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## SUMMARIES

## PRICE DETERMINATION IN AGRICULTURE

V. Rajagopalan and S. Varadarajan\*

A system of administered prices for farm products has gained acceptance with the majority of economists in India. Minimum support prices are announced by the Government at the beginning of crop season to help the farmers make decisions concerning the cultivation of the crops concerned. The objective of minimum support price is to protect the farmers against distress sale under conditions of glut in markets. It is therefore related to the procurement prices, announced at the time of harvest. Necessarily, the procurement price must be higher than or equal to support price. Issue prices are related to procurement prices and in turn to support price. Therefore the determination of support prices at appropriate level becomes crucial for the success of price policies. In determining the minimum support price the objective is to cover the cost of production plus a reasonable incentive to step up production through technological innovation. Therefore, this study has first analysed the concepts of cost of production of crops that are presently used. It is argued that the cost C does not include normal profit, a reward for entrepreneurial services of farmers. A suggestion is made to measure the value of entrepreneurial services or normal profit at least approximately and to add it to cost C to estimate cost D. Then the minimum point of average cost D curve corresponds to the technical optimum in production and the minimum support price corresponds to it. However to take care of wide variations in the unit cost of production, Dantwala's suggestion to use the bulk-line cost is accepted and its implications are shown. Empirical application of the suggestions to the cost of production of paddy in Tamil Nadu shows that the minimum support price on the basis of cost D is less than the procurement price whereas that for bulk-line cost is above the procurement price for 1978-79. The validity of the model is proved but its wide application for policy requires further empirical tests. Once the support price is given, other prices, namely, procurement price and issue price are determined by the current practices.

## COST-PRICE-RETURN IMBALANCES IN PADDY CULTIVATION IN THANJAVUR DISTRICT—AN ANALYTICAL EXERCISE

B. S. Nagarajan†

In the context of the demand for higher support prices for paddy in recent years on the plea of higher input costs leading to unremunerativeness, a sample of 56 small paddy growers in Thanjavur district in Tamil Nadu is followed through two crops during the agricultural year 1980-81 and the cost-price-profit structure is analysed. On the basis of the exercise, a few alternatives are suggested for regaining the balance in the cost-price-profit structure. While the Agricultural Prices Commission based State Government's support price for paddy was Rs. 115 per quintal during 1980-81, the average cost per quintal of paddy produced by the sample farmers was Rs. 67.65, Rs. 154.21 and Rs. 156.03 during first crop season under costs A<sub>1</sub>, B and C respectively. The realised price of Rs. 117.52 per quintal of paddy could give a margin of less than Rs. 50 per quintal over cost A<sub>1</sub>, costs B and C remaining uncovered. Similar is the case with the second crop. The average yields recorded during *kurwai* and *thaladi* being 13.28 quintals and 12.10 quintals per acre respectively which are poor when compared to the yield potentials of the varieties raised (ADT 31 and IR 20). If the costs B and C are also to be covered, three alternatives could be suggested: (a) If the support price per quintal of paddy during *kurwai* and *thaladi* seasons are raised to Rs. 156.03 and Rs. 176.43 respectively, they could cover even cost C and leave a margin, but this will result in a financial drain on the part of the Government and also it is not in the interests of the consumers. (b) The physical inputs could be subsidised to a greater extent without resorting to wage cuts to bring down the cost of cultivation. But this alternative also could not deliver the desired levels of profit even if the subsidies on physical inputs are to the tune of 100 per cent. (c) The third alternative would be to raise the level of yield to at least 75 per cent of the potentials of the paddy varieties used, by intensive efforts, mainly bridging the research-extension gap and also to introduce low cost high yielders. This will increase the gross income of the paddy growers, cover even costs B and C with a margin and the consumers need not be asked to pay more as the support prices are not to be increased. Again, this yield increasing exercise would boost the total production of paddy which is a felt-need of the present situation of near stagnation of area available for paddy cultivation in the State.

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## IMPACT OF VARIABLE PRICE STRUCTURE ON FARM INCOME DISTRIBUTION IN THE PUNJAB

Joginder Singh and I. S. Chatha\*

In view of the existing inter- and intra-regional income disparities, a number of studies have been conducted from time to time to analyse the factors associated with them. In the present study, the impact of variable price structure on farm income distribution in Punjab has been examined. The Punjab State was divided into six homogeneous zones on the basis of cropping pattern. A sample of 42 farmers representing different size-groups and other farm resources was drawn at random. The existing income distribution in different zones and for the data pooled for all the zones was worked out. The changes in income distribution are also examined as a result of increase in the price of wheat, paddy and American cotton. The study has brought out the maximum inequality in returns to fixed farm resources in paddy-maize zone (with Gini ratio at 0.3483) followed by paddy and maize-groundnut zones at 1976-77 prices. The income disparity was the least in the case of bajra-maize-cotton zone, i.e., 0.2427 followed by bajra-cotton zone, i.e., 0.2595. Therefore, there was a tendency towards equality in income in the relatively higher income areas. The data pooled for all the zones showed a still higher degree of inequality. As a result of increase in the prices of wheat, paddy and American cotton by Rs. 20, Rs. 28 and Rs. 125 per quintal respectively, not much change in income distribution was brought out in all the zones except in the bajra-cotton zone (the major American cotton growing area) where the Gini ratio increased from 0.2595 to 0.2801. A further increase in income disparity in the overall sample was because of rapid increase in income in the already higher income areas. Projecting a further increase in the price of both wheat and paddy by Rs. 20 per quintal with a view to examining its effect on income distribution, it was observed that income inequality tended to increase, though slightly, in all the zones. However, the overall analysis showed a decline in income inequality from 0.3917 to 0.3868. The price of American cotton was again raised by Rs. 50 per quintal which had a minor effect on income distribution in the maize-groundnut zone. The major American cotton growing area, i.e., bajra-cotton zone showed a decline in income inequality. This was because the production of American cotton did not have much relationship with the farm size and in turn with farm income. It was also observed that in general, the increase in income as a result of an increase in the product price was positively correlated with the farm size. However, cropping pattern and factors affecting input-output coefficients rather than farm size seemed to be predominant in some cases in influencing the changes in the pattern of income distribution.

## WHEAT PROCUREMENT POLICY IN PUNJAB—A POLICY REVIEW

G. S. Kainth†

The paper makes an attempt to critically review the wheat procurement policy in Punjab during the past decade. During the period 1970-71 to 1979-80, more than 50 per cent of the wheat output was procured by the Government with the exception of the year 1974-75 when the procurement was the lowest at 41.51 per cent. The volume of procurement has been systematically responsive to (a) the volume of wheat output with an elasticity slightly greater than unity and (b) to the procurement price with an elasticity equal to 0.42. This latter result means that procurement is almost exactly as sensitive to procurement price as the total output to the relevant relative prices. Therefore, the importance of an appropriate procurement policy cannot be over-emphasized. The procurement policy of the Government has been characterized by the fact that the procurement prices comfortably cover the full cost of production. A careful examination of the relationship between the procurement price and the free market wholesale price reveals that the procurement price has been fixed mainly on the basis of the average wholesale prices in the preceding years. This is corroborated by the fact that the procurement price has been highly correlated with the free market wholesale price in one preceding year and with the average wholesale price in two preceding years, the elasticity being 0.84 and 0.77 respectively. During the period under review the free market wholesale price exceeded the cost of production by Rs. 21.75 per quintal while the procurement price exceeded the cost of production by Rs. 13.40 per quintal. The imperative of the situation, therefore, demands to reduce the gap between the free market wholesale price and the cost of production to ensure the minimum supply at a fixed reasonable low price to the low income consumers.

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## DYNAMICS OF PRICE STRUCTURE, COST OF PRODUCTION AND PROCUREMENT OF AGRICULTURAL PRODUCTS IN HARYANA

R. K. Khatkar and D. S. Nandal\*

Haryana agriculture got commercialised and farmers became more and more conscious about farm input-output prices. Consequently, agricultural output and the magnitude of public procurement became relatively more price responsive. This paper seeks (i) to study the growth rates in the cost of production, procurement prices, farm harvest prices, fertilizer prices and real wages; (ii) to compare the cost of production, procurement price and post-harvest price; and (iii) to examine the impact of production and prices on procurement of agricultural commodities. The rate of growth in prices was the highest in gram followed by rapeseed, cotton, maize and wheat respectively. The price elasticity of gram, rapeseed, and cotton was relatively higher. The relative procurement price of paddy remained lower than wheat while that of bajra and maize remained higher than wheat in the late sixties and early seventies and remained lower than wheat in the late seventies. In the case of gram the relative procurement prices were higher than wheat since 1977-78. The procurement prices were found higher than the cost of production (cost C basis) of Mexican wheat, paddy dwarf and sugarcane (*gur*), while in the case of *desi* wheat, *desi* paddy, bajra, maize and gram these were found lower than the cost of production. The farm harvest prices were found higher than the cost of production. So the procurement prices were found remunerative only in the case of Mexican wheat and paddy dwarf, while the farm harvest prices were found remunerative in all the crops studied. The procurement-output ratio was at a satisfactory level only in the case of paddy. In the case of wheat it has increased from 5.69 per cent in 1966-67 to 42.28 per cent in 1979-80. The volume of procurement of wheat has been sensitive to output (with elasticity 1.7273) and to procurement price-open market price ratio (with elasticity 0.67). The volume of procurement of paddy has been sensitive to output (with elasticity 0.87) and to procurement price-open market price ratio (with elasticity -1.12). The policy implication of the findings is that a satisfactory procurement price is as important for the government for obtaining the desired quantity as the trend of output especially in the case of wheat and other coarse foodgrains.

## PRICE POLICY FOR AGRICULTURAL PRODUCTS—A CASE FOR BULK-LINE COST

M. M. Bhalerao, R. K. Singh, V. P. Tyagi and S. B. L. Gupta†

The recent consumers' demonstrations against price rise and the producers' agitations against the Government price policy with regard to agricultural products have attracted a great deal of attention of the planners, administrators as well as researchers in India. Consensus exists that the support price should cover the full cost of production. However, the controversy still continues whether the average cost of production or the bulk-line cost of production should be considered while fixing the support price. Here the bulk-line cost relates to the average cost of production of the 85 per cent of the total output and hence a majority of the farmers would thus be covered by this cost concept. An attempt is, therefore, made in this paper to examine the hypothesis that the bulk-line cost covers a much greater proportion of the farmers' output and area than the average cost and it also covers a much greater proportion of the actual price realised by the farmers (generally the harvest price) than the average cost of production.

The present study is based on the data compiled from three unpublished Ph.D. theses submitted in the Department of Agricultural Economics, Institute of Agricultural Sciences, Banaras Hindu University. Enquiries for these Ph.D. theses covered a stratified random sample of 162 farmers in Guntur district (Andhra Pradesh), 185 farmers in Prakasam district (Andhra Pradesh) and 150 farmers in Varanasi district (Uttar Pradesh). The average cost of production and the bulk-line cost of production worked out in these studies is based on the cost C concept. The bulk-line cost is estimated with the help of graphic method. The analysis proves the hypothesis that the bulk-line cost covers a greater proportion of farmers, output, area as well as the actual price realised by the farmers than the average cost of production. The policy implications are that if the Government has to satisfy a substantial proportion of the farmers, its support price should be based on the bulk-line cost of production. But this may put a premium on inefficiency and thus push up the price of the product to the dissatisfaction of the consumer. It will, therefore, be necessary to reduce the cost of production of the inefficient farmers by inducing the adoption of modern cost saving technology on all such inefficient farms.

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## AN ECONOMETRIC STUDY OF FOOD ARTICLES PRICES AND THE PRICES OF POWER, FUEL, LIGHT AND LUBRICANTS IN INDIA

Mangal Prasad and Ram Iqbal Singh\*

The paper makes an attempt to measure the disparity between the price levels of the group of food articles and the group of power, fuel, light and lubricants in India during the years 1972-80 using the method of ordinary least squares. The price index numbers of the food articles group and of the power group are regressed on the explanatory variable year and the independent time variable year respectively and regression is obtained between the percentage increase in the price index of food articles and that of the power group, taking base 1970-71 = 100. The analysis indicated that a one per cent increase in the price index of power, fuel, light and lubricants leads to only 0.40 per cent increase in the price index of food articles. It is concluded that the relationship between the wholesale price index numbers for both the groups is not perfect. The increase in the price index numbers of food articles and of power, fuel, light and lubricants with 1970-71 as the base year is estimated at 8.54 per cent and 22.5 per cent per annum respectively. Stability in prices can be achieved and the gap between the price indices of the two groups can be bridged if the prices of food articles group and the power group increase at the rate of 11.33 per cent and 18.64 per cent per annum respectively.

## DETERMINATION OF SUGARCANE PRICE (A CASE STUDY)

M. P. Azad, S. P. Tewari and H. K. Nipam†

This study is based on an intensive enquiry of 100 cane growers of different sizes, randomly selected from ten villages of Meerut district of Uttar Pradesh and seeks to determine the minimum and maximum prices of sugarcane. A multi-stage stratified random sampling design was adopted for the purpose and the study was conducted by survey method during 1980-81. The prices of output and inputs were collected for the year 1979-80. The study concludes that in case the minimum and maximum prices of sugarcane per quintal fixed by the Government are lower than the bulk-line cost of Rs. 21.60 and opportunity cost price of Rs. 23.93 respectively there is every possibility that the area under sugarcane may be replaced by other remunerative crops and crop combinations. On the contrary, if the statutory price is higher than the opportunity cost price, the area under cereals and cash crops will be replaced by sugarcane. This will create a serious problem for the sugar industry as it will not be able to utilize the increased marketable surplus of sugarcane because of its limited crushing capacity. As a result of this, the supply of sugarcane will be diverted towards *gur* and khandsari industries even at a lesser price than its cost of production. Thus, there will be an increase in the production and consumption of *gur* and khandsari sugar. This will also put the sugar industry in an adverse situation for the disposal of sugar in the open market because of its higher cost of production leading to higher price and lower demand as compared to *gur* and khandsari sugar. It is, therefore, essential that while fixing the level of statutory price of sugarcane, the cost of production and price relationship of different sugarcane products together with the cost of production of sugarcane on the basis of bulk-line cost and opportunity cost should be taken into consideration. The Government should also take statutory steps in controlling the prices of *gur* and khandsari sugar in line with the crystal sugar in order to keep smoothness in the production of sugarcane and its products and for a fair deal to cane growers as well as the consumers of these products. Besides, the Government should also consider the prices of competing crops and inputs on the basis of parity prices.

## AN EMPIRICAL MODEL FOR PROFITABLE PRICE FIXATION

D. Vasudeva Rao‡

Due to soaring prices of inputs and vagaries of market prices for agricultural produce the present day farmer is put to loss in his farm business. Though at the wholesale/retail level, the agricultural commodities have registered higher prices, the grower is not getting his due share. For Karnataka, an analysis is attempted on the differences in the input prices and product (output) prices for ten crops over two periods of time, i.e., 1972 and 1979. With the help of a "zonal system" the crops are classified as 'losing', 'neutral' and 'profitable'. To make all the crops 'profitable', the 'losing' and 'neutral'

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crops are transferred to the 'profit' zone. An empirical model gave the expected prices for the 'output' from which the average profitable price needed for each crop under dry/wet condition is estimated. This price fetches some nominal profit also. These prices are compared against the existing/actual ones, and gaps are identified. If the expected prices are made available, no farmer will be under loss. Thus the empirical method suggests the 'minimum' prices that should be offered for each crop, with a small margin of profit. This minimum price simultaneously takes care of the fluctuations in the input prices also.

#### ISSUES IN AGRICULTURAL PRICE DETERMINATION AND PRICE POLICY— ON THE BEHAVIOUR OF PARITY

Basavaraj Humbarwadi, M. K. Narasimhan and N.S. Viswanath\*

The main objectives of the paper are to examine the behaviour of parity indices of prices received by the farmers for the output sold to the prices paid by the farmer for buying the consumer goods and needed inputs, and the behaviour of inter-crop price parity for the important commodities, *viz.*, paddy, jowar, *ragi*, groundnut and cotton in Karnataka on the basis of secondary data from 1971 to 1979. The statistical test, *viz.*, Snedacor's-F test has been used to test the various significant differences in the parity at 5 per cent level. The important finding of the paper is that there is a definite significant difference in the inter-crops price parity over the aggregate period between seven different combinations of five competing crops. It is concluded that the inter-crop price parity should be considered in agricultural price policies of the Government to strengthen the purchasing power of the poor in the agricultural sector as they can not apportion their land for cultivating all the important crops to have a balanced income.

#### PRICE PARITY IN RAJASTHAN—A CASE STUDY OF CEREALS

N. L. Agarwal and R. C. Sharma†

Under the present technological break-through in Indian agriculture and changing input-output price situation, the farmers feel that the profit level in the production of foodgrains is decreasing whereas the profitability in other sectors has been increasing over time. The farmers also feel that the procurement prices fixed by the government for the foodgrains are not remunerative and even sometimes does not cover the cost of production. Under such a situation, a study of parity between the prices of inputs and output (farm harvest prices) and procurement prices fixed was undertaken. The parity ratio was worked out for the period 1965-66 to 1978-79 for important cereals (wheat, bajra, jowar and maize) for the State of Rajasthan and for one major producing district of the crop. The farm (harvest) prices during the study period was found to be lower than the State average for wheat and jowar in Gangana-gar and Kota districts and higher for bajra in Barmer district. The parity ratio in terms of farm (harvest) prices was higher for all the cereals in the period prior to 1974-75, showing thereby a higher level of prosperity to the farmers in this period. Since then the prosperity of the cereal growing farmers in the State as well as in the major producing districts of the crops showed a decreasing trend as is evident by the parity price ratio being less than unity. The procurement prices fixed for these cereals in the study period were at a lower level than their farm (harvest) prices. The parity ratio of procurement prices has shown a declining trend since the base year in spite of an increase in the procurement prices by the Government. Parity in the input-output prices is inevitable for maintaining the tempo of increasing investment among the farmers for the adoption of new technology. No parity was found in the prices of inputs and output in the State during the study period as is evident from the parity ratio. Thus, there is a need for revision in the policy of fixing of procurement prices so as to make them more rational.

#### AGRICULTURAL PRICES IN RAJASTHAN WITH REFERENCE TO PRICE POLICY

G. D. Diwakar and D. B. S. Sehara‡

To examine the behaviour of the prices of cereals, three-year moving averages and correlation coefficients were calculated. Parity ratios of food articles with cereal crops, cereals with manufactures, industrial raw material and general wholesale prices and cereals with inputs—fertilizer, diesel and

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electricity, were calculated by using data from Rajasthan State for the period 1966-77. There was a rising trend in the prices from 1966 to 1968 for all the crops and then a fall upto the year 1970. During the years 1974 and 1975, there was a high rise in prices which slowly declined upto 1977. Correlation coefficients also indicated high and positive relationship in the price indices of crops. Parity ratios showed that all the cereal crops except jowar and barley for a few years had adverse terms of trade as compared to general food articles. General wholesale prices and manufactures had favourable terms of trade from 1966 and 1971 onward respectively while the parity ratios for industrial raw material were favourable only in 1971, 1977 and 1978. In the case of inputs, except diesel, the parity ratios of fertilizer and electricity with cereal prices were low. The adjusted base method of parity was used to fix the price of wheat, barley, bajra, jowar and maize for the year 1978-79, which was estimated to be Rs. 123.77, Rs. 93.90, Rs. 102.17, Rs. 98.75 and Rs. 97.27 per quintal respectively. The estimated prices of these commodities were found higher than the prices fixed by the Government for the same year. For more accurate assessment, other factors like labour wage, consumer price index, etc., can also be taken into account in fixing the prices.

### DETERMINING POTATO PRICES IN HIMACHAL PRADESH: A POLICY ANALYSIS

B. K. Sikka, H. K. Saxena and R. Swarup\*

Himachal Pradesh enjoys climatic advantages for the production of virus-free potatoes. The prices of potato generally fluctuate widely and in some years, the farmers could not recover even the cost of production; the year 1979 was the most disastrous in this matter. Despite such a situation, Himachal Pradesh does not have any definite price policy for potatoes. However, there are some encouraging indications suggesting the much needed awareness of the problem at the government level and there is positive thinking to protect and help the potato growers by way of declaring support price. The 'minimum support price' is fixed on the basis of (i) cost of production, (ii) ruling price and (iii) parity price. The first one is most commonly used in the case of cereals. In this study an attempt has been made to interlink all the three approaches. Each of these approaches has in-built merits and demerits. It hardly needs to be emphasized that in an under-developed State like Himachal Pradesh, price policy for agriculture has to be production oriented. Thus, it becomes difficult to decide which approach should be considered for determining minimum support price of potatoes in Himachal Pradesh. The cost of production approach does not take into account the demand criterion and is based on supply only while the ruling price approach carries the effect of trends for price fixation. But the parity price approach maintains the given relationship among various agricultural products as well as between agricultural and non-agricultural goods. An analysis of potato prices in Himachal Pradesh during 1974-80 suggests that the terms of trade were in favour of this crop during 1976 to 1978. Computing parity prices of potatoes by (i) fixed base method, (ii) average parity method and (iii) adjusted base method, it is discovered that the average parity price by all these methods were higher than the prevailing prices. Keeping in view the merits and demerits of cost of production, ruling price and parity price approach, it is considered reasonable to declare the minimum support price on the following norm: Support price of potato =  $(\text{cost B} + \text{ruling price} + \text{parity price}) \div 3$  for current year, where cost B is cost of cultivation minus imputed value of family labour divided by yield per hectare of previous year, ruling price is the three-year moving average prices and parity price is the average price of fixed based method, average base method and adjusted base method of previous year. Based on this criterion, it is suggested that the support price for potato in Himachal Pradesh for the current year should be Rs. 92.52 per quintal.

### AN APPROACH TO AGRICULTURAL PRICE DETERMINATION

A. K. Neog and M. Barkataky†

The paper presents a theoretical framework for agricultural price determination under static and dynamic market conditions. It emphasizes that the minimum support price should cover the marginal cost of production and transport cost in respect of marginal and small farms for which support is needed. The paper demonstrates that a uniform price policy common to all farm sizes (*viz.*, sub-marginal, marginal, small, medium, large) is bound to have differential income/revenue distribution effects in view of the cost differential. To neutralise the effects of a uniform support price on different farm sizes, it is suggested that input subsidy should be provided to sub-marginal, marginal and small farms. It is also suggested that minimum support prices should be fixed for all the principal commodities. The minimum support price should not be uniform for the entire country. A policy of uniform minimum support price would place the agriculturally advanced regions at a more advantageous position. There should be a differential price policy for different regions. For, interregional

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differences in cropping pattern, production technology, settled vis-a-vis shifting cultivation, agro-climatic condition, degree of mechanization, provision of infrastructure, input usage, level of per capita product, etc., call for differential price policy. One of the limitations of the paper is that it ignores the opportunity cost of the product, price of competing and substitutable crops. It may, however, be argued that crop competition mainly exists under double or multiple cropping and not under mono-cropping. Moreover, it is also determined by agro-climatic and technological factors. On the other hand, when a simultaneous increase in all the crops is envisaged the issue loses much of its meaning.

### GROUNDNUT FARM PRICES: ARE THEY COST DETERMINED?

M. L. Jhala\*

An attempt is made in this paper to examine how the cost of production of groundnut per hectare as well as per unit of production varies among different categories of farmers and among regions/districts and to study how far ruling market prices stimulate the cost of production. It is the marginal cost that would determine the price. We take operational costs of a marginal farmer or on a marginal land as marginal cost. A multi-stage stratified survey in Gujarat revealed the following characteristics of operational costs of groundnut in 1978-79 season. Costs varied from district to district, being lowest for Junagadh district. Except for Junagadh district, costs per hectare per tonne of yield were always higher than per hectare costs. Costs also varied with size, being highest for marginal farmers. The cost amounted to around Rs. 230 per quintal for a marginal farmer in Junagadh district, the largest groundnut producing district in the country and also for all categories of farmers on an average in Amreli district which had recorded the lowest yield. The average cost for marginal, small and semi-medium farmers all taken together came to about Rs. 178 per quintal. It was much lower for medium and big farmers. In the case of North Gujarat districts, the cost varied from Rs. 250 to Rs. 600 per quintal. The market price of groundnut in 1978-79 season was around Rs. 230 per quintal while the official support price was Rs. 175 per quintal, the former being close to the marginal cost. When the bulk of groundnut is produced in marginal areas, the former needs more attention in price determination.

### A STUDY ON CHANGES IN PRICES OF SOME IMPORTANT AGRICULTURAL COMMODITIES IN INDIA

B. R. Atteri, A. K. Ray and M. A. Muralidharan†

This paper presents the results of a study on changes in the prices of major agricultural commodities in India over the period 1951 to 1977. It seeks to examine the movement of relative prices for major agricultural commodity groups and some important agricultural commodities over this period of time. An attempt is also made to ascertain the importance of economic factors like supply-demand relationships and money supply in determining the prices of these commodities and commodity groups. The data for this study were collected from various secondary sources. The results of the study show that the prices of food articles compared to manufactured articles have been relatively low for almost the entire period except for the period from 1967 to 1970. Within the agricultural sector the ratio of price of food to non-food crops indicates that the prices of food crops remained relatively higher for almost the entire period. The same is true with regard to cereal versus oil and pulses versus oil. The results of the functional analysis indicate that when money supply is included as an explanatory variable for price changes, it is highly significant in all cases except pulses, but the demand-supply gap in the previous year is not significant in any of the cases. The demand-supply gap for the current period is significant only for rice and pulses. When money supply is excluded from the explanatory variables, the supply-demand gaps for current as well as for the previous period become significant. The important conclusion arising out of this study is that the prices of agricultural commodities are determined by the money supply and demand gaps of the current as well as the previous year.

### AN IMPLICIT INDEX APPROACH TO AGRICULTURAL TERMS OF TRADE, AGRICULTURAL PRODUCTION AND AVAILABILITIES AND NON-AGRICULTURAL INCOME

Shiv Ram Dass‡

The ratio between the general level of agricultural product prices received by farmers to prices paid for agricultural inputs and the ratio between agricultural product prices to non-agricultural

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product prices are known as agricultural terms of trade or parity prices. In this paper an alternative approach, which may be termed as an implicit index approach, has been employed to estimate price indices. Implicit price indices are the prices that are received by the producers of agricultural and non-agricultural sectors for their output and at the same time take into account changes in output that takes place from year to year. A regression equation of the Cobb-Douglas type fitted to the data showed that more than 70 per cent of the variations in agricultural terms of trade with respect to the non-agricultural sector may be explained by changes in agricultural availabilities (or production) and non-agricultural income at constant prices. On an average, with a 2.5 per cent increase in agricultural production, the relative agricultural prices will fall by 4.6 per cent which may be neutralised by a 4.3 per cent increase in non-agricultural income at constant prices. Whereas relative agricultural prices increased at an annual compound rate of 4.22 per cent during 1954-55 to 1967-68, they declined by 4.85 per cent and 2 per cent during 1950-51 to 1954-55 and 1967-68 to 1978-79 respectively. The results of analysis show that since in our country increases in incomes are mainly appropriated by the already well off strata of society whose income elasticity of demand for the food (agricultural) products is relatively low, so whenever there is any substantial increase in agricultural production either due to increase in area or productivity, the gains are transferred to the non-agricultural sector in the form of relatively cheaper agricultural prices.

### A STUDY ON INTER-CROP PRICE PARITY IN MAHARASHTRA

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Efforts have been made in this study to work out the inter-crop price parities and the influence of these parities on the allocation of area to different crops in Maharashtra State. To be specific, the objectives of the study were (i) to work out the inter-crop price parity, (ii) to estimate the price parities between important groups of crops, and (iii) to find out the relationship between price parities and area under different crops. All the major 14 crops grown in the State were included in this study and 18 years' (1960-61 to 1977-78) data on farm harvest prices and area were used for analysis. The results of the analysis showed that price parity was favourable to cotton and jowar crops. These are the leading crops contributing about half of the gross sown area in the State. Price parities for other cereals, pulses and oilseeds were unfavourable. Among all the groups of crops, pulses appeared to be the most disfavoured crop followed by oilseeds. When the preceding year's price parities were compared with current year's area, it was seen that parity had no impact on area in the case of cereals. However, it has direct influence on cash crops. No specific relationship could be established between acreage and price parities of pulse and oilseed crops. Thus the policy implications of the study are: (i) Price policy could be used as an effective instrument to influence the area under commercial crops, but it can have hardly any impact on cereal acreage. (ii) Price policy can hardly play any role in augmenting the production of oilseeds and pulses. This emphasizes the need for further research in this field to identify the factors influencing the supplies of these crops.

### PRICE POLICY OF COTTON IN MAHARASHTRA—A CASE STUDY

Y. P. Mahalle and N. A. Gadre†

An attempt has been made in this paper to work out the gains, if any, to the cotton growers in terms of higher prices due to the Cotton Monopoly Procurement Scheme implemented by the Government of Maharashtra from 1972-73 and to examine the fairness of cotton prices received under the Monopoly Procurement Scheme vis-a-vis the cost of production of cotton. To obtain the open market prices of cotton (L-147 variety), the projections of these prices were made for the period from 1972-73 to 1980-81 by fitting the linear trend equation. For fitting the equation, time-series data of prices of cotton for the period 1947-48 to 1971-72 were obtained from the Akola Cotton Market Committee.  $R^2$  of the fitted equation was 0.80 and the coefficient was significant at one per cent level of significance. These projected prices were compared with the final prices (including bonus) received by the cotton growers under the Monopoly Procurement Scheme. It was observed that the prices received by the cotton growers under monopoly procurement were substantially higher than the open market prices throughout the period from 1972-73 to 1980-81. The gains per quintal to cotton growers due to the Monopoly Procurement Scheme ranged from Rs. 99.94 in the year 1974-75 to Rs. 293.97 in the year 1976-77. When the fairness of prices received by the cotton growers under monopoly procurement is examined in the light of cost of production, it was observed that the production cost (at cost

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C) per quintal of cotton varied from Rs. 119.31 in 1972-73 to Rs. 581.31 in 1978-79 while the prices varied from Rs. 310 in 1974-75 to Rs. 515 in 1976-77. Except during the year 1978-79 when the yields were the lowest, the prices received by the cotton growers under the Monopoly Procurement Scheme were adequate to cover the cost of production.

### ECONOMIC STUDY OF PACKAGE OF PRACTICES IN COTTON IN AKOLA DISTRICT

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The object of this paper is to study the economics of package of practices in HYV of cotton vis-a-vis traditional varieties of cotton and also to examine whether the cost of the full package of modern inputs covers the support prices announced by the Maharashtra State. The data pertain to a sample of 50 farmers each growing H4 cotton and AK 235, selected randomly from the concentrated area under cotton in Akola district of Maharashtra. Cost concept C is used. The recommended package of practices in respect of inputs like seed, farmyard manure, fertilizer and plant protection were considered as base for the construction of composite index numbers for each sample holding. The study revealed that (i) the present level of adoption of index of package of practices (31.66) adopted by the farmers in AK 235 could not cover the price. (ii) The adoption of modern technology had a potential to increase the net income per quintal by Rs. 160. (iii) The cost of production of both the varieties of cotton showed a decrease with an increase in the level of adoption index. (iv) The cost of full package of practices was covered by the support prices announced by the State under monopoly procurement. (v) About 40 per cent of the total farmers growing AK 235 cotton were operating at the adoption index level of 10-20. The cost of production at this index level worked out to Rs. 403.97 per quintal and this cost did not cover the average price (Rs. 385) received by the farmers of this group. The lowest index recorded in H4 cotton was within the range of 40-50 and the cost of production at this index worked out to Rs. 529.51 which was observed to be higher than the price of Rs. 496. (vi) If the basis of cost of production at minimum adoption index is considered, the minimum support prices would range from Rs. 405 (for short staple cotton) to Rs. 530 (for long staple cotton) which would enable the farmer to remain just at the marginal level.

### ON THE ISSUE OF FIXING MINIMUM PRICE FOR FISH—A PERSPECTIVE

Ramakrishnan Korakandy†

The question of fixing a minimum price for fish and fishery products has been engaging the attention of Government and policy makers for a long time. However, no decision could be taken by the Government for want of material information regarding the pricing problem. The need for fixing minimum price for most common varieties of fish was obvious from the seasonality of their landings and their impact on the earnings of the fishermen. The rising cost of production in the industry also offered another justification for fixing a minimum price. Among the various criteria for fixing minimum price, the full cost principle and the principle of parity appeared to be quite significant. There were practical limitations to the application of the full cost principle because of the difficulties in estimating the full cost, apportioning of these costs among multiple products and its failure to recognize other important factors. The principle of parity showed their potential to change the phase of development in the industry. Among the various considerations involved in taking a decision to fix minimum prices, the following appeared to be most significant: (i) the number of species to be covered, (ii) the period for which the minimum is applicable, (iii) the area for which the minimum is to be fixed, (iv) the impact of fixing a minimum price on the long-term development of the industry and (v) the administration of the minimum price.

### DID THE SUPPORT PRICE OF PADDY OPERATE EFFECTIVELY IN EASTERN MADHYA PRADESH ?

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The paper attempts to examine whether or not the farmers of two districts (one advanced and another backward in the field of agricultural development) of Madhya Pradesh could get support

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price for paddy. It also examines the adequacy of support price in relation to the cost of production of paddy on different sizes of farms. The study is based on the input-output data and marketing practices of 240 paddy farmers (120 farmers each from Raipur and Bastar districts) investigated by the Chhatisgarh Socio-Economic Research Council, Raipur. The reference year of the study is 1980-81 (*khari*). The State Government of Madhya Pradesh had announced a minimum support price and procurement price of coarse variety of paddy at Rs. 115 per quintal for the year 1980-81 (*khari*). It was found that the farm harvest prices and village market prices during the seven weeks of the immediate post-harvest period in both the districts were below the minimum support price. The empirical study reveals that excepting a few, the selected seller farmers could not get support price for their marketed paddy in both the districts. The co-operative marketing societies which were supposed to implement the price support programme, procured paddy at a lower price, particularly from the farmers of Bastar district. It is a matter of satisfaction that the cost of production of traditional and high-yielding varieties of paddy on all sizes of farms was below the support and farm harvest prices.

#### AGRICULTURAL PRICE POLICY IN MADHYA PRADESH WITH SPECIAL REFERENCE TO WHEAT AND RICE

P. K. Patankar\*

One of the main features of agricultural price policy in India since 1965 is the announcement of minimum support price and procurement price for major foodgrains by the Agricultural Prices Commission. The object of the present paper is to analyse over a period the procurement prices for wheat and rice declared by the Madhya Pradesh Government. Another object is to study the relationship between procurement and market prices. Inter-crop discrimination in administered prices in respect of these two crops has also been examined. It was observed that the procurement prices have succeeded in imparting bullishness to the state of market expectations. A small increase in the procurement price acts as a signal for a spurt in open market prices. Although the Government purchases a small portion of the marketable surplus, these operations at the margin determine the basic trend of market prices. The improper handling of procurement by the Government has resulted in a steep increase in the market price of wheat. It was also noted that a spurt in procurement prices does not have a positive influence on the production and productivity trend. Prices do affect the distribution of assets and income in a society. But in a class-structured society with highly skewed distribution of assets and income the benefits of better prices accrue to the surplus farmers and traders. The small farmers, marginal farmers and landless labourers are losers in the event of increase in market prices of foodgrains. It was also observed that inter-crop disparity existed while fixing procurement prices affecting interregional income distribution. Some of the major remedies are (i) the reduction of disparities in the assets by proper enactment, (ii) procuring of foodgrains without disturbing the market forces and (iii) marketing of agricultural produce through co-operative marketing societies.

#### PURCHASE PRICES AND ITS EFFECT ON INTER-SIZE AND INTERREGIONAL DIFFERENCES

A. G. Prasad†

The paper attempts to study 'who' and 'which region' benefit from the purchase price of paddy in the context of interregional and inter-size class differentials in the levels of development. For this study two taluks, namely, Bhimavaram taluk in West Godavari district, a highly prosperous taluk in a progressive district and Rayadurg taluk in Anantapur district, a relatively progressive taluk in a backward and drought-prone district, are selected. From each taluk five villages with probability proportional to the area under paddy and from each village ten paddy growers again with probability proportional to the number under small, medium and large size-groups are selected at random. Detailed information is collected about their land use, crop pattern, inputs and yields. The study points out that the benefits of purchase price differ interregionally and intra-regionally due to the differences either in the costs of cultivation or yield levels or both. As such, the region which benefits most is the one that is more progressive, adopts modern technology and reaps higher yields. Between different size-groups the flow of benefits go largely to the higher size-groups because of their command over and easy accessibility to resources compared to the small size farmers. Differential prices in the context of differential costs over the regions bring in more complications as it amounts to subsidising the inefficient farming systems and farmers at the expense of consumers.

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