

## PARITY PRICES AS A GUIDE TO DETERMINE SUPPORT PRICES FOR MAJOR AGRICULTURAL CROPS

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### INTRODUCTOIN

Pakistan's Agriculture is required, more than ever before, to grow at a faster rate in order to feed rapidly growing population with basic as well as protective foods; to supply raw materials to the growing industrial sector; to increase purchasing power of agriculture sector for buying finished goods; to augment production for export as well as for import substitution. It would be beyond the capacity of traditional and subsistence oriented agriculture to fulfill these ends. Reasonable prices for agricultural commodities can provide a good incentive to farmers to use modern inputs for increasing their production. So agricultural price policy can play an important role in shaping the development pattern of a country.

Pakistan introduced a system of support prices in 1960. Initially its coverage was limited and government was supposed to enter the market only in case the price of wheat will go below Rs. 13.50 per maund. After-wards Rice, Cotton and Sugarcane were also included in the programme. presently almost all the major crops are covered in the programme.

Though there are several alternative methods to determine support prices such as cost of production, value cost ratio, crop price in relation to wholesale price index, international price structure, ruling price criterion, intercrop parity criterion and parity criterion etc.; an appropriate method for determining the level of support prices has yet to be devised. In this paper parity price approach has been used to determine the support prices because it will provide a yard-stick designed to represent the fair price for the commodities which farmers produce in relation to the price of commodities which they buy. The prices so determined will help to improve the terms of trade of agriculture and thus will provide a good incentive to farmers for augmenting their production.

Main Objectives of the study are:-

- 1) To compare the price status of the farmer as a producer with his status as a consumer.

- 2) To compare the calculated parity prices of major agricultural crops with the procurement and open market prices of these crops.

**Methodology:** To compute the parity prices, at first the prices received by the farmers and prices paid by them were calculated to compute the index of prices received by farmers and the index of prices paid by them.

**Prices Received:** Total quantity sold of a commodity was multiplied with its price to get the prices received by all the farmers for that commodity. prices received by the farmers were estimated to reflect sales of all classes and grades of the commodity being sold.

**Prices Paid:** These included the average prices of production inputs and basic consumption items that farmers buy. Some items like transistor radios, watches, sewing machines etc have been excluded from the list of items that farmers buy because the price data for these commodities were not available. Prices paid also reflect the average annual prices of items that farmers buy. The universe of inquiry for prices paid by the farmers was the sum total of all important purchase transactions made by the farmers to acquire the goods and services used for family living and farm production.

**Index of Prices Received:** The index of prices received revealed the average yearly change in prices of agricultural products. Laspeyre's index formula has been used to compute the index of prices received. 1975-76 has been taken as the base period.

$$I = \sum \frac{P_i}{P_{i_0}} \times W_{i_0}$$

Where I = Index for a particular group.

$P_i$  = Refers to the current price for commodity i.

$P_{i_0}$  = Refers to the base period price for commodity i.

$W_{i_0}$  = Refers to the base period weight for commodity i.

**Index of Prices Paid:** Index of prices paid by farmers was computed to measure the changes in prices of goods and services bought by the farmers' and to determine whether the prices of agricultural commodities have stayed in step with the prices of commodities bought by the farmers.

From the indices of prices received and paid by the farmers, parity ratios and parity prices have been computed according to the following formulae.

$$\text{Parity ratio} = \frac{\text{Index of prices received by farmers}}{\text{Index of prices paid by farmers.}} \times 100$$

$$\text{Parity Price} = \frac{\text{AP} \times \text{IPP}}{100}$$

AP = Average price received in the base period.

IPP — Index of prices paid in the year for which parity price is calculated.

## RESULTS AND DISCUSSION

The major results of the study are discussed as under :-

A — *Parity prices for Major Agricultural Commodities:*

Parity prices, calculated, for major agricultural crops namely wheat, rice, cotton and sugarcane are given in Table-1.

Table 1. *Estimated parity prices with base priod 1975-76 = 100 (Rs. per 40 kg)*

Year	Wheat	Rice paddy (fine)	Rice (fine) grains	Rice paddy (coarse)	Rice (coarse) grains	Seed cotton	Cotton lint	Sugar- cane
1976-77	46.36	60.36	155.40	34.82	68.35	145.09	303.57	6.84
1977-78	49.32	68.38	164.83	36.93	72.30	169.89	321.98	7.26
1978-79	51.97	77.84	173.70	38.92	76.40	179.03	339.31	7.63
1979-80	58.66	87.86	196.03	43.93	86.23	202.07	383.97	8.64
1980-81	66.80	116.71	223.27	60.03	98.20	248.98	436.14	9.83
1981-82	72.99	144.52	243.94	76.61	107.80	289.03	476.53	10.76
1982-83	77.12	158.09	257.76	88.02	113.38	314.38	503.62	11.33

Table 1 shows that parity prices of all the major crops depict an increasing trend from 1976-77 to 1982-83 and during this period there has been about 65% increase in these prices.

Wheat: Comparison of parity prices with the procurement and open market prices for wheat are given in Table-2. Though the procurement prices of wheat increased by 22.7% in 1978-79, yet these were lower than the parity as well as the open market prices.

Table 2. *Comparison of party prices of wheat with open market and procurement Prices (Prices in Rs./40 kg).*

Year	Parity prices	Procurement prices	Procurement prices as percent of parity prices	Open market prices	Open market prices as percent of parity prices
1976-77	46.50	39.63	85.27	43.45	93.40
1977-78	49.32	39.65	80.39	49.55	100.47
1978-79	51.97	48.23	92.80	55.40	106.60
1979-80	38.66	30.00	85.23	55.34	94.34
1980-81	66.80	58.00	86.82	33.83	86.57
1981-82	72.99	58.00	79.46	69.38	95.03
1982-83	77.12	64.00	82.98	70.11	90.91

Rice : In 1976-77 the procurement price of rice paddy (fine) was 92.3 percent of parity price, but in the following year; though the procurement price was increased almost every year except 1979-80; the percentage declined as a consequence. Parity prices registered an exorbitant rise of 163.3 percent from 1976-77 to 1982-83 while there was only 60 percent increase in the procurement prices for the same period. In 1981-82 it increased from Rs. 38.58 to Rs. 45.00 but it was still 41 percent lower than parity prices as is shown in Table-3.

Table 3. *Comparison of parity prices of rice paddy (Fine and Coarse) with procurement prices*

Year	Parity prices	Rice Paddy (fine)			Rice Paddy (coarse)	
		Procurement Prices	Procurement price as percent of parity prices	Parity prices	Procurement prices	Procurement prices as percent of parity prices
1976-77	60.36	55.73	92.32	34.82	32.45	92.33
1977-78	68.33	59.48	87.04	36.93	32.15	87.05
1978-79	77.84	64.30	82.60	38.92	32.15	82.60
1979-80	87.86	64.30	73.18	43.93	32.15	73.18
1980-81	116.71	73.00	64.26	60.03	38.58	64.26
1981-82	144.52	85.00	58.81	76.51	45.00	58.81
1982-83	158.09	88.00	55.66	88.00	49.02	55.66

Table 4 : Comparison of parity prices of rice (Fine and Coarse) with open market/procurement prices. (Rs. Per maund).

Year	Rice Grains (Fine)					Rice Grains (coarse)			
	Parity prices	Procurement prices	Procurement price as per cent of parity prices	Open market prices	Open market price as percent of parity prices	Parity prices	Procurement prices	Procurement price as per cent of parity prices	Open market price as percent of parity prices
1976-77	154.40	108.80	70.47	147.03	95.62	68.33	57.87	84.67	107.26
1977-78	164.83	108.80	66.00	154.87	93.96	72.50	49.30	68.00	103.03
1978-79	173.70	117.89	67.87	132.30	76.28	76.40	52.51	68.73	85.06
1979-80	196.05	117.89	60.13	155.50	79.31	86.23	52.31	60.90	82.84
1980-81	223.27	137.00	61.36	192.46	86.20	98.20	63.00	64.15	96.07
1981-82	243.94	150.00	61.49	207.92	85.23	107.30	72.50	67.57	92.73
1982-83	267.76	154.00	69.75	190.08	73.74	113.38	80.00	70.56	—

In the year 1976-77 procurement prices of rice grains (fine) were 77 percent of the parity prices, these declined further with the passage of time and were only 59 percent of parity prices in 1982-83. The procurement prices of rice grains (coarse) were 84 percent of the parity prices in 1976-77 and the percentage further decreased over time as is shown in Table-4.

**Cotton:** Table-5 shows that during 1976-77 the procurement price of seed cotton was 8 percent lower than the parity price. In 1982-83, though open market prices were 14 percent higher than the procurement prices but were 33 percent lower than the parity prices.

Table 5. *Comparison of Parity Prices of Seed Cotton, with open Market/Procurement Prices.*

Year	Parity prices	Procurement prices	Procurement prices as percent of parity prices	Open market prices	Open market prices as percent of parity prices
1976-77	145.09	113.96	92.32	*	-
1977-78	169.89	147.89	87.05	185.64	109.27
1978-79	179.03	147.89	82.60	175.63	98.11
1979-80	302.07	147.89	73.18	151.20	74.82
1980-81	248.98	160.00	64.26	178.75	71.79
1981-82	289.98	170.00	58.62	194.53	67.08
1982-83	314.88	175.00	55.73	194.90	64.99

\*Open market prices for 1976-77 were not available.

The comparison of parity prices of cotton lint with the open market prices and procurement prices from 1976-77 to 1982-83 is given in Table-6. The level of support prices for cotton lint was higher than the parity prices except for the years 1981-82 and 1982-83. The open market prices also showed a similar trend.

#### **SUGARCANE**

Table-7 shows that the level of support prices for sugarcane though remained lower than the parity prices during all the years considered in the study, but remained more than 80 per cent of the parity prices.

Table 6. *Comparison of Parity Prices of Cotton Lint with Open Market/Procurement Prices. (Rs. per 40 Kg.)*

Year	Parity prices	Procurement prices	Procurement prices as percent of parity prices	Open market prices	Open market prices as percent of parity prices
1976-77	303.57	434.04	142.98	366.38	120.69
1977-78	321.98	339.00	111.30	348.40	108.21
1978-79	339.31	389.00	104.64	461.12	135.90
1979-80	382.97	410.46	107.17	398.28	104.00
1980-81	436.14	442.61	101.48	442.75	101.52
1981-82	476.53	449.00	94.22	466.24	97.81
1982-83	503.52	449.00	89.17	497.03	98.71

Table 7. *Comparison of parity prices of sugar-cane with the procurement prices (Rs. per 40 kg.).*

Year	Parity prices	Procurement* prices	Procurement prices as per cent of parity prices.
1976-77	6.84	6.16	90.00
1977-78	7.26	6.16	84.85
1978-79	7.63	6.16	80.52
1979-80	8.84	7.50	86.81
1980-81	9.83	9.65	98.17
1981-82	10.73	9.65	89.77
1982-83	11.33	7.63	85.02

\*Punjab

#### B : *Parity between Agricultural and non-agricultural commodities*

The parity ratios between agricultural and non-agricultural sectors reveal the terms of trade between the two sectors and is of great importance in the discussions of price policy. The ratio of agricultural prices to non-agricultural prices from 1976-77 to 1982-83 were computed as shown in Table-8 :

Table 8: *Parity ratio between the prices of major agricultural commodities (Wheat, rice, cotton, sugar cane) and non-agricultural commodities during 1976-77 to 1982-83 (1975-76 = 100)*

Year	Index of prices received	Index of prices paid	Combined parity ratio	Parity Ratio of			
				Wheat	Rice	Cotton	Sugarcane
1976-77	110.61	108.31	102.12	98.67	106.47	107.97	92.32
1977-78	123.32	114.88	109.26	101.67	117.27	124.03	87.04
1978-79	139.12	121.06	114.92	107.19	93.64	140.24	82.60
1979-80	136.99	136.64	100.26	96.32	89.83	113.97	95.18
1980-81	148.85	155.61	93.66	86.81	97.94	107.22	93.38
1981-82	165.06	170.02	97.08	92.78	100.09	103.12	92.36
1982-83	171.48	179.63	95.45	91.50	96.28	101.94	89.74

The table shows that the terms of trade remained in favour of farmers for the years 1976-77 to 1979-80 and then turned against them. The terms of trade remained unfavourable for wheat growers in all the years except 1977-78 and 1978-79, whereas for sugarcane the parity ratio remained unfavourable during all the years. In case of cotton the parity ratio remained favourable in this period and for rice the parity ratio fluctuated from year to year and remained favourable only in the years 1976-77 and 1977-78.

Table 9: *Parity between prices received of the farm products and prices paid for farm inputs, (Fertilizer).*

Year	Index of prices received	Index of prices paid	Parity ratio
1976-77	114.32	88.43	129.27
1977-78	125.24	86.60	144.62
1978-79	134.53	82.57	162.93
1979-80	137.35	82.80	148.00
1980-81	151.85	116.57	130.27
1981-82	169.42	118.74	142.68
1982-83	171.22	135.82	126.06



C : *Parity between prices received of the farm products and prices paid for farm inputs.*

Table-9 shows that the parity ratio between prices paid for fertilizer and prices received of the farm products remained favourable during all the years considered in the study. Pesticides, the other important input, could not be considered because the data were not available.

D : *Cropping patterns and parity.*

In a multicrop economy, the allocation of land between different crops depends on the movement of intercrop price relatives. Some common cropping patterns prevailing in various areas of Pakistan have been selected to compute the parity ratios by considering each of these cropping patterns.

Table-10 illustrates that parity ratio for all the cropping patterns have deteriorated in 1982-83 as compared to 1981-82. The table further reveals that the cropping pattern of wheat-sugarcane-cotton, is more suitable for the farmers as compared to the other cropping patterns.

Table 10 : *Parity ratios for the major cropping patterns in Pakistan (1975-76=100)*

Year	Cropping pattern	Index of prices received	Index of prices paid	Parity ratio
1981-82	Wheat-Maize-S.Cane	158.61	170.02	93.28
1982-83	-do-	164.81	179.65	91.73
1981-82	Wheat-Maize	158.90	170.02	93.15
1982-83	-do-	165.48	179.65	92.11
1981-82	Wheat-Rice	160.00	170.02	94.15
1982-83	-do-	166.00	179.65	92.40
1981-82	Wheat-S.Cane-Cotton	164.47	170.02	96.73
1982-83	-do-	171.30	179.65	95.53

#### CONCLUSION :

The parity price approach, along with the cost of production approach and other methods, can provide a better insight to policy makers for chalking out a rational support price policy.

The study shows that the procurement prices of rice (fine) were 40 per cent lower than the parity prices in 1982-83. Although the procurement prices were lower in cotton, wheat and coarse rice also but the gap was less. While the Government earns a reasonable profit through the export of fine rice, the farmers do expect their share in this profit.

There is therefore, a strong case to increase the support price of rice (fine). As regards the other crops, because the domestic prices of these crops are close to the international prices therefore, leave no scope for an increase in support prices. The only option we have is to reduce the cost of production of these crops by increasing yield per acre through ensuring the better and timely supply of water and modern inputs and better use of agronomic techniques. Consideration should also be given to review the cost of marketing and to bring it down.

In order to take care of the yearly price fluctuations in the exportable and other commodities, the feasibility of establishing a price support fund for all crops should be studied.

#### REFERENCES

- Afzal, M. 1977. "Parity pricing as an approach to price support programmes. A policy analysis". The Pakistan Development Review No. 3, Autumn, 1977.
- Agarwal, N.L. and J.P., Kuawat. 1979. "Farmer's terms of trade in Rajasthan" Indian Journal of Agricultural Economics Vol. xxxiv, No.4, Oct-Dec, 1979.
- Government of Pakistan. 1979. "Household Income and Expenditure Survey". Federal Bureau of Statistics, Statistics Division, Government of Pakistan. 1979.
- Government of Pakistan. 1984. "Monthly Statistical Bulletin". Federal Bureau of Statistics, Statistics Division, Government of Pakistan. May 1984.
- Government of Pakistan. 1983. "10 years of Pakistan in Statistics 1972-82". Federal Bureau of Statistics, Statistics Division, Government of Pakistan, 1983.
- Government of Pakistan. 1983-84. "Pakistan Economic Survey". Ministry of Finance, Government of Pakistan, Islamabad, 1983-84.
- Shepherd, G.S. 1966. "Agricultural Price Analysis" Iowa State University Press, Ames, Iowa, U.S.A, 1966.