respect to Haryana decreased during the reference period for most of the states; Gujarat and Madhya Pradesh were, however, exceptions. The latter states are the pulse growing states, whereas Haryana is net deficit in pulses suggesting poor integration between net producing and consuming market for pulses. The correlation coefficients with respect to Punjab have also decreased with all the states further strengthening the argument of poor integration of pulse markets in the country. In rape and mustard, the association between market prices has been weak during the 1980s, the strength of the associations have increased and become significant during the 1990s. A similar trend was observed for the state of Punjab.

The above analysis indicates that the strength of the association between the reference states (Haryana, Punjab) and other states of India varies across the crops. The crops on the basis of decreasing order of the associations are wheat, maize, rice, gram, rape and mustard. In wheat, the association is strong and significant with most of the states as the reference states are the main source of wheat for the entire country. This is, however, not the case for maize, gram and rape-mustard. In rice, production is distributed across the country, the variety and quality of rice produced in these states also varies. Some of the rice varieties have large export potential and the prices of these varieties depend more on the international market, whereas prices of other varieties of rice depend more on the domestic factors. In spite of all these variants for rice, the market prices of rice have started converging in the 1990s. In oilseeds also trend is towards price convergence. This phenomenon of convergence is not strong for commodities like maize and gram.

The correlation coefficients indicate magnitude of association between the market prices in a state with respect to the reference states. There are chances that the inferences based on these associations are not correct if market price in the reference states (Haryana and Punjab) has some anomalies. Nevertheless, correlation coefficients are based on the observations for the entire period of the 1980s and 1990s, whereas trade liberalisation in agriculture has started effectively after the mid-1990s (Jha, 2000). The issue of price convergence has therefore been analysed with a different time period, late 1990s encompassing the period between 1997-98 to 1999-2000 and late 1980s involving the years between 1987-88 and 1989-90. The analysis is based on the coefficient of variation (CV) in market prices of a commodity across states; this coefficient indicates the extent of dispersion or alternatively convergence of prices in the domestic market. The estimate for the same has been presented in Table 3.

TABLE 3. INTER-STATE DISPARITY IN FARM HARVEST PRICES OF THE SELECTED COMMODITIES

Crops	Period I (1987-89 to 1989-90)			Period II (1997-98 to 1999-2000)		
	Mean (2)	S.D. (3)	CV (4)	Mean (5)	S.D. (6)	CV (7)
Paddy	224.14	35.31	15.75	570.88	124.41	21.79
Wheat	243.43	31.74	13.04	619.85	90.10	14.54
Maize	195.99	24.95	12.73	480.62	72.84	15.15
Gram	584.53	67.01	11.46	1,327.94	196.65	14.81
Arhar	607.98	54.76	9.01	1,593.55	205.65	12.90
Rapeseed and mustard	679.99	91.84	13.51	1,340.58	215.69	16.09
Cotton	717.06	139.71	19.48	1,831.33	567.81	31.01
Potato	178.36	54.69	30.66	425.63	141.32	33.20

The CVs indicate that market prices are less dispersed for pulses and non-rice cereals whereas, for potato, cotton and rice it is more dispersed. The high disparity in market prices of rice and cotton is on account of variation in the quality of these items and also because of the prevalence of some movement restrictions. In rice, movement restriction in Andhra Pradesh was abolished only in the late-1990s, whereas for cotton it is still prevalent in Maharashtra. The high disparity in prices of potato across the states is primarily because of its perishability and inadequate infrastructure facilities like storage.

The period-wise estimates of CVs indicate rise in divergence of agricultural prices in the late 1990s as compared to the 1980s. This increase in divergence was highly significant for paddy and cotton, and only marginally significant for maize, gram, and rape-mustard. The wheat and potato are at the extreme end of the price disparity and it is interesting to note that there has been no significant change in its disparity over the reference periods. It may be noted that marketing institutions, which deal with these two commodities, are also of the extreme types; wheat marketing to a large extent is in the hands of Government parastatals; whereas marketing of potato is largely in the hands of private traders.

It appears from the above discussion that price divergence in the domestic market has increased in late nineties over the 1980s for most of the commodities. Price divergence is however supposed to decrease with the liberalisation of domestic market in the country. The late-nineties was also the period when trade liberalisation had started; and there are chances that liberalisation of external market casts a different impact on the domestic market prices as compared to the domestic liberalisation.

Effect of Trade Liberalisation

With the onset of trade liberalisation world prices are supposed to influence the domestic market prices. The world prices which can be compared with the market prices in Haryana, are not available for many commodities; in fact, there are only

four commodities, which are important for the region and the comparable world prices are also available, the extent of association between these prices have been presented in the Annexure Table 2.

Trend growth in international price has not been worked out for various reasons; the world prices for most of the agricultural commodities are so erratic that robust trend (linear or exponential) is difficult to obtain with the 20 years data. A comparative account of the average prices during the two reference periods have been presented in the Annexure Table 1. These prices have been highly associated for wheat and maize (Annexure Table 2); in wheat India has been occasional exporters and most of the time wheat for exports are sourced from this region; whereas, in maize India is a net importer.

The degree of association between the market prices and world prices has been less for cotton and rice, though these are the items often exported from the country. In both the commodities weak relationship is primarily on account of mis-match in quality and prices of the domestic and the referred variety in international market. In rice, as referred earlier market price in Haryana, is the weighted average of the prices of basmati and non-basmati rice, whereas world prices are for non-basmati rice.

The correlation coefficients in Annexure Table 2, have only quantified the association between different prices; administered price, market price and international price, for selected commodities. A study of temporal behaviour of these prices would indicate the influence of international and administered prices on the market price of the commodity in an opening economy. The trend in these prices for the selected commodities indicated that in wheat, these prices were almost similar during the early 1980s, divergence between these prices have started only in the year 1987-88, this divergence further widened in the early 1990s when world prices have started increasing rapidly. The market price was following the administered price during the decade of 1980s, the instances of divergence between these prices have started in the early 1990s. It is interesting to note that with the opening up of trade, disparity between domestic market and administered prices has increased when the international prices were higher than the administered prices; and disparity between domestic prices decreased when the international prices were lower than the administered price.

In maize, market prices were significantly higher than the administered prices; the market price was also higher than the international price for most of the years during the reference period. In cotton, market price was slightly higher than the administered price suggesting that the administered price determines the floor price of cotton in the market. The international price was significantly higher than the domestic market prices suggesting differences in the quality of cotton compared. All these suggest the increasing role of international prices in the market prices of the commodities in an opening economy.

IV

CONCLUSIONS

The discussions on the pattern of growth in the domestic prices suggest that growth in the market and administered prices has been similar for important agricultural commodities in the 1980s. Disparity between these prices has started in the 1990s; for rice, wheat and cotton, growth in market prices is higher than the administered prices, while for pulses, oilseeds and coarse cereals market prices are lower than the administered prices. The commodities in the earlier group are the exportables for India and exports generally give an upward pressure on the market prices, whereas the commodities in the latter group are the importables and imports generally soothe the market price. The changes in the pattern of growth of these prices suggest increasing role of trade liberalisation on the market prices.

The behaviour of market price has also been studied by assessing spatial integration of prices. Price integration as measured by the coefficient of variation in market prices across states has weakened during the triennium ending 1990s. This is the period, when trade liberalisation in agriculture has started. Though some restrictions from domestic market has also been removed during the period and it is generally hypothesised that with domestic liberalisation markets across space would integrate; present analysis however does not support this. It appears that removal of certain restrictions from the domestic market has not affected private trade significantly, various local level restrictions and infrastructure bottlenecks actually persist. In this situation external trade in a commodity, generally in small quantities, affects market price of the same only in regions adjacent to the port, further widening disparity in market prices across states.

ANNEXURE TABLE 1.

A COMPARATIVE ACCOUNT OF INTERNATIONAL, DOMESTIC AND ADMINISTERED PRICES DURING THE 1980S AND 1990S

Commodities	Average international prices (Rs./qtl.)			Average domestic prices (Rs./qtl.)			Average administered prices (Rs./qtl.)		
	1980s	1990s	Entire period	1980s	1990s	Entire period	1980s	1990s	Entire period
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Maize	131	361	246	170.02	428.01	299.02	130	298.5	214.25
Wheat	175	484	329	176.62	426.93	301.77	163.1	389.5	276.3
Soybean	360	880	685	-	-	-	-	-	-
Cotton	-	5,461	5,261	550.33	1,580.47	1,065.4	626	1,355	1,112
Rice	-	698	612	239.77	837.81	538.79	209.1	516	362.55

ANNEXURE TABLE 2.

CORRELATION COEFFICIENTS BETWEEN FARM HARVEST PRICES, ADMINISTERED PRICES AND INTERNATIONAL PRICES OF THE SELECTED CROPS DURING 1987-1999

Commodity (1)	Correlation coefficients		
	International price and Administered price (2)	International price and Farm harvest prices (3)	Administered price and Farm harvest prices (4)
Rice	0.92**	0.72**	-
Wheat	0.85**	0.90**	0.92**
Maize	0.90**	0.90**	0.98**
Gram	-	-	0.93**
Rapeseed and mustard	-	-	0.89**
Cotton	0.73**	0.78**	0.94**

Note: * indicates level of significance of correlation coefficients; (*) and (**) indicates Significance level at 1 per cent and 5 per cent, respectively.

ANNEXURE TABLE 3.

CORRELATION COEFFICIENTS BETWEEN FARM HARVEST PRICES OF PUNJAB AND IMPORTANT STATES OF INDIA FOR THE SELECTED CROPS DURING THE DECADE OF 1980S AND 1990S

Sr. No. (1)	States (2)	Paddy		Wheat		Maize		Gram		Rapeseed and mustard	
		1980 (3)	1990 (4)	1980 (5)	1990 (6)	1980 (7)	1990 (8)	1980 (9)	1990 (10)	1980 (11)	1990 (12)
1.	Andhra Pradesh	0.67*	0.94**	-	-	0.96**	0.91**	0.93**	0.69*	-	-
2.	Assam	0.79**	0.86**	0.82**	0.95**	0.94**	0.89	-	-	0.82	0.91**
3.	Bihar	0.60	0.94**	0.70*	0.94**	0.81**	0.84	0.94**	0.81**	0.55	0.86**
4.	Gujarat	0.84**	0.96**	0.62	0.93**	0.73*	0.84	0.81*	0.78**	0.81	0.83**
5.	Haryana	0.83**	0.64*	0.92**	0.98**	0.78**	0.87**	0.90**	0.75*	0.39	0.79**
6.	Himachal Pradesh	0.78**	0.94**	0.99**	0.98**	0.95**	0.89	0.92**	0.82**	0.94	0.79**
7.	Jammu and Kashmir	0.80**	0.97**	0.96**	0.96**	0.90**	0.79**	0.55	0.61	0.22	0.10
8.	Karnataka	0.77**	0.84**	0.61	0.91**	0.75*	0.83**	0.90**	0.82**	-	-
9.	Madhya Pradesh	0.68*	0.96**	0.96**	0.94**	0.74*	0.78**	0.93**	0.88**	0.50	0.86**
10.	Maharashtra	0.86**	0.95	0.68*	0.93**	0.88**	0.71*	0.64	0.50	-	-
11.	Rajasthan	0.77**	0.83**	0.94**	0.94**	0.75*	0.84**	0.92**	0.85**	0.31	0.87**
12.	Tamil Nadu	0.91**	0.94**	-	-	0.91**	0.89**	0.91**	0.71*	-	-
13.	Uttar Pradesh	0.77**	0.96**	0.83**	0.94**	0.85**	0.83**	0.94**	0.87**	0.64	0.86**
14.	West Bengal	0.62	0.67*	0.66*	0.96**	-	-	0.88**	0.78**	0.88	0.83**

Note: * shows level of significance of correlation coefficient, (**) indicates significance at 1 per cent, while (*) indicates significance at 5 per cent, dash (-) indicates that the corresponding figures are not available.

NOTES

1. Commercialisation of agriculture here means farmers are more dependent on market for purchase of agri-inputs and disposal of farm-outputs. The present study considers commercialisation an important indicator for the selection of the study area as markets in this situation will be robust, and the effect of liberalisation on the market prices can be studied in this situation in a better way.

2. The MSP is announced for around 24 commodities, these commodities are rice, wheat, coarse cereals, pulses, oilseeds, and many commercial crops. Government also announces statutory minimum prices (SMP) for sugarcane, though its influence on the cane market is not significant as most of the state announce their own states advised price (SAP).

3. In the district level wholesale markets (mandis), prices for a commodity and specific variety were not available for a large period of time. Often there were changes in the variety of a commodity for which price is available during a year. The state level FHP is arrived by evening out these discrepancies; this has therefore been chosen for the present analysis.

4. Price of basmati rice is manifold higher than the non-basmati rice. There is similar disparity between other varieties of rice; and weighted average at the state level is arrived from these prices.

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