

AGRICULTURAL PRICE POLICY IN INDIA (WITH REFERENCE TO FOODGRAINS)

M. Phil. DISSERTATION

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AGRICULTURAL PRICE POLICY IN INDIA

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A SURVEY OF LITERATURE

By

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CHAPTER I

INTRODUCTION

Relevance of Price Policy in Agriculture

Almost every country in the world today has its Government attempting to influence prices of at least some farm products. The emphasis on priorities of objectives in the agricultural price policies, however, differ in various countries depending on the level of development through which the country is passing and on the specific problems in agriculture. Depending on the demand conditions confronting the agricultural sector, the resource availability and potential in this sector, the main ingredients and instruments of price policy would vary between countries. In developed countries like Western Europe and USA, there is a deceleration of demand for agricultural commodities and consequent accumulation of surplus. Thus the role of agricultural development policy and so also that of agricultural price policy is geared towards meeting this situation by supporting the income of farmers. In developing and heavily populated countries like ours characterised by excess demand for agricultural commodities on the face of deficient supply, the role of agricultural price policy needs to be and is directed towards expansion of agricultural production. Therefore, price policy as an integral part of the overall agricultural development policy has to play a

positive role of expansion of agricultural production.

The basic need for government action in agricultural prices (in most developing economies is based on the following facts :

- a) Highly fluctuating nature of agricultural production, prices and incomes.
 - b) Low rate of return on investments in the agricultural sector.
 - c) Lack of an 'incentive price' to induce desired production levels in agriculture.
- a) Highly fluctuating nature of prices, Production and Income

Left to the open market forces of demand and supply the prices of agricultural commodities fluctuates violently and brings about a tremendous instability. This happens because of instability in production arising out of natural conditions and is further accentuated and abated by the relatively low elasticities of demand and supply of agricultural products. Faced with such violent fluctuations in prices both year to year and seasonal, farmers are reluctant to adapt the package of modern cultivation practices requiring increased investment and increased working capital. A positive price policy is supposed to reduce this element of uncertainty and to assure the farmers of a reasonable and stable level of

income through providing an incentive for production increases.

b) Low Rate of Return on Investment in Agriculture

A positive price policy can narrow if not eliminate the rates of return on investment in agricultural sector and non-agricultural sector -- which would correct the perverse allocation of capital between the two sectors and give the agricultural sector its due level of return on investment.

c) Lack of Incentive Price

A positive price policy would encourage the farmers to adopt the package of modern technology of production leading to higher productivity and income in the agricultural sector.

Thus the free market mechanism in agricultural sector fails not only to ensure the proper remuneration and incentive price to producers but is also unable to provide for a reasonable price to the consumers (both rural and urban). In such a situation it becomes imperative that a well formulated price policy forms an integral part of the overall policy of the government directed to develop the agricultural sector.

As and when such a positive price policy becomes a part of the overall growth policy it has to perform three main functions.

- i) Accelerate or decelerate the out-put of individual crops in commensurate with the product mix in the plan target.
- ii) To accelerate the aggregate output of agricultural sector.
- iii) To accelerate the marketable surplus of individual crops.

Such a positive price policy incorporating the above elements should be so designed that it encourages the farmers and gives them enough incentive to adopt the package of modern techniques of production leading to higher productivity and incomes. Increase in agricultural production brought about through adoption of cost reducing technology not only helps to increase income of farmers but also makes possible availability of agricultural produce at reasonable prices to low income urban and rural customers.

Objectives

The concrete objectives of the price policy in a developing economy can be summarised as follows :

- a) Stabilisation of farm prices and income.
- b) Increasing level of farm prices and through this to achieve the basic objective of increasing agricultural production.
- c) To protect the consumer (rural and urban) against excessive rise in agricultural prices.

Agricultural price policy is thereby faced with the prime task of solving the scissors crises of :

- a) Providing a stable and remunerative return to the producer to ensure increases in agricultural production.
- b) To safeguard the interest of low income consumers.

Limited Role of Instrument of Price Policy

From the foregoing discussion it must not be inferred that agricultural prices can all by itself step up rate of growth of agricultural production and stimulate overall economic development. The price mechanism can, however, operate effectively only when accompanied by changes and improvement in the technology, resources, agrarian reforms and organisational set up. To quote Raj Krishna "The transformation of traditional agriculture is primarily a techno-organisational episode" "Favourable price movements can speed up diffusion of innovation, the absorption of new inputs, utilisation of idel capacity and even institutional adjustment, unfavourable price movement can slow down all these processes".*

Agricultural price policy has to be then considered within the context of technical and institutional change and other policies which increase the productivity of resources. Agricultural price policy is just one though a significant instrument of various government policies and programmes geared to bring about growth in agricul-

* Raj Krishna (1967), Agricultural Price Policy & Economic Development in Southworth H.M. & Johnston B.G.(ed.), Agricultural Development & Economic Growth, Cornell University Press. p. 517.

tural production.

The experience of the developed countries whether capitalist or socialist, in their initial stages of development clearly indicates that these countries followed negative prices although through different institutional mechanism. The elements of the negative policy were (i) high delivery quota (ii) helping the prices of food-grains and raw material low for the urban industrial consumer (iii) helping prices of non-agricultural goods high (iv) high level of taxation, etc.

However in developing economies the critical minimum rate of growth required in the agricultural sector to sustain rapid development of this sector can be quite high and that a negative price policy cannot achieve and sustain the desired rate of growth. Hence the need for a positive price policy. Further this positive price policy is also required to induce the transformation of agriculture from traditional to modernised agriculture. In view of the importance of this policy in agricultural development in what follows in the subsequent chapters, we review the growing literature on various aspects of such a policy. Our review is confined to issues related to foodgrains price policy.

This dissertation is divided into five chapters. The first chapter deals with the need, objectives relevance

and goals of price policy. The second chapter with response of agricultural production and marketed surplus to prices. The third chapter on criteria for price determination, focusses on two major aspects — firstly, on cost of production as a criterion for price determination and secondly, on the debate on terms of trade between agricultural and non-agricultural sector and in context with the importance of parity criterion for price determination. The fourth chapter traces the evolution of price policy related to foodgrains and attempts evaluation of the same. The fifth chapter is a summary and conclusion of the issues raised in the earlier chapters.

CHAPTER II

RESPONSE OF PRODUCTION AND MARKETED SURPLUS TO PRICE

The role and significance of price policy in inducing and sustaining agricultural development can become meaningful and relevant only in an atmosphere of a 'normal response', (i.e. responding to an increase in price by increasing production of that crop), of agricultural production. For long it was considered that in traditional agriculture dominated by subsistence farming (like in India), the production response to prices was absent or even perverse. The general belief was that such a tradition bound agriculture did not respond favourably to price changes which were intended to induce output increases.

However, mainly since the sixties with the tremendous amount of work done on production and marketed supply response to prices, it has been observed that farmers even in developing countries characterised by traditional and subsistence agriculture do respond positively to price changes, at times the response of certain crops being almost similar to the advanced country where agriculture like the industry responds favourably to any economic incentive.

The problem of supply response in agriculture deserves special attention because unlike as in an industry where a positive response of productions to prices is taken for granted, the doubt about the positive response to agriculture,

especially in a traditional bound agriculture, arises because here production may not increase with an increase in price. This could be due to a variety of reasons, like lower degree of monetisation of farm sector, lesser use of purchased inputs, vagaries of nature against which farmer has to take precaution, yield uncertainty lack of irrigation facilities, lack of credit, etc. In subsistence agriculture the holdings are small, the main constraint for increasing production on such holding is lack of capital and so price factor alone cannot bring the entire change. Further, the institutional set-up is important for guiding the decisions of farmers, i.e. zamindars, money lenders, pre-harvest contract, all these factors determine to a large extent the level of agricultural produce.

Within this given framework it is important to see to what extent farmers do base their investment (cultivation decisions) on prices and how far prices as a policy instrument can be used ^{to} regularise agricultural production.

The problem of 'supply response' in the prevalent literature addresses itself to the following questions -

- i) Does the individual foodgrains output or acreage show a positive response to relative price changes?
- ii) Does the aggregate foodgrains production respond favourably to price changes?
- iii) Is the marketed surplus of foodgrains related positively to relative price changes?

A considerable amount of work related to the above questions has been done in the context of India which by and large establishes the fact that single crop acreage response to price is positive (contrary to the earlier belief of a negative response). The marketable surplus also seems to be directly related to price changes (excluding the case of subsistence farmers). Regarding aggregate supply response, empirical work in this field is limited and hence it becomes difficult to make a definite statement about its responsiveness, it works out to be positive for some periods and negative for others.

In the following paragraphs an attempt is made to trace the conclusion of the studies in this area in a concise manner.

Supply Response of Individual Crops

A good deal of empirical work has been undertaken in India regarding supply response of individual crops and it has been found that farmers in India respond positively to take advantage of the profitabilities of different crops in determining their allocation pattern. The studies have, by and large, restricted themselves to response of food and cash crops to changes in relative prices and kept aside consideration of input changes, productivity and technology changes. An important aspect of these studies is that they have used acreage response as a proxy for output response. The obvious limitation of using acreage as a proxy for output

in context of time series data is the neglect of growth or decline of yield per acre which inevitably takes place over a long period of time, using acreage elasticity for output elasticity therefore, has been criticised on the basis that it is an incomplete view of the elasticity since output elasticity is equal to elasticity of acreage plus elasticity of yield. This is, however, done because of lack of data on yield elasticity. It is with this basic assumption that the various studies proceed.

Apart from the initial studies by Walter Neale and Olson¹ which establishes a very low and at times a negative response the subsequent works provide ample empirical evidence to show that the single crop acreage response is of a positive nature, but is no doubt very low in case of subsistence crops.

Studies Showing an Unfavourable Response

The two initial studies of Walter Neale (1959)² and R.O. Olson's view was that a positive response does not exist in traditional agriculture. Walter Neale (1959) study states that there is evidence to show that price does not have an adjusting influence on further supplies and that it is mainly an assurance of realisation of price fifteen to twenty months after the crop is planned that drives the farmers to produce more. In support of this statement he quoted the example of sugar whose output had been increasing since 1920's though its prices had been falling.

Studies Showing A Positive Response

Most of the following studies on single crop acreage are based on the Nerlovian partial adjustment model. In brief the model states that the actual change in the value of any stock in a given period of time is a fraction of the desired change.

Adjustments in output are not perfectly smooth because of the following constraints -

- a) institutional,
- b) information lag,
- c) Weather and climatic fluctuations,
- d) other behavioural constraints.

Using this basic model with a few variations the studies have proceeded to analyse the crop response to price.

Subsequent studies have, however, provided enough basis to discard the belief long held in several quarters that peasants in poor countries do not respond positively to price increases.

Amongst the earliest studies demonstrating a positive output response is Raj Krishna's³ empirical examination of the acreage response of several crops in undivided Punjab for the pre-partition period - Raj Krishna uses a Nerlovian adjustment model postulating a fractional response to any change in the desired irrigated acreage under a crop from the actual acreage. The partial nature of the response is

presumed to be accounted for by uncertainties, risk aversion, weather, or commitments carried over the past.

The major findings of his study are as follows :

The output of American variety cotton (A) grown on irrigated land has shown a high response to the prices. The local variety cotton (cotton 1) also grown on unirrigated land has shown high price elasticity. In the case of rice the crop yield rather than price was found to be the important variable and the elasticity of acreage with respect to yield was found to vary from 0.9 in the short run to 1.7 in the long run.

As regards wheat - that grown on irrigated land was found to be responsive to the relative price but wheat grown on unirrigated land depicted an unfavourable response. Finally, in case of weather dependent crops like Bajra, Jowar, Barley and Gram the study found generally a weak or negative response. In sum, the results show that the response of output of food-grains to relative price increases is positive. The magnitude of the response, however, differs according to the gestation of the crop, the degree of dependence on weather, the conditions of irrigation (or lack of it) under which it is grown.

Raj Krishna's important study has been followed up for several other regions with further refinements in the data base and/or in the procedure of estimation. Krishna and Rao's⁴ study uses a different type of price expectation model - they regress the standard area under wheat on price index and on the weighted price index of competing crops. The price

indices are specified in a variety of ways including one period lagged annual average prices, three months average of presowing prices, three year average of presowing prices, predicted prices from linear trend in realised price, average of post-harvest and presowing prices, etc. Obviously the results differ according to the price expectation model used. The best fit is, however, obtained when the average price of all preceding years is used. This variable in itself explains about 70 per cent of the total variation in average. The coefficients reported are statistically significant and positive.

Kahlon, Johl and Divedi⁵ have estimated the relationship of the production to the one period lagged harvest price received by the farmers. The reported elasticities are shown in Table 2(i).

Table 2.1: Average Price Elasticity of Production of the Important Crops in the Punjab (1950-51, 1962-63)

Crop	Production/ Prices & Elasticity
Wheat	.9671
Maize	.2066
Rice	2.0058
Jowar	.6166
Bajra	.2975
Cotton	.2378
Sugarcane	.6420

Source : Extract from Table III of the articles, "Structure of Farm Prices in the Punjab", Kahlon, Johl & Divedi.

The highest price elasticity is observed in the case of rice and the lowest in case of maize. These results for divided Punjab corroborate to a great extent to those obtained by Raj Krishna for undivided Punjab. Here again the conclusion is clear, that is, that the output response of crops to price increases is positive and the extent of response depends on the conditions of irrigation under which crops are produced.

In another important study on single crop acreage Cummings (1950)⁶ has estimated the responsiveness of major cereals and cash crops in India in different regions with a view to detecting systematic interregional differences in price response. Cummings postulates that the desired area under cultivation of any crop is a function of the expected post-harvest price in future, the anticipated availability of water at critical times and a time trend capturing systematic changes in technology tastes and preferences. Merlòvian adjustment mechanism is built into the price expectations implicitly, postulating that the expected price for the future period will change fractionally with the discrepancy between the actual price and realised price in the past period. The major results are as follows. In case of rice, positive elasticities of supply were observed in the case of West Bengal, Andhra Pradesh and Tamil Nadu. The relatively underdeveloped regions of Himachal Pradesh, North-West Bengal showed negative elasticities. Uniformly positive response was found in the case of wheat with longer estimates

observed in case of the Punjab and Rajasthan and lower estimates in case of Maharashtra and Karnataka.

In the case of Jute, a major cereal crop, a very high positive elasticity ranging between 0.45 and 0.75 was found for almost all states and districts. Similar results were obtained in case of cotton, with the exception of Assam, Kerala and Tamil Nadu.

Finally, Dharam Narain's⁷ pioneering study has yielded two important conclusions which bring out very important features of the nature of elasticities of supply in Indian agriculture. Firstly, Dharam Narain finds that in general the price elasticities of supply for cash crops are greater than those for foodgrains. This is obviously due as much to the respective markets in which they are sold as well as conditions under which their respective varieties are produced. Secondly, he found that for small farmers (subsistence) the quantum of production is insensitive to its relative price and is instead, guided more by the certainty of production of the crop i.e. its resistance to disease, to the vagaries of rainfall and the differences in yields. Thus, it is mainly the non price factors which determine the output of foodgrains. Given these considerations, acreage response of foodgrains tends to get hampered. However, so far as cash crops goes he finds price to be the most vital and decisive consideration in production decisions.

Overall Results : The crops can be classified into

three main groups on basis of their elasticity (as estimated by the works relating to this aspect in the Indian context).

Low Response Crops : Which includes rice, wheat, maize, barley, millets, gram having elasticity in the short run in the range of 0 to 0.1, they being mainly subsistence crops. In U.K. the response was found to be .12 in shortrun and .52 in longrun for the period 1924-39.

Medium Response : In the group with elasticity ranging from 0.1 to 0.4 are crops like Rice, Wheat, Maize, Sugarcane; Rice and wheat appearing in both groups due to difference in periods studied, differences in irrigation facilities, etc.

High Response Group : Includes cotton, Jute which are basically commercial and so have the highest elasticities.

A more recent study by Subrata Ghatak and Ken Ingersent⁸ has summarised the supply elasticity of various crops, region, period and authorwise in the Indian context as shown in the following table (2.2.). The study concludes that on the basis of evidence available so far, the producer of primary products even in developing countries tends to behave rationally in general. The other variables, however, also matter like weather conditions, family size, education, irrigation, wealth income and resource endowments.

As regards the supply response in agriculture on the basis of the studies conducted one can conclude that this response is positive though low in the Indian case, and, therefore, the price as an instrument of inducing production increases does have some relevance and significance.

Table 2.2 : Supply Elasticities by Crop and Region

Crop	Region	Period	Author	Shortrun Elasti- city	Longrun Elasti- city
(1)	(2)	(3)	(4)	(5)	(6)
Rice	Punjab	1914-46	Raj Krishna	+0.31	+0.59
	"	1960-69	Kaul and Siddhu	+ .19 to .24	+ .64 to .68
	"	1955-66	Askan and Cummings	+ .18	+ .42
	U.P.	1953-63	Novshir- vani	-	- .11 to + .27
	Orissa	1938-51	NCAER	+ .05	
	Madras	1946-67	Cummings	+ .08	+ .08
	Assam	1950-67	"	+0.07	+ .07
	Mahara- shtra	1955-67	"	- .12	- .14
	India	1938-57	NCAER	+ .22	
	Wheat	Gujarat	1954-67	Cummings	+ .93
Mahara- shtra		1955-67	"	+ .24	+ .33
Punjab		1914-46	Raj Krishna	+ .08	+ .14
"		1950-67	Cummings	+ .10	+ .13
Haryana		1950-70	Singh	+ .60	
Himachal Pradesh		1953-66	Askari Cummings	+ .04	+ .04
U.P.		1950-62	Rao and Krishna	+ .03 to .21	+ .096 .64
Jowar		Punjab	1914-46	Raj Krishna	-
	Mahara- shtra	1938-57	NCAER	+ .50	-

Table 2.21, contd.

(1)	(2)	(3)	(4)	(5)	(6)
Jowar	Madhya Pradesh	1951-64	Kaul	- .04	- .06
Bajra	Punjab	1914-46	Raj Krishna	+ .09	+ .36
	"	1951-64	Kaul	- .05	-0.06
	"	1950-70	S.S. Rai	P05	-
	Madhya Pradesh	1951-64	Kaul	- .08	-0.16

Source : Subrate Ghatak & Ken Ingersent, "Agriculture & Economic Development". Select Book Service Syndicate, New Delhi.

Aggregate Supply Response

The response of aggregate production in agriculture to changes in terms of trade between agricultural sector or to changes in relative agricultural prices have been so far subject to least amount of testing. Lack of enough empirical testing of this response is regrettable because to this extent the role of prices in motivating farmers to step up production becomes limited. The degree of response of aggregate production can as a matter of common sense be taken to be lower than that of individual crops, since the former involves widening the entire resource base of agricultural sector whereas the latter is just a matter of inter-crop substitutability and readjustment of resources available to different crops. The positive response under different crops has been especially tested to some extent in the case of India

(as has been already seen) contrary to the old belief of a negative supply response. The same cannot unfortunately be said about aggregate response confidently, on which work done is limited and cannot provide a basis for strong conclusions. The aggregate supply response is a much more complex aspect and involves a broader and more difficult question of increasing agricultural production in general.

A positive aggregate response to price changes becomes significant specially in a country like India where the need is to step up total agricultural production in general. If the above response is strong it would support the basis of price policy as an instrument in enhancing and encouraging the producers to produce more in view of the growing demand of agricultural as well as non-agricultural sector at large.

A few scattered studies in this direction, however, deserve mention, which gives some idea as to how far the aggregate production in agriculture responds to relative price changes between the sectors.

Robert Herdt (1970)⁹ : This work is a notable attempt towards presenting a model estimating the aggregate supply response. He has adopted a disaggregated approach to study the aggregate supply response to test the hypothesis that "aggregate supply function of traditional agriculture is positively responsive to price".

Using an elaborate model, Herdt arrives at estimates of aggregate supply for Punjab, for two time periods 1907-46 and 1951-64, the earlier period showing a rather positive

aggregate response though small. He uses a distributed lag model to estimate the supply response of various agricultural commodities. In his study the supply of a crop the proxy for which is the acreage devoted to the crop has been regressed on the expected prices of several commodities. His study has considered wheat, cotton, rapeseed, maize and has been conducted for various districts of Punjab.

He also introduced a weather variable as a systematic disturbance term to account for the gaps, negative or positive between the intended output coverage and the actual output. Finally, technological progress was introduced in form of a trend variable. The regression results pertain to 12 districts of Punjab over the time period for the period 1907 to 1946 and 1951-64.

His conclusion is that between the two periods, elasticity of the period 1907 to 46 is positive though small, however, the results for period 1951-64 do not support the above hypothesis. The elasticity was thus higher (in range of .1 to .2) in the unchanging traditional agriculture, nothing definite can, however, be said about the later period where output changes occur without changes in agricultural prices relative to non-agricultural sector. Even though this study gives an idea of supply elasticity, it fails to provide a definite idea of the nature of response in case of a dynamic situation in agriculture, for this more work is needed. The aggregate supply response in agriculture in case of India does not provide a very encouraging picture.

Shashikala Sawant¹⁰ is one of the very few studies which focusses attention on the aggregate supply response in agriculture and hence is of great significance in discussion of such a response in case of India. The study reveals an almost inelastic nature of aggregate supply to changes in prices both in the short as well as in the long run. The study has been carried out for 10 districts which are predominantly rice growing areas. (atmost 70 per cent under this crop). The reason for taking one crop dominated areas is to reduce the possibility of substitution of inputs and land to different crops corresponding to changes in prices to the minimum. Using basically the Nerlovian partial adjustment model where technological and institutional constraints operating in traditional agriculture do not permit immediate price adjustment of supply response to prices, price lagging by one year being equal to farmers expected price, the estimates of elasticity has been carried out. A main feature of this study is that it takes into account both the acreage and yield response to price changes unlike other studies which accepted acreage response alone as proxy for production.response. The study has been carried out for 16 districts/predominantly rice growing areas, for the period 1920-21 to 1941-42, 1950-51 to 1964. The supply relations have been estimated by least square method (linear in log and hence regression co-efficient directly provides the corresponding elasticity) weather irrigation and technology are taken as variables in the model and used to get a proper estimate of supply with respect to price, since above factors have a crucial impact on production.

An estimate of short run elasticity and its comparison between the two periods is given in the following table 2.3, 2.4.

Table 2.3 : Short run Production Response in the Two Periods (Means of Estimates of Production Elasticities.

Districts		Post war		Post war
Madras	0.032	-0.337	0.0	-0.241
West Bengal	-0.305	0.428	-0.305	0.328
Maharashtra	0.0	0.194	0.0	0.194
Assam	0.146	0.120	0.047	0.107

Table: (2.4) Comparison of Estimates of Shortrun Production Elasticity Between Two Periods

Districts (1)	Shortrun Production Elasticity For	
	1920-21 to 1941-42 (2)	1950-51 to 1964-65 (3)
Chingleput	1.126*	-0.244
Tanjor	0.247	0.058
W.Godavari	-0.046	-0.963
S. Kanua	-0.114	-0.384*
Bankura	-0.540**	0.404*
Burdwas	-0.088	0.218
Midnapore	-0.138	0.210***
Pargana	-0.678**	0.101*

..(contd.)

1	2	3
Bhandara	-	0.077
Kolaba	0.023	0.290
Ratnagiri	-	0.045
Thane	0.063	+0.730
Gaehar	0.396*	-0.275
Goalpara	0.203	0.420
Kanrup	0.186	0.158
Sibsagar	0.132	0.053*

*** Significant 1% level

* 10% level.

** Significant at 5% level

* 20% level.

Source : Supply behaviour in agriculture Shashikala
Sawant, Himalaya Publishing House, New Delhi.

As is quite clear from the tables, for the earlier period supply elasticities are almost zero mainly because of the following reasons traditional nature of agriculture where technology was not advanced, purchased inputs formed only a negligible part of input bulk being provided by the family, improved seeds fertilisers, etc., were all unfamiliar to the farmer. The meagre response to prices could only be through change in human labour and bullocks, land being almost invariant in short run.

In the later period 1950-51 to 1964-65 the response has improved slightly and become more favourable, this could be

attributed to changes in agricultural technology in the later period and because of the incentives this sector received during the three five year plans whereby there was substantial investment in irrigation extension programmes, production of chemical fertilisers, better seeds, motivation for increased cash earnings.

However, the response is still not as desired and remains low. Out of the 10 districts only about 7 show a positive supply response. For 2 it is negative and for the rest it is zero. Only Madnapur and Thana show substantial positive response between 0.404 to 1.210.

Difference in elasticity between regions is because of different economic characteristics of the regions e.g. irrigation facilities, literacy state, access to technology. Further, those regions situated near urban areas (Madnapur, Thana, Madras) show a higher response which emphasis the importance of a well developed market. Further smaller holding prove a restraint to elasticity.

For elasticity to increase resource should be expanded, rapid urbanisation is necessary, improvements in technology, education, etc., is necessary.

All these factors emphasises the importance of a well developed technological and institutional structure of agriculture in absence of which price changes cannot have a significant role to play, (with these factors not being favourable price changes will not go a long way in 'bringing about the production increases. The problem then is to

bring about overall development in field of agriculture ~~and~~ thereby enhance the role of price policy in bringing about production increases. Another significant study conducted by Bafna¹¹ systematically analyses available facts regarding response of aggregate agricultural production and comes to the conclusion that aggregate supply elasticity is positive though not as large as in the case of individual crops. The study is conducted for Ajmer district for the period between 1956-57 to 1966-67.

According to Raj Krishna¹², while estimating and deriving conclusions about aggregate response to price changes certain aspects should be considered.

This problem is meaningful for only open regions which enjoy the critical minimum degree of transport development and have achieved adequate commercialisation and monetisation, in the absence of which there is no point in getting unnecessarily let up about aggregate supply response being low since it becomes almost meaningless.

Next in sparsely populated countries with arable land available, need for or pressure of demand for commercial crops has enhanced the production response, which has been emphasised as evidence of the peasant capacity to respond positively to economic incentives. This aspect can not be ignored.

Densely populated areas with resource inelasticity (specially so in case of land), responsiveness of aggregate output cannot be taken to judge from area or average changes,

it depends more on potential for increasing productivity per acre (with improved technology and methods of cultivation).

Thus, these considerations should be made while analysing data on aggregate response.

The discussion on the single crop acreage response and aggregate response reveal that price can have a significant role to play so far as resource allocation between crops is concerned, its role is, however, limited in contributing to growth of agricultural production as such for which technological changes, modernisation of agriculture are necessary on a bigger footing.

Favourable prices can, however, enhance such transformation and provide an incentive to bring about increases in production.

The studies also reveal the risk averse nature of farmers in making decisions regarding production, greater the variances in expected prices and yields more unfavourable is the decision regarding production.

Thus, price policy unlike what was the earlier belief does have a significant role in allocating resources among different crops and a complementary role in enhancing production (aggregate). To this extent a well formulated price policy will be effective in bringing about the desired increases.

Marketable Surplus Response

The problem of estimating marketed supply response to price changes or elasticity of marketed surplus arises only

in case of crops, a major part of which is retained by producers for self consumption. In case of cash crops wholly marketed, the elasticity of marketed surplus of total output can be regarded as approximately equal to elasticity of marketable surplus. The marketable surplus is therefore dependent upon the money income which the farmer desires to get in order to buy other consumption commodities and financial assets. The importance of the estimate of the response of marketable surplus arises since in context of a favourable response of marketable surplus to price, the arrival of crops can be regulated according to the needs of the population and the price policy instrument can be used to maintain an adequate flow of surplus.

The Indian debate on this response has addressed itself to two broad questions -

- i) What is the effect of a price change on the marketable surplus?
- ii) What is the relation between size of holding and marketable surplus?

The question of marketable surplus becomes important for supplying wage goods to the non-agricultural sector as well as for providing public distribution in urban areas.

The following gives in brief the conclusions relating to the marketable surplus response in India.

As regards the work on marketable surplus at the micro level a number of studies have been conducted, unfortunately the same cannot be said about the relation between marketable

surplus and relative prices at the macro level, making it difficult to draw a strong conclusion on an aggregate basis.

Studies by Khusro, Khatkhate and Mathur & Ezeikel are mainly done on a theoretical plane, whereas Raj Krishna, Krishnan, Dharam Narain, Patnaik and a few others have attempted the problem on an empirical basis.

To begin with Khusro¹³ on the basis of his analysis reaches a result that farmers will retain more and market less out of a given output if the market price is lowered, that is elasticity of marketable surplus is positive. Khusro has aimed at establishing a normal response whereby the negative elasticity of marketable surplus with respect to price is ruled out. Khusro on the basis of this analysis reaches a result that farmers will retain more and market price is lowered i.e. elasticity of marketable surplus is positive. Khusro has aimed at establishing a normal response whereby the negative elasticity of marketable surplus with respect to price is ruled out. Khusro on the basis of his analysis made a case for positive elasticity of marketable surplus, empirical evidence was, however, not provided in support of his argument.

Khatkhate¹⁴, on the other hand, has argued for exactly the opposite proposition that small farmers in India increases his marketable surplus when prices fall in order to 'maintain the same level of money income' which is on the lines of Mathur & Ezeikiels analysis. The argument runs as follows in developing countries like India dominated by

a large subsistence sector, production is barely adequate to meet the needs of the farmer, yet he has to market a part of his produce in order to meet such obligations like rent services, debt and for buying basic non-agricultural goods. This he refers to as 'stinted consumption paradox'. The conclusion is that in such an economy marketed surplus has a negative response to price changes but this response is positive for large farmers. If price increases, more is retained for self consumption and a smaller output can meet the cash requirements, on the other hand, when prices fall more would have to be sold to maintain cash incomes, at same level. Again this study has been carried on a theoretical basis.

Mathur & Ezekiels¹⁵ argument is that for subsistence farmers having an inelastic demand for cash if prices rise the sale of a smaller amount of foodgrains provides the necessary cash and vice-versa. Thus, prices and marketable surplus tend to move in opposite directions thus indicating a negative price elasticity of marketable surplus. The argument is on the earlier lines is given an almost fixed cash requirement position of farmers, when price increases, sale of smaller output fulfils cash requirement, the opposite holds true in case of falling prices. Thus, prices and marketable surplus tend to move in opposite directions. The factual basis of this proposition results from the investigation in the Akola and Amravati districts in Maharashtra during 1955-56 and 1956-57, where it was found that

when prices increased by about 33 per cent during two years, sales decreased by 7.5 per cent. This was inspite of the fact that total production has increased by about 38 per cent. They, however, recognise the fact that even in an under-developed economy a section of cultivators have normal responses to changes in prices of foodgrains. Dandekar¹⁶ has critically examined Mathur & Ezekiel argument using the data presented in their study and has questioned the validity of their conclusions.

Dandekar examining the Mathur Ezekiel argument stated that though they have realised that the negative price elasticity of marketable surplus would not apply in case of a section of farmers whose standard of living is high enough (they would react normally to such price changes) what they have failed to see is that this section accounts for a large acreage under production and that their share in marketed quantity of foodgrains is even larger and thus to postulate a negative market supply elasticity for India is not valid. Therefore, whilst subsistence farmers will be numerous in number their share of total produce and of total marketable surplus will usually be much less since distribution of land in India is highly shared. Those farmers owning larger farms will, therefore, have a larger share in output. In the case of these farmers, there is no basis to preserve a perverse supply response. In sum it will be plausible on a prior as well as empirical grounds to assume that the marketable surplus response to

relative increases will be positive. T.N.Krishnan's¹⁷ work, however, on elasticity of marketable surplus reveals that elasticity of marketable surplus was estimated to be 0.3030 for period 1959-60 to 1962-63. Thus a case for inverse relationship was found to hold supporting Mathur & Ezekiel's finding. In yet another study by Raj Krishna¹⁸ the output elasticity of marketable supply of wheat was found to be positive. Regarding the other aspect i.e. relation between size of holding and marketable surplus, Dharam Narain's¹⁹ basic finding is that marketed proportion of output declined from 33 per cent for 0-6 acres size group to 20 per cent for medium group increased to 50 per cent of large farmers.

Patnaik's²⁰ study shows for the period 1960-61 marketed proportion increased with increase in farm size as shown in Table 2.5..

Table 2.5 : Agricultural Output and Marketable Surplus by size of holding for 1960-61

Size Group of holding	Value of Output	Value of Marketable Surplus	Proportion of Output Marketed
Less than 2 hect.	25.2	16.3	23.0
2-4 ha.	22.7	17	26.6
4-10 ha.	27.1	27.1	35.3
More than 10 ha.	25.0	39.6	56.6
All sizes	100	100	35.5

Utsa
Source : Patnaik/1975, "Contribution to the Output and Marketable Surplus of Agricultural Products by Cultivating Groups, 1960-61, EPW, Vol.10, No.52, December 27.

There have been no all India level studies for the recent period (after 1960-61) but several micro level studies suggest that in general proportion of marketable surplus increases with size of holdings. This finding is important for price policy purposes - which suggests that an increase in farm prices will confer disproportionate benefits more on large farmers and those who purchase substantial quantity of grains for self consumption (not buyers) undergo loss in their incomes as analysed by Subbarao.²¹

The all India level study by Patnaik²² reveals that for 1960-61 the share of marketable surplus of small holdings, (10 acres) accounting for 82 per cent of holdings and 75 per cent of cultivating population, is much lower than that of medium and large holding above 10 acres, roughly 18 per cent (medium and large farmers) account for 61.2 per cent of operated area, generate over half of the agricultural output and account for two-thirds of the marketable surplus.

Therefore, while studying the relevance of price policy in attracting greater marketable surplus one has to bear in mind the beneficiaries (large farmers) and the losers (the small farmers) who are net consumers of food-grains - given the highly skewed pattern of holdings.

As regards the relationship of output to marketable surplus some studies²³ have shown a positive relationship between output and marketed surplus. Any increases in

output will bring about a change in the same direction for marketed surplus. Some studies (e.g. M.V.Nadkarni) indicates that the output elasticity of marketed surplus is greater than unity. This holds true for millets in rainfed zone as shown in Nadkarni's study. What this implies, if output increases, marketed supply may be expected to increase more than proportionately with output and if output falls marketed surplus will fall more than proportionately which justifies ~~the~~ the government action in building up strong public distribution system and buffer stock programmes. Therefore, the behaviour of marketable surplus has been put on test by a number of economists and the conclusion seems to be that for many regions the marketed surplus schedule for food-grains seem to be positively related to prices (large farmers), the same, however, cannot be said in relation to subsistence farmers. Another point which has implications for the price policy is the unequal distribution of marketable surplus and its benefits or otherwise to different classes. Empirical evidence, however, cannot be considered reliable to apply the above conclusion to all crops and all regions; wheat has shown a positive response. At the all India level empirical evidence on positive responsiveness seems to be inconclusive. The hopeful trend in the direction of marketable surplus/and its relation to price, however, is that the volume of marketable surplus has been growing, specially after introduction of the high yielding variety seeds (from 2.9 per cent during 1950-51 to 1965-66 to 5 per cent), during 1965-66 to 1972-73), indicating the growing importance of prices policy in the years to come.

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CHAPTER III

CRITERIA FOR PRICE DETERMINATION

Having established the fact that supply response in agriculture in India though low is positive, the role of price policy as an instrument of attaining agricultural growth then becomes defined in clearer terms. This chapter examines the various criteria which have been suggested/ followed while actually fixing the level of support/procurement prices.

The choice of norms for determining the level of support prices depends to a large extent on the objectives of price policy. In developed countries where the basic objective of price policy is to sustain farm incomes at a particular level or maintain some degree of parity between farm and non-farm sectors, the parity formula for price determination is generally used. In a developing economy like India the main objective is to induce rapid increases in production by stabilising the violent fluctuations in agricultural prices. In such circumstances then the criterion for price determination would obviously be different. It would have to firstly assure the farmer of an insurance against sharp fall in prices and at the same time provide a positive remuneration to the farmer. Such price guarantees could induce the farmers to adopt a package cultivation with improved inputs and practices. The determination of prices

by the price fixing authority then becomes of crucial importance since it would have implications for agricultural production, incomes and thereby the level of agricultural development. In this context it will be useful to discuss the various criteria available to the price fixing authorities corresponding to the important roles prices have to perform.

- 1) Related to the income stabilisation role of prices is the most basic cost of production criterion which very briefly requires that any price fixed must at least cover the cost of production of the farmer so as to enable continuous production and ensure a stable and certain flow of income.
- 2) Corresponding to the second important function of prices i.e. the allocative role of prices is the Inter-Crop parity criterion. This requires that the prices fixed must be such that they do not lead to any misallocation of resources among various competing crops. In other words the relative price structure should not be "artificially" disturbed. A related criteria arising out of this function is the market price criterion, which requires that regulated prices must keep in line with market prices so that the production pattern conforms to the market demands.

- 3) Corresponding to the objective of maintaining inter-sectoral equity is the Parity Criterion which seeks to maintain the terms of trade between the agricultural and non-agricultural sectors.

Related to these fundamental criteria there are a host of several subsidiary criteria.

The problem of finding an appropriate basis for price fixation has been the concern of the Agricultural Prices Commission (APC) and the Government of India since as early as 1940's. There have been a number of committees established for this purpose, like the Prices Sub Committee (1945), the Foodgrains Prices Committee (1964), the APC, presently named as the ACPC i.e. Agricultural Costs and Prices Commission.

In spite of these attempts of the government at finding a solution to the problem of price determination, there continues to be a general dissatisfaction about the price policy. The problem in price determination arises on two counts. Firstly no criterion of price fixation has general applicability in the face of alarming degree of diversity between regions, crops, market conditions, and even individual farmers. Secondly, the agricultural price policy even though it is a single instrument of policy is burdened with too many objectives which no single criterion of price determination can ever hope to fulfil. Within these limitations the following paragraphs analyses the major criteria available to the price fixing authority.

- 1) The Market Price Criterion : This criterion links the

support price to a moving average of market prices prevailing in the recent past. Such a price is generally fixed in the range of 80-100% of the average market price ruling in the recent past. A clear advantage of this criterion as stated by Venkatraman¹ is that it reflects both the demand and supply situation unlike the cost of production criteria which concentrates only on the supply side and neglects the changes in demand. This criterion, however, has been subject to much criticism since basing regulated prices on market demand and supply would under inflationary conditions mean keeping the prices at unduly high levels. Further, according to Rajbans Kaur², this basis for fixing procurement prices would mean subjecting the prices to a great deal of fluctuations. Even the APC was not in favour of the market price criterion of price fixation since it would mean a continuous increase in prices and thereby a larger financial burden for the government. This view has also been supported by Kahlen and Tyagi³. However, some consideration of this criterion as suggested by both L.S. Venkatraman⁴ and Raj Krishna⁵ should be given while fixing prices. Venkatraman's suggestion is that the support price should be in the range of 50-100% of ruling market price in recent years which automatically would reflect the demand situation. According to Raj Krishna the administered prices should be changed along with changes in the market price. He suggests the rule that whenever market price increase by 1/2 percent the regulated price should be increased by 1/2 to 2/3 percent. The APC, therefore, does

have as one of its points of reference the market price criterion in order to ensure that prices do not divert too much from the open market situation.

2) The Inter-crop Parity Criterion : This criterion states that the support prices for different crops should be such as to avoid misallocation of resources among different competing crops, by following the line of the market price ratios. It is, therefore, important that changes in support prices are in accordance with the desired changes in price ratios between competing crops to preclude undesirable substitution between crops from taking place. The importance of this criterion has been emphasised by a number of economists as being essential for bringing about a balanced growth of different enterprises. Further, again according to Kahlon and Tyagi⁶, it is required for ensuring a rational utilisation of land and other productive resources by (a) encouraging improved methods of cultivation (b) avoiding excess production (c) securing most efficient pattern of production between regions. The basic pitfall, however, according to them of relying on this criterion is that in times when some commodities suffer a set back the whole pattern of crops would suffer - which is not justified.

However, the fact still remains that this criterion should be referred to in order to avoid excess demand and excess supply situation as stated by Venkatraman⁷.

One thing must be kept in mind, that is prices determined

on the basis of intercrop parity would become operative in affecting allocation of resources only when the market prices fall below it. It is within these limits that this criterion can be used to maintain a proper relationship between different crops so as not to bring about an unbalanced growth in the production of various crops.

Input-Output Criterion : This criterion states that the prices of agricultural output must be linked with movements in the input prices. This is, however, taken into consideration by the APC as a matter of course. This data is provided by the comprehensive scheme for studying cost of cultivation/production of various crops. For example, the rice input index in Andhra Pradesh increased from 100 in 1975-76 to 104.9 in 1979-80. The support price for paddy was then raised from Rs. 74 in 1975-76 to Rs. 95 in 1979-80.⁸

Having given a brief analysis of the above two criteria, the remaining part of the chapter proceeds to discuss in greater detail the other two very significant basis for price determination, i.e.

- 1) cost of cultivation criterion
- 2) the parity criterion.

With the recent farmers agitations and debates regarding the 'Farm Price' problem - price determination no longer remains a "Scientific matter" to be decided purely on the basis of cost of production, but it has to go further and see that any criterion adopted for fixing administered prices must ensure a fair terms of trade between the two major

sectors i.e. Agriculture/Non-agricultural; Rural/Urban or Bharat Vs. India, to use the latest terminology. In view of this the following analysis is made of the two criteria mentioned earlier.

Cost of Production Criterion

The principle of basing prices on cost of production follows from the basic relation between costs and prices i.e. any price should at the minimum cover costs of production, if the production activity is to continue. This principle also holds true for any regulated price. In India as early as in 1945-46 the prices sub-committee advocated that a fair price for agricultural produce should cover the costs of production on representative holdings including payment of fair wages to the agricultural labourers and leave the producer income sufficient to maintain himself and his family at a standard of life equivalent to that enjoyed by other comparable classes of population. Thereafter the APC also followed the same guidelines. It is, therefore, natural that prices fixed by the government should at least be fixed at a level to cover the farmers' cost of producing the commodity.

However, when the Price Advisory Board actually gets down to adopting the cost of production criterion, it is faced with a number of conceptual, practical difficulties in successfully determining the prices accurately on the basis of the cost of production. It is, however, agreed that the cost of production criterion is one of the most appropriate

and scientific basis for price fixation.

The major issues which unfortunately mars the possibility of adopting the cost of production as a clearcut criterion are as follows : (These have at various times been discussed, analysed and put forward by a number of economists)*

a) Given the differences in cost of production between farmers and regions, the first basic problem arises as to whose costs should be taken in fixing the regulated prices. It is a well known fact that a lot of variation exists both within and between regions. The major variables like size of holdings, quantity of soil, technology, investment cropping pattern which affect cost of production are not likely to be uniform over different farms thus leading to differences in costs of production. In a recent study by Subbarao⁹ - the problem of adopting cost of cultivation as a basis for price fixation has been analysed in terms of regional variation in costs of production. According to the APC report for Kharif cereals 1980, cost per quintal of paddy varied from Rs. 64.5 in Punjab, to Rs. 88 in (Southern States, Orissa and West Bengal). Therefore, the conclusion is that adoption of a price covering cost of production in high cost states would result in abnormal profits for farmers of the

* Mr. Dantwala "Agricultural Price Policy", The Economic Times, February 7, 1981; Nilkantha Rath "An Fixation of Price in Agriculture on Basis of Cost of Production", Artha Vijnana, Vol.7, No.4, December 1985.

states who have adopted the new HYV seeds, fertilisers and technology. Therefore, the question is whether it is advisable and practical to use differential administered prices for regions differing significantly in respect of cost of production.

The above is revealed in the following tables 3.1, 3.2 and 3.3.

Table 3.1 : Inter-State Differences in Cost of Production of Wheat

	(Rupees/Quintal)					
	Bihar	Madhya Pradesh	Rajas- than	Punjab	Haryana	Support Price
1975-76	92.84	91.85	84.97	99.45	83.65	105.00
1976-77	103.66	-	-	101.39	114.07	110.00
1977-78	-	87.11	-	108.57	104.01	112.50
1978-79	93.13	-	-	101.45	114.00	115.00
1979-80	-	-	-	102.76	-	117.00
1980-81	-	-	-	-	-	130.00
1981-82	-	-	-	-	-	142.00

Table 3.2 : Inter-State Differences in Free Market Prices of Paddy

(Rupees/Quintal)						
Year	Andhra Pradesh	Tamil Nadu	West Bengal	Punjab	Haryana	Support Price
1975-76	86.27	98.53	110.95	75.73	83.70	74
1976-77	92.62	93.27	105.55	95.18	79.83	74
1977-78	90.04	89.51	97.81	97.64	86.08	77
1978-79	84.79	-	96.17	85.65	86.00	85
1979-80	97.29	94.00	-	94.93	92.00	95
1980-81	113.80	-	126.93	105.07	111.00	105
1981-82	125.01	-	131.76	-	107.00	115
1982-83	135.98	133.56	163.71	-	-	-

Table 3.3 : Inter-State Differences in the Cost of Production of Paddy

(Rupees/Quintal)					
Year	Andhra Pradesh	Tamil Nadu	Punjab	West Bengal	Support Price
1975-76	78.98	64.47	-	79.63	74
1976-77	86.97	90.79	85.31	85.31	74
1977-78	87.09	81.57	-	70.93	77
1978-79	88.36	81.74	68.71	96.36	85
1979-80	93.12	92.24	-	-	95
1980-81	-	-	-	-	105
1981-82	-	-	-	-	115

Source: Subbarao "Farm prices : A Survey of the Debate" Indian Agricultural Development since Independence (ed.), M.L. Dantwala & Others, 1986, Indian Society of Agricultural Economics.

Between the farmers themselves also there is a lot of variance in cost of production. So that choosing the most efficient producers' cost would mean huge losses for the inefficient farmers. The point is whose cost should then form the basis for price fixation. There are two alternatives open to the APC (i) the average cost (ii) the bulk-line cost approach.

One long standing suggestion by Kahlon and Tyagi¹⁰ is to use the overall average cost in price fixation justified on the rationale that it would induce farmers to improve efficiency and would avoid production in an inefficient manner. The Commission is generally of the view that procurement price should generally cover the cost of production and provide a profit margin to the farmer. However, even this concept is not quite perfect and has been termed as meaningless on the grounds that it does not cover the cost of production of majority of farmers nor that of the land under cultivation nor a major part of the total produce. As has been revealed by an early study of the APC, the majority of farmers get left out from cost calculation by using the average cost concept. (In one case the average cost did not cover the cost of even 37% of production, 44% of farmers and 38% of area under cultivation).

An alternative approach i.e. the Bulk Line Cost is advocated.* This concept states that cost of production on

* Used in the U.S.A. in the 20's in India during the last two decades.

the 'representative farm' must be adopted. Representative farm being one which reflects cost of production of bulk of farmers and covers the largest number of farms. Therefore, the price should be fixed at such a level so as to cover the unit cost of production of bulk of the output - the bulk line placed at 85% (as an arbitrary cut off point). This approach, however, has the basic shortcoming i.e. it is arbitrary and would also leave out 15% to 20% of the farmers. The bulk line cost approach is in a sense the marginal cost of producing the 85th unit of output and it is the nearest real world) approximation to the concept of marginal cost.

By and large the APC, given the drawbacks of both the approaches tries as best to cover cost of bulk of the produce through its level of prices fixed. It tries to fix a price which would cover the average cost of bulk of the farmers, even though it is aware that it is very difficult to satisfy all.

Another suggestion which has come up in the discussion on cost of production is that in India where the prime objective of price policy is to induce increases in production, the cost of cultivation with improved technology should be considered of more relevance. Raj Krishna¹¹, however, favours the use of traditional costs on the grounds that any price which would meet such costs would automatically cover cost with improved technology, improve-

ments being generally of a cost reducing nature.

The APC then largely tries to cover the cost of production of the bulk of production within the given limitations - both the average cost and bulk line approach alone fails to account for inter and intra regional differences in costs of production.

The second important issue relates to which cost concept should be relevant for price fixation given the various costs by the Farm Management Studies.

- Cost A₁ = A₁ = Hired human labour + farm and hired
(Paid out cost) bullock labour and seed and manures.
cost) irrigation charges, if any, and depreciation of agricultural implements and farms, buildings and interest on farm loans and all other miscellaneous charges involved in production.
- Cost A₂ = Cost A₁ + rent paid on leased in and owned land.
- Cost B = Cost A₁ or Cost A₂ (as the case may be) + interest on capital investment in agricultural (including owned and self cultivated land).
- Cost C = Cost B + imputed value of human labour provided by farming family. This is the real cost of product.

Differences in calculations arise by using these different concepts of costs as shown in the following Table 3.4.

Table 3.4 : Table showing cost A₁, A₂, B and C per release of wheat for Ferozepur District, Punjab.

Expenditure per Hectare on cost basis	Below 6.9 Hect.	6.9 Hect. 558.67	9-14 Hect.	14-24 Hect.	24 and above
A ₁	666.22	569.69	579.18	656.71	643.37
A ₂	812.00	994.30	608.99	685.23	643.37
B	1170.75	1212.53	1004.79	1107.27	1094.97
C	1357.32	-	1201.63	1206.81	1178.22

Source : Studies in Economics of Farm Managers in Ferozepur District (Punjab) 3 years consolidated report (1967-69 to 1969-70) Directorate of Economics and Statistics Ministry of Agriculture.

The argument in support of using cost 'A' as the basis for price formation is that in developing countries like India, with resource characteristics as they are, the farmers are interested in covering the actual expenses that are made and not so much in careful and efficient uses of the resources supplied by the farm family, particularly that of family labour.

Presently, however, it is an accepted fact that it is cost 'C' which would give the actual cost (i.e. cost C = all costs of production + imputed value of family labour) and therefore it should be used. The problem, however, arises as regards imputation of family labour and also the imputed rental value of other land. The first difficulty pertains to the estimation of the extent of the use of family labour

on farms and the second to the estimation of the wage rate that must be imputed to such labour. The first problem involves practical rather than conceptual difficulties and can in principle be solved by surveying carefully the number of members of the family who draw their substance exclusively from the farm and the duration for which the others work on the farm. These results can be used for the computation of the average family labour input.

The second problem viz., that of the appropriate imputed wage contains conceptual difficulties as well clearly the wage rate imputed must reflect the opportunity cost of the family labour i.e. the remuneration that the family labour would have obtained in the best possible alternative employment. Unfortunately the value of this remuneration is difficult to assess. As a result multiple bases can be proposed which to varying extents approximate the concept of opportunity cost. The APC, for example, considers the wages of the attached farm labour as appropriate. It has been suggested that the minimum wage as prescribed under the minimum wages act is more appropriate. (This basis, however, has application to only those states which have enacted such legislation).

Though it is agreed that imputed value of family labour depicts the real cost, most of the farm studies in India during the last three decades have shown that a significant proportion of farmers (particularly small and medium) were incurring losses¹²

Another factor which creates a problem in cost calculations is the imputation of the rental value of owned land in the costs of production. The major difficulties which arise as regards valuation of owned land and cost calculations related to land have been summarised by N.Rath.¹³

The main problem as regards valuation of owned land is that it is not very easy to attach value to such land simply because very low actual sales and transactions takes place. Apart from this a major portion of high value of land is because of the sense of security and prestige attached to land. Therefore, just using the market rate for valuation purposes* would only lead to an endless expansionary inflationary process with price of produce being high because rent is high and rent being high again because value of crop is high which goes contradictory to the traditional economic logic of "Rent is price determined and not price determining."

This, therefore, remains a debatable point. Besides the above main problem arising in valuation of land there are the other difficulties like :

- a) the problem of apportionment of any common cost since agricultural activity is also a multi-product enterprise.
- b) allocation of costs when mixed ^{crops} are produced.

The valuation of owned land and the other related problems of allocation of costs, etc. leave enough room for

* Advocated by the farmers spokesmen.

disputes for which no satisfactory empirical solution is easy to evolve.

Subbarao's¹⁴ recent article has highlighted the main "disputed costing" procedures adopted by APC.*

- 1) Minimum wages should be used for valuation of imputed family labour since it is the minimum living wage prescribed.
- 2) The present practice is to exclude the non-institutional interest rates; given the dominance of this source of finance a weighted average of these two sources i.e. institutionals non-institutional sources should be used.
- 3) Another important issue relates to imputation of rental value of owned land on basis of market value of land. However, this would only further inflate the costs.
- 4) The prevailing cost computations do not include an allowance for risk and uncertainty. As regards this factor it does not hold ground because there are already schemes to cover yield risks, and as regards price/income risks, a guarantee price is automatically expected to cover such risks. Besides, while estimating cost of production an average production of the last 3 years is taken into

* Which have been discussed earlier in detail.

consideration which is expected to dampen the effect of good or bad years in terms of natural conditions.

- 5) Transport costs - As regards inclusion of this in the costs, the special committee appointed for reviewing this matter considered it not necessary since it is a distribution cost. Some economists (Kahlon & Tyagi) feel it should be included given the fact that agricultural produce is sold at common assembly points. The other point of view is that the purchase is supposed to take place in the respective villages by the public agencies leaving no scope for significant differences in transport costs, the reality, however, is quite different.

Within the given limitations, the cost of production criteria seems quite satisfactory. One operational problem still remains that is regarding the time lag between announcing the prices and arrival of cost data.

This information is made available to the price fixing agency with almost a two year lag. If prices have to affect decision of the farmer it must be announced before sowing and not marketing which leads to the failure to base prices on actual cost of production.

Therefore, the APC tries at best and as effectively as possible to use the criteria. The APC merely states that

it "takes among other things the cost of production into account in fixing price presumably because it thinks it can do no better".*

The fact, however, remains that to a great extent the APC relies on the cost of production criteria but takes into consideration other aspects like open market price trends, input/output index concept of parity so that the demand, market needs and inter crop parity are not disturbed.

An alternative criterion suggested and mainly used in the United States is the PARITY CRITERION.

The Parity Criterion : This concept of 'parity' has the following sub-concepts -

- a) Input/output parity.
- b) Inter-commodity price parity.
- c) Inter-sectoral price parity.

It is the third approach which addresses itself to the problem of maintaining a certain parity between the agricultural and non-agricultural sector, in order to protect the farmers real income position, which needs to be focussed on. This refers to the "terms of trade" problem as it is more popularly known. The terms of trade between the two sectors determine to a large extent (a) the rates of growth and productivity in the respective sectors (b) the flow of capital and resources between these sectors (c) the shares of national incomes between these sectors (d) the shares of

*. N. Rath (1985), "Prices Costs of Production & Terms of Trade of Indian Agriculture", IJAE, Oct.-Dec.1985,p.455.

national incomes between the farms sector and the non-farm sector.

It is for this reason that the APC cannot neglect this very important element in price determination. In India the "Parity Criterion" has not been directly relied upon while fixing the support and procurement prices. However, it is agreed that such a basis for price fixation can also be "useful as a price support measure for purposes of production and supply."¹⁵

This criteria is based on the concept of 'equality for agriculture', it has been mainly used in the USA, Japan. Parity formula for price determination is also suggested in India as a method of establishing inter-relationship between cash and food crops and between farm and non-farm sector to overcome the violent swings of terms of trade in favour of one sector. A number of studies have been carried out in determining the movement in the terms of trade in India over the years. A brief review of literature in this area is done in the following paragraphs, since the behaviour of terms of trade between the two sectors would definitely have policy implications for price fixation.

Before proceeding to the literature on movement of terms of trade, it is necessary to briefly mention the various measures of terms of trade. The concept terms of trade implies a comparison of prices at which trade takes place (here trade between the two sectors).

1) Net barter terms of trade also known as the commodity terms of trade - this is the ratio of Index of agricultural prices to the index of industrial prices with reference to a particular base year. It is arrived at by dividing an index of prices of agricultural commodity exports by an index of agricultural import prices

$$t_b = \frac{P_x}{P_m}^*$$

2) The farmers terms of trade is defined as the barter terms of trade where Price of exports is the index of prices received and price of imports is index of prices paid by farmers.

3) Income terms of trade is the ratio of incomes of farm sector vis-a-vis income of non-farm sector i.e. income terms of trade which adjusts the movements in commodity terms of trade for changes in volume of exports. It is defined as : $I = t_b \times Q_x$ where Q_x is the export volume index, thus I is a measure of farmers capacity to import.

The farmers term of trade no doubt gives the true position of the farmers but, however, it is difficult to calculate and, therefore, most of the studies use the net barter terms of trade measure.

Significance of Parity Criteria

The parity criterion as a basis for price fixation has become all the more significant in the recent years with increasing dissatisfaction of farmers. There, however,

* where t_b is net barter terms of trade
 P_x is price of exports
 P_m is price of imports

seems to be a lot of controversy and differences of opinion as regards the relevance of parity as a basis for price fixation. In the succeeding analysis an attempt is made to put forth the different studies in this area.

To begin with there is one set of economists who claim that most developing countries including India have deliberately kept the prices of farm produce unduly low.* Early in 1960's among the studies critical of the deliberate policy of maintaining low prices for agriculture, Mason¹⁶ writing on economic development in India and Pakistan states that 'Both countries (India and Pakistan) despite aptly worded paragraphs in their five year plan assigning high priority to agriculture, have actually neglected this overwhelming important structure. During the early period of development, farm output received declining incentives as internal terms of trade moved against agricultural products. The foodgrain prices were pulled down by government action, with no control on price of farm inputs and consumer goods. Schultz¹⁷ too blames economic policy of the government with its preference for industrialisation, where cheap food and low farm product prices are an essential part of the policy. According to these economists such unfavourable terms for agriculture arising out of government assurance to provide food at reasonably low prices in the interest of the consumer, supplemented by easy availability of surplus through Ph 480, were responsible for poor performance of agriculture in

* Mason, Schultz, Lipton.

fifties and early sixties.

A later study by M.S. Rathod, Nadda and U.R. Singh¹⁸ also strongly criticises the price policy for being biased towards the industrial sector. Using 1970-71 as base and giving a wider coverage to manufacture products they arrive at the conclusion that, by and large, for the period 1947-48 to 1977-78 the net barter terms of trade moved against agriculture with very few exceptions. They have taken 1970-71 = 100 as the base year and have used an improved weighting system. Their view is that the price policy has been biased towards the industrial sector. Special efforts are, therefore, required to strengthen and continue the support prices and input subsidiation policies in India.

Favourable Terms of Trade

The other group of economists hold the view that through various incentives to ensure producer of a remunerative return the prices have been pushed up unduly high resulting in domestic terms of trade being heavily biased towards agriculture. A pioneering study in this group is by Thamrajakshi,¹⁹ which reveals major conclusions about the terms of trade and marketable surplus -

- a) During the period of the three five year plans both the net barter terms of trade and income

terms of trade for agriculture have shown improvements in favour of agriculture.

- b) The income terms of trade which are a more meaningful concept showed an increase by an annual rate of 3.40%.
- c) The net barter terms of trade for final and all uses have shown an improvement.
- d) The contribution of agriculture to the growth of the economy in this period has been quite encouraging.

This conclusion has been supported by the more recent study which also states that terms of trade have been moving in favour of agriculture since 1951-52.²¹

The finding that the terms of trade have been improving in favour of the agricultural (Thamrajakshi) has been supported by a number of other studies. Ashok Mitra's²² study conducted for the period 1961-62 to 1973 also concluded that terms of trade between industry and agriculture have moved in favour of agriculture to the extent of around 50%. Though the movements in terms of trade does not reflect any particular bias in policy, greater price incentives, nature of administered prices, fiscal and monetary policies have all created favourable expectations in agricultural sector. Unfortunately while it has repeatedly been stressed that agricultural growth is vital for industrial development little or no attempt has been made to study the impact of shifting terms of trade on different sections of the farming

community. His contention therefore is that agricultural prices have been pushed up disproportionately high as one of ingredients of the overall "package measure". The administered prices is one of the more effective instruments for shifting terms of trade in favour of agricultural sector to the extent that it creates expectations in the entire market.

In more recent years Sidhu & Singhs²² study reveals that though for the period 1950-51 to 1964-65 the movement of wholesale prices show unfavourable terms of trade for the agricultural sector for 1965-66 to 1975-76, however, the terms of trade have continuously remained favourable to agriculture.

M.M. Batra²³ study deserves special mention because his study goes a step further and states that constant increases in agricultural prices have also correspondingly increased the income level of farmers. (For both periods 1955-56 to 1968-69 and 1969-70 to 1974-75).

Index of agricultural commodity for the period under study went up from 194.8 in 1969-70 to 350.8 in 1974-75 and that of manufacture from 43.5 to 254.5 between the same period.

The above conclusion has been challenged by Kahlon and Tyagi²⁴ in the recent years. According to them the above conclusions may not be very accurate because of limited coverage, use of improper weights, price indexes. The debate so far has been, according to them, marred by wrong methods,

inappropriate data which has led to confusion about nature of terms of trade. Keeping in view the limitations of the previous studies they have developed an alternative methodology for estimating the terms of trade between agriculture and non-agricultural sectors of the Indian economy. The improvements and modifications in this study over the others take the following nature.

- a) a more detailed coverage of goods and sold and purchased by agricultural sector was possible due to more reliable and comprehensive information on items purchased sold by agricultural sector on final consumption, farm inputs, capital formation in value of various inputs used.
- b) Farm harest prices considered for each commodity was worked out weighted average price of state farm harest prices - weights being the share of each state in the total all India production of that commodity.
- c) In view of the highly fluctuating nature of agricultural prices a three year period 1969-70 to 1971-72 was used within which agricultural production and prices remained relatively stable.

With these modifications the study concluded that the net barter terms of trade moved against agricultural sector owing to a sharper increase in prices paid by this sector. Since 1974-75 terms of trade have moved against agriculture. This study as compared to Thamrajakshi shows that terms of

trade moved against agriculture from 117.8 to 101.6 between 1967-68 to 1974-75, whereas it was seen to be moving in favour of agriculture from 100.63 to 107.79 in Thamrajakshi's study.

Their basic conclusion and policy implication then is that "such unfavourable terms of trade have an insignificant effect on development of agriculture so long as proportion of purchased inputs is very low. Such adverse terms of trade effects the level of technological inputs used and hence has a bearing on capital formation and the level of output. It is in the interests of this that movement of terms of trade should be kept under control".

During 1960's, by and large, agricultural sector enjoyed favourable terms of trade, it rose to a record level by 1967-68. In 1972-73 it showed a slight fall and rose again through 1974-75. From September 1961 prices of foodgrains fell steadily through March 1976, faster than non-agricultural commodities implying a decline in terms of trade.

Dantwala's²⁵ views on terms of trade in recent times provides a some what clearer picture as to the nature of terms of trade between agricultural and non-agricultural sector. His conclusion are as follows -

- a) Commodity terms of trade for a long time till about 1977-78 were not unfavourable to agriculture. It is only in the late seventies and 1980 that terms of trade have moved against agriculture because of high increases in input prices. His view is that a favourable terms of trade for agriculture is desired not because it would

increase agricultural growth (which is influenced mainly by technological and institutional conditions) nor to reduce urban rural disparity (since the big farmers who have considerable surplus to offer); but to provide a long term assurance to farmers to adopt improved technology and an incentive for investment in irrigation, land improvement improving marketing facilities. Herein lies the importance of price policy which in the nature of a long term assurance or guarantee can ensure the above.

One of the most important studies given above (i.e. Kahlon and Tyagi) has been subjected to a critical analysis in recent article by Subbarao²⁶. To begin with according to Kahlon and Tyagi though right in using the farm harvest price in place of wholesale index prices - have not followed a proper weighting procedure. They arrived at the weighted price on the basis of share of each state in the total All India, production of different commodities whereas it would be more proper to use share of each state in the all India marketable surplus of different commodities. 'Share in production' has been taken by them as proxy for 'Share in marketable surplus because of lack of data - a modification of this short coming would considerably alter the conclusion. If data on relative shares of all states in marketable surplus were not available the proper proxy would have been relative shares in all India procurement. This study has computed All India weighted prices for the period 72-73 to 74-75 for rice and wheat according to share in procurement - accordingly the

prices turn out to be 12% and 13.7% higher for rice and wheat respectively.

A latest study by D.S. Tyagi²⁷ conducted on basis of the modified methodology used in Kahlon and Tyagi's work has divided the period under consideration into three parts :

- (1) 1952-53 to 1963-64 (First period)
- (2) 1964-65 to 1974-75 (Second period)
- (3) 1975-76 to 1983-84 (Third period)

for which the movement in terms of trade between agriculture and non-agriculture has been studied.

(1) During the first period the terms of trade have remained adverse for agriculture, it was also a period of stagnant technology and allowed for increase in agricultural production only through extensive cultivation (gross cropped area increased by 12.02 mill hectare). Adverse terms of trade discouraged productive investments and also use of variable inputs.

(2) During the second period - the terms of trade for agriculture have been favourable to the agricultural sector with new technologies of production being introduced. In this time production of foodgrains and non-foodgrains increased at a rate of about 2.4% per annum (attributable meaning to increase in productivity).

(3) During the third period - technological developer got spread to larger areas but terms of trade remained against

the agricultural sector. Productivity increased at a rate of 2.25% per annum. Technology advanced nuterilised the adverse effects of terms of trade.

From the above studies the following conclusions seem apparant that for the later period i.e. mid seventies the terms of trade have been moving against the agricultural sector. (using modified technology).

There are two major view points almost contradictory to each other in the various studies mentioned above. One which highlights the significance of favourable terms of trade in agriculture and the other which concludes that favourable terms of trade or adverse terms of trade alone would not have a strong impact or otherwise on agricultural productivity increases. To sum up, D.S.Tyagi - in the third period the agricultural production had increased inspite of terms of trade being adverse to agriculture which was due to technological break through spreading to a greater part of the country.* This has been supported by a study by Raj Krishna²⁸ which reveals that a 1% change in technology induces greater growth of output than does 1% change in price.

This again does not mean that the terms of trade problem should be relegated to the background since "while very favourable terms of trade by themselves can not provide great incentives to greater production, unfavourable or declining terms of trade can not create the necessary conditions for adoption of better techniques and higher

* D.S.Tyagi (1986), "Domestic agriculture Terms of Trade in India and its effect on supply and demand of agricultural sector", VIII World Economic Congress, IEA, Dec.3, 1986.

production".

How far the 'parity' principle can be used as a basis for price fixation has also been subjected to some discussion. Though it has a bearing as a long term guarantee and assurance of inducing farmers to adopt new technologies and improve conditions for higher production, it is not a very practical basis and proposal for the short run price policy. The practical problems and undesirable effects of relying only on parity would lead to the following problems.

- a) Fixation of prices on basis of movement of inter-sectoral terms of trade for a selected group of commodities may distort the cropping pattern.
- b) A single price for a crop for the whole country ignores the regional differences in costs and movements of terms of trade between crops. A regionally differential policy would be useful but difficult to implement.
- c) Wide differences in inter-size class and inter-regional crops would lead to a situation where the benefit would occur to those for whom it was not intended.
- d) Inter-sectoral parity as the basis for regulated price would also distort the cropping pattern.
- e) Since the marketed surplus and procurement between states is highly skewed any such high level of administered price would have a bias

towards the states/regions and farmers who contribute a major proportion of the above. (e.g. Punjab, Haryana, U.P. account for 90% of wheat procurement. A.P., U.P., Punjab, Haryana account for 60% of rice procurement). This view has been supported by Dantwala²⁹, a higher prices for agriculture would aggravate intra rural disparity and widen gap between rich producer and poor consumer

Given the above implications of "Price Policy" based only on parity one can then say that efforts must be made to ensure that a deterioration in income terms of trade does not occur so as to prevent adoption of new techniques. In the long run, therefore, the 'Price Parity' concept can hardly be neglected in view of the fact that balanced sectoral development is a long run objective of every planned economy. On unfavourable bias towards any particular sector cannot be a permanent phenomena.

Conclusion

The criteria most relied upon by the APC (cost of production) seems to be sound in theory but is laden with a number of practical problems as analysed earlier. In the entire exercise of arriving at a proper criteria there are two aspects which should be modified if the price policy has to satisfy its objectives.

Firstly, the concept of 'C' cost of production should be increasingly revised so that it would allow for sufficient money incomes to farmers.

Secondly, the hitherto neglected parity criterion which indicates the pattern of income distribution between agricultural and non-agricultural sector should be given some weightage while aiming at the support prices (as an assurance in the long run against fall income of farm sector and adoption of new technologies). As regards the particular aspect the point is that what is required is an awareness that terms of trade do not remain continuously unfavourable to the agricultural sector.

Only then can the instrument of agricultural prices ensure an incentive to increase productions give the farmers some amount of a remunerative income.

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CHAPTER IV

EVOLUTION OF THE PRICE POLICY IN INDIA (MAINLY UPTO EARLY 1980's)

Price controls or administered prices has its origin in the second world war, it has been assuming greater significance in the recent times. The price policy as related to agricultural commodities in India has remained a much debated issue over the past two decades. The Government of India has had to constantly examine its foodgrains price policies which have been more or less short term in nature arising mainly to meet contingency situations rather than being based on any long term policy objective. Adhocism in the price policy of foodgrains political tugs and pulls, a historical legacy of an ill managed food system have shaped a foodgrains pricing policy in India, which has been bearing the strain, of conflicting interests and objectives and is subject to severe criticism and controversies over the years.

The following paragraphs is an attempt to trace out in brief the evolution of foodgrains price policy in India and to see to what extent it has been able to satisfactorily achieve what it was expected to gain.

HISTORICAL LEGACY

India's foodgrain procurement and distribution policy had its origin in the pre-independence Bengal famine of 1943 where managing a tight food situation was the main objective of the price controls policy. This situation was further

aggravated by severe short-falls in feed production in Eastern states and because of the substantial cutting off of imports from Burma. In such a situation the government responded by trying to handle the feed situation by administrative means like establishing foodgrains policy committees, restrictions on inter-province movements of foodgrains rationing in urban areas, licensing of trader, imports, etc. - all these measures more or less fitting into the present day policy framework.

POST-INDEPENDENCE POLICY UPTO 1965

In the immediate post independence period the agricultural price policy was directed mainly towards two aspects :-

- Stabilising the prices at low levels in the interests of consumers.
- Curbing inflationary pressures arising due to acute food shortages.

The policy during this decade (1951-52 to 1960-61) was said to be mainly consumer oriented.

The main features and landmarks of the pre-independence policy can be traced as given below :

To begin with early in 1947, following the recommendations of the foodgrains policy committee of 1947 a process of decontrol of existing procurement, statutory prices and distribution was attempted. However, as a result of the sharp rise in prices during 1948, the controls were reimposed

and the stress again shifted to procurement and distribution. Both procurement and minimum prices were fixed at 25-50% higher than those in pre-decontrol period. Controls on rice, wheat, grain maize, jowar ragi reappeared. In 1951-53 and 54 the agricultural sector witnessed record production of all cereals and all the controls were withdrawn. There was a sharp fall in prices leading to shift from rigid controls to price support schemes. Floor prices were announced for wheat, jowar, maize, and for the first time since the beginning of world war II small quantities of foodgrains were allowed to be exported to arrest a fall in the prices - producers interests were to be protected through the above policy. Towards the end of 1956, however, again the prices showed an upward trend. Once again the consumers interest had to be protected by holding the prices downward, a whole package of control measures were again resolved to.

With the introduction of the PL 480 programme, the responsibility of holding down prices of foodgrains at home and protecting the interest of the vulnerable section of the population was entrusted once again to the policy makers. Till about 1963 therefore, an easy price situation prevailed due to the PL 480 programme. In 1963 again there was a decline in foodgrains production leading to tremendous rise in prices and reimposition of controls and statutory rationing.

It was, however, felt that imports under PL 480 programme depressed the producers prices. According to

Raj Krishna's study 1980¹ prices of wheat were very low compared to other commodities. There have been different opinions as regards effect of such imports on the domestic agriculture. According to Lipton² in less developed countries such imports caused heavy damages to the economy in the following forms :

- a). using receipts from sale of PL 480 commodities for financing development programmes benefitting the non-farm sector.-
- b) heavy subsidy for releases of imports to consumers.
- c) it did not help in stabilising food prices because of the inadequate timing and volume of this import.

Yet another study by Mann³ in this direction reveals that each extra ton of PL 480 grain imported and released steadily every year through disincentive effects on domestic farmers reduces their output of grain by about one third of a ton per year.

However, the point remains that such imports reduce the shortage temporarily and curbs undue rise in price.

It is thus quite clear then that during the decade (1951-52 to 1960-61) the price policy was consumer biased, which has been clearly stated in both the first and second five year plan document. The second plan document also laid stress on stepping up of buffer stock operations in order to reduce fluctuations in prices.⁴

The chief instruments of the above consumer oriented prices during this period were as follows :

- a) Procurement by government of locally available surplus at procurement prices lower than open market prices.
- b) Import of foodgrains.
- c) Partial statutory rationing to make available to consumers foodgrains at reasonable price levels.
- d) Fixing of minimum statutory prices of foodgrains.

It was in 1964 during the 3rd Five Year Plan phase that attention was shifted to producers interests, it was during this time that use of improved inputs were being propogated. Assurance of a certain minimum price and a reasonable return on the investment of a farmer was to be provided in order to induce him to adopt improved methods of cultivation. The third plan document stressed on the following features :

- a) Providing a reasonable return to farmers.
- b) Need to induce farmers to use fertilisers and other improved methods of cultivation.
- c) Preventing sharp fluctuations in prices.
- d) Guarantee of a minimum price.
- e) Consumers interest.

The year 1964 then marked the beginnings of a more meaningful policy as regards pricing of foodgrains. In the same year the 'Jha Committee' was appointed called the 'Foodgrains Prices Committee'. This committee was to advise on -

- a) Determination of producers prices for 1964-65 season rice and then wheat on an all India basis.
- b) To recommend terms of reference suitable for an agency to advise on price policy matters.

- c) Manner of working of such an agency.
- d) Prices which are fair and economical to the producer.

Following the recommendations of the Jha Committee (Foodgrains Prices Committee) the government of India set up the Agricultural Prices Commission to provide advice on a continuing basis on agricultural price policy and price structure in context of the need to raise agricultural production and give simultaneous relief to consumers. The setting up of this commission marked the beginning of a new phase in the evolution of agricultural prices commission.

Post 1964 Policy

In 1965 the APC was set up to evolve a balanced and integrated price structure in perspective of over all needs of the economy in the interests of producers as well as the consumers. The APC while recommending the price policy and the related price structure was to keep in view -

- a) the need to provide an incentive to producers for adopting improved technology for increased production.
- b) the need to ensure rational utilisation of land and other production resources.
- c) the likely effect of Price Policy on the rest of the economy particularly on cost of living of wages and industrial cost structure.

The main objectives of the price policy from 1965 onwards have therefore been

- 1) to step up agricultural production by assuring

producers that prices of his products will not fall below a certain minimum (a guaranteed incentive price policy).

2) to prevent excessive rise in prices and to protect vulnerable sections of consumers.

3) To stabilise the fluctuations in prices in order to provide a certainty for production.

The other related objectives of prices and procurement policy can be listed as follows :

- a) avoiding wide spread famines.
- b) maintaining remunerative prices of agricultural crops and to induce adoption of new technology and seeds.
- c) to socialise grain trade by increasing government control over market.
- d) curbing inflationary tendency in the economy through agricultural price policy.
- e) maintaining reasonably, favourable terms of trade between agricultural and non agricultural sector.

The main constituents of foodgrain pricing policy in the new phase in post '65 period have been -

- a) announcement of minimum support prices for major foodgrains in advance of sowing season.
- b) fixation of procurement prices for major foodgrains.
- c) operating a public distribution system in interest of consumers.
- d) building buffer stocks to meet emergency situation to mitigate seasonal and annual price fluctuations.

The government has in its price policy trying to strike a balance between the interests of producers and consumers.

In the process, however, it has been having to bear heavy subsidy and costs.

The two major instruments of price policy of the government have been fixing two types of prices, viz. (i) minimum support prices for major field crops in the country which are fixed annually and are meant to be floor levels below which the market prices would not be allowed to fall and (ii) procurement prices in respect of cereals at which the grain is to be domestically procured by public agencies for release through the public distribution system.

The minimum support price is a guarantee that the price of the produce will not be allowed to fall below this level even in the event of a glut. However, the farmer can sell his produce in the open market at a price higher than the support price. It seems as an insurance against a sudden and precipitous fall in the market price.

The procurement price is the price at which the government purchases grains from the producers. Normally, this price is lower than the open market price and is higher than the minimum price. However, presently the procurement price has in effect become support price.

In the following analysis the trends in the minimum support price and procurement prices have been examined.

Minimum Support Prices

With the establishment of the APC there was a greater degree of clarity regarding announcement of minimum support prices and also regarding its purpose. Minimum support prices

were to reduce uncertainty and provide an incentive to increase production. The function of these support prices were to provide a floor to fall in prices and thus ensure the farmer of a certain minimum return so as to enable them to continue production efforts and adopt improved methods of cultivation. The basis for support prices both in the long run and short run from consumers and producers point of view has been stated by Dandekar⁵

In the short run the role of minimum support prices is to reduce the adverse effect of fluctuations in prices and through a guaranteed price (is a minimum in times of a good harvest and maximum in times of a bad crop) assure production of foodgrains at reasonable prices. In the long run minimum support prices is supposed to ensure -

a) adoption of improved technology and better seeds by providing the producer a guarantee against any eventuality and thereby creating an atmosphere of certainty and remunerative return.

These minimum prices are most effective when announced before the sowing season. The necessity of announcing the minimum support prices before sowing season was also stressed by the foodgrain policy committee in 1966 and in all the Five Year Plans. The theoretical basis for announcing these prices much in advance of actual market crop arrival is that it helps to create a favourable atmosphere for investment (long term) by reducing uncertainty and thus encourages production.

Trends in Minimum Support Prices

The policy of fixing support prices were announced in 1964. In 1967-68 there was a bumper crop as a result of which prices fell. The government had to provide for 30%-40% higher price support. Till about mid 70's the government of India has been announcing minimum support prices in the nature of a long term guarantee. These support prices were announced almost for all major foodgrains i.e. rice, wheat, jowar, maize, bajara.

The following table provides the movement in minimum support prices for the major crops (foodgrains).

Table 4.1 : Minimum Support Prices of Agricultural Commodities All India

Year	Paddy	Jowar	Bajara	Maize	Red	Wheat	
						Common Mexican	Superior
67-68	42.44	42	42	42	49.50	56.75	57.50 to 60.75
68-69	-	-	-	-	52.55	56.59	60.63
69-70	45.00	44	44	44	-	-	-
70-71	46.00	45	45	45	-	-	-
71-72	46.00	45	45	45	-	-	-
72-73	43.00	45	65	62	-	-	-
73-74	-	63	-	-	80.00	85.00	-

Source : Indian Agricultural Brief 1980. Directorate of Economics & Statistics.

An analysis of minimum support prices, however, suggests that in a country like India characterised by an ever increasing demand for foodgrains not matched by increases in supply, the minimum support prices were too low and hardly ever became operative, the possibility of open market prices falling to such a low level is limited. Thus for all practical purposes the higher procurement price became the relevant guarantee price since late seventies. The government of India now announces procurement prices at which it buys the quantities offered for sale, which has now assumed the role of a guarantee, insurance and incentive price.

Procurement Prices

The government initially had been announcing procurement prices alongside with minimum support prices. The functions of these prices (announced at beginning of Kharif and Rabi marketing seasons), are to enable government to procure foodgrains for distribution to deficient areas and among vulnerable sections of the society. For all practical purposes today procurement price has become the actual effective support price. It is also operationally more significant than the minimum support prices, since the latter becomes of use only in periods of excess production and falling prices. This has now become the government's most important instrument of building up buffer stocks and through this facilitating public distribution of foodgrains and thus introducing an element of stability in agricultural prices.

Working of Procurement

The Government procurement is the responsibility of states acting through their department of civil supply, the Food Corporation of India or both which using other against regional and co-operations, etc.

The main methods of procurement are as follows :

- a) Open market procurement is the least complicated method of procurement.
- b) Another method is the levy on middle man and processors. This method has been used for long for rice and wheat. This levy is enforced by liscensing, and private wholesale traders are to sell to the government a portion of the produce at procurement price.
- c) Monopoly procurement as a method of procurement tried in the case of wheat in 1973 April, with the objective of ensuring remunerative prices to growers, having effective public control over market supply and assuring consumers foodgrains at reasonable prices. This was done in the face of a massive fall in foodgrains productions in 1971-72, 72-73, a fall by 3% and 9.5% respectively as a result procurement also declined to 7.7 mt. in 1972. There was an overall increase of preassure on the procurement policy. Thus monopoly procurement was adhered to in case of wheat, it, however, could not meet its target.

- d) Another method of procurement adopted in the past was to impose a direct levy on producers (after assessing each farmer on the basis of land cropped, nature of production, whether land is irrigated or unirrigated). This involves compulsion and also is costly to the administration.

Trends in Procurement

Procurement in India has been a curious mix of the above practices. The APC while fixing the procurement price keeps in view the following -

- Likely level of market prices in the season concerned.
- Minimum support prices announced in that season.
- Marketing, processing costs.
- Costs of production.
- Likely impact of farmers cost of living.

Procurement of Wheat and Paddy

It was only after the establishment of FCI (1964) and APC (1965) that a well formulated price policy came to be evolved. The following table (4.2) gives an idea about the trends in the procurement prices and minimum support prices of wheat.

As can be seen from the table, till 1970-71 both minimum support prices and procurement prices have been announced to provide an incentive and assurance against any open market adversity.

Table 4.2 : Wheat - Minimum Support Prices and Procurement Prices

(Rs. per quintal)

Market- ing year	Minimum support		Procurement Prices	
	APC	As forced by State Government	APC	As forced by State Government
1966-67	49.50	49.50	57-60	54.00-59.00
1967-68	53.50-56.75	53.50-56.75	61.50-69	70.00-95.00
1968-69	56.00-59.00	56.00-59.00	70.00-78	76.00-78.00
1969-70	56.00-59.00	-	70.00	76.00
1970-71	56.00-59.00	-	72.00	76.00
1971-72			74.00	76.00
1972-73			72.00	76.00
1973-74			76.00	76.00
1974-75		85.00	95.00	105.00
1975-76	95.00	-	105.00	105.00
1976-77			105.00	105.00
1977-78			105.00	110.00
1978-79			110.00	112.50
1979-80			115.00	115.00
1980-81			117.00	117.00
1981-82			127.00	130.00
1987-88				166

Source : "Agricultural Price Policy in India", p.283, 1983.
A.S.Kahlon and Tyagi, Allied Publishers Pvt.Ltd.

Between 1968-69 to 1973, the procurement price of wheat has been kept unchanged at Rs. 76 per quintal. In 1975 it was recommended by the APC to increase procurement price to Rs.95 per quintal for 1974-75 marketing season. In order to increase production it was raised to Rs. 105 per quintal. However, in view of the fall in size of crop and its marketed surplus the procurement of wheat was only 1.0 mt. as compared to 4.3 mt. in 1973-74. There was also a lot of speculative activity in wheat procurement and hoarding. Inter state movement of wheat was banned.

Till 1975-76 and 1976-77 the procurement price for wheat was maintained at 105 per quintal, in later years as can be seen it was raised from 112.50 in 1978-79 to 115 in 1979-80 to 117 in 1980-81 and 130 in 1981-82 and to 166 per quintal at present, all with a view to compensate for increase in input costs and to encourage production. The government has recognised itself the aim of minimum support and procurement prices.

As regards the procurement price trends in the case of rice as can be seen from the table (4.1) given earlier, one can see that the price remained almost unchanged during 1967-68 to 1972-73 after which there was a sudden increase further to Rs. 63 in 1973-74 and recently to Rs. 105 in 1980-81 mainly to compensate for increase in cost of production. For the other crops also like Jowar, Bajara, Maize, etc. the government has been announcing procurement prices with the same objective (Table 4.1).

As regards the trends and movements in procurement and support price and point has been often analysed and studied that whether these administered prices have succeeded in covering the cost of production or not. It is, however, quite clear that these prices have been constantly pushed up to cover the increasing costs of production but whether it has been able to cover the costs and provide a remunerative return to farmers has not been very strongly conclusive.

Studies by Raj Krishna and Raychaudhari 1980⁶ and Rao 1981⁷ and Subbarao⁸ have recently examined the problem of cost of production and arrived at the following conclusions.

a) In respect of wheat the procurement prices did not cover full cost of production in 1950 but during this time farm harvest prices were above cost of production, in the fifties procurement was almost negligible so that no serious damage was done. This price, however, since mid sixties has remained well above cost of production, sometimes very close to open market price, during this period the government purchases as a percentage of the output also increased.

b) As regards rice the situation was not favourable till early seventies when the procurement was below the cost of production in West Bengal and in all Southern States but covered the cost of production in the Northern States. After mid seventies according to these studies the procurement price was well above the cost of production in different states. However, the market price covers the costs of production in most states and periods.

This study also showed the paddy price to be lower than wheat prices, over the years however the procurement prices of paddy have increased at a faster rate, between 1971-72 and 1983-84 they increased from Rs. 47 per quintal to 132 per quintal, in the same period the procurement price of wheat has increased from Rs. 76 per quintal to Rs. 151 per quintal, reducing the disparity between the two crops and discontentment on part of rice growers.

In spite of this, however, there is a growing and continuous dissatisfaction on part of the farmers (Lobby as regards inefficiency of the administered prices to give them a remunerative return. This arises on account of the differences in the definition and concept of cost of production which the farmers lobby has adopted. They demand inclusion of allowance for wages, on the basis of minimum wages, they also demand wages for managerial labour, etc. These concepts involve conceptual, practical and administrative difficulties in being implemented. As a result of this the procurement prices/support prices can not be seen to satisfy all farmers, regions and states to the fullest extent. The problem of regional and farmer-wise disparity in costs of production also looms large. As a result of this, discontentment with the prices is likely to continue.⁹

An Evaluation of the Price Policy
in view of the Objectives

An evaluation of the price policy is an extremely difficult task given the complex and sometimes inconsistent

goals with changing priorities and changing dynamic situations. There is no criteria for evaluating the results nor have the objectives been defined in any quantitative terms, the problem then is one of value judgement. The working and problems of price policy is all the more complex; given the conflicting interests of the these parties involved at least one party i.e., the government, the producer or the consumer has to bear the brunt of the price policy. Our food production though through the years has reached a satisfactory level (152 mt), is still not adequate to allow free market price to be able to clear the market to the satisfaction of consumers and producers. Moreover, given the vagaries of climate and lack of adequate irrigation facilities in all cases, the production is subject to great uncertainty which deems necessary, further modifications and changes in the price policy.

As regards objective of avoiding famines like that of 1943, the government has succeeded in controlling such food crises, though there have been severe shortfalls in production as in 1958, 1966, 1967, 1973-75. The government has been able to encourage adoption of advanced technology seeds and improved fertilisers.

In the sphere of public distribution to low income consumers, quantity of foodgrains undertaken for this purpose has been growing secularly since 1951, speaking favourably for the procurement system. Though regarding accumulation, of stocks for distribution the policy of the government has

been invoicing in the right direction. The point is to see how far the low income consumers benefit from it, it has been seen that foodgrains is distributed largely in urban areas. Further, the cost of supplying through these fair price shops has been massive. The subsidy ⁿ providing foodgrains to the low income group of consumers amounts to something like 210 crores which clearly indicates that the government has to inevitably bear a deficit in the public distribution programmes. As regards the basic objective of whether cost of production has been covered or not cannot be clearly determined. The one extreme view of the farmers lobby has been that they have not been getting a remunerative price. Further, more often than not one finds the farmer selling their produce at prices lower than the announced support prices simply because there is no official agency to buy at the stated price. Further, the method of fixing procurement and support prices is such that it is uniform for the entire country as a result of which in some areas the farmers gets extra profits and in some areas they suffer losses.¹⁰ This has already been discussed at length in the previous chapter.

This disparity in earnings will remain as long as the system of fixing prices is not done on a region to region basis which has its own difficulties.

The general conclusion arrived is that after mid 1960's procurement prices did cover costs more so for wheat and particularly in states which amount for bulk of procurement.

According to S.S. Johl,¹¹ even with the establishment of the APC remunerative prices to farmers could not be achieved in view of persistent scarcity in India regarding foodgrains. His suggestion is that a more efficient means to induce increases in agricultural production would be to subsidise the input prices (fertilisers, seeds, chemicals, petroleum products, etc.). One has to, however, take into account the subsidy cost to the government. In this direction also a well managed public distribution system would remove the margin between what consumer pays and what the producer receives.

One fact, however, is quite clear that the instruments of minimum support prices and procurement prices were successful in providing incentive to increase production only when these were accompanied by appropriate technological improvements and infrastructural developments. (Table 4.3) Therefore, it is in the case of wheat that increases in production were witnessed. Between 1949-50 to 1964-65, it increased from 1.27 per cent to 7.52 per cent and between 1964-65 to 1970-71 became the highest among all agricultural commodities. With technology being favourable to wheat, it continued to be the highest among the agricultural crops. Despite the price rise not being of a very great magnitude, the area under wheat expanded from 12.93 millhect in 1960-61 to 22.64 millhect in 1978-79.

This trend in prices/production/yield of wheat indicates the fact that the effectiveness of price policy depends to a

Table 4.3 All India Compound Growth Rates for Important Agricultural Commodities

Commodity	Area		Yield		Production	
	1960-61 to 1972-73	1960-61 to 1978-79	1960-61 to 1972-73	1960-61 to 1978-79	1960-61 to 1972-73	1960-61 to 1978-79
Rice	0.61	0.75	0.92	1.29	1.54	2.05
Wheat	38.70	3.37	4.03	4.03	8.78	7.54
Groundnut	0.44	0.09	-0.14	0.85	0.26	0.94
Cotton	-0.32	-0.44	0.89	1.87	0.66	1.38
Jute	-0.95	-0.64	0.13	0.37	-0.83	-0.12
Sugarcane	0.49	1.48	1.05	0.96	1.51	2.46

Source : A.S., Kahlon and D.S. Tyagi (1983), Agricultural Price Policy in India, Allied Publishers Pvt.Ltd.

large extent on a conducive technology and infrastructure which allows the price policy to operate successfully. A corollary which follows is that prices themselves either accelerate or decelerate the process of improvements of agricultural production.

So far as the vulnerable consumers are concerned, the government policy in this direction has excluded the rural poor and the small and marginal farmer as a consumer, keeping his position as it was, (at times worse), since the farmers themselves are net consumers of foodgrains.

As regards whether the price policy has been in favour or-biased against the agriculturist, there have been differing opinions put forward by various eminent economists which has already been discussed in the previous chapter in the section on Terms of Trade and parity criterion.

Keeping in mind the above discussion, one point emerges clearly that as long as production does not increase further, prices will be such as to cause dissatisfaction to at least one party i.e. consumer, producer or the government. Thus, the major aim of agricultural price policy would be to ensure farmers of a price assurance to encourage investment in agriculture and adopt new technology. The price policy also, it must be stressed, can work most effectively when accompanied by appropriate technical and infrastructural changes. Further, an increase in agricultural production would also be able to correct market imperfections arising out of

imbalance between supply and demand and ensure availability of foodgrains to vulnerable sections of consumers at reasonable prices. Till the time such a level is not reached support prices must continue, given the contingencies facing Indian Agriculture.

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CHAPTER V

SUMMARY AND CONCLUSIONS

The summary of the literature on the objectives and purposes of price policy in agriculture presented in Chapter I, leads one to conclude that in general, too many claims have been made in regard to the efficacy of price policy. Indeed the single instrument of price policy seems to have been burdened with too many objectives. Not only this, there seems to exist an internal conflict in the objectives i.e. consider for example, the objectives which the APC has set, these include assuring a high rate of return to the farmer at the same time ensuring adequate supply at low prices to consumers. Clearly both these objectives conflict with one another and it is impossible that a single coherent price policy will ever be able to achieve both these objectives. Further, the price policy instrument has to operate within a favourable and conducive institutional and technological framework to be able to induce the desired increases in production. All this cannot, however, relegate the fact that it is the price policy in agriculture which has to be relied on to a great extent, at least in the present stage of development and agricultural situation to be able to increase the production and income levels in the agricultural sector. It is against this background that the price policy in agriculture must be viewed.

Having established the undoubted relevance of a price

policy in agriculture, Chapter II proceeds to provide empirical evidence for a positive response of agricultural production to prices. In absence of such a response the entire price policy would become meaningless.

The studies on supply response barring a few exceptions have shown that the output of foodgrains, whether single crop or in the aggregate, respond positively to a price stimulus (though the response is low). These studies by themselves indicate the proper role and objective of price policy. One important feature to be noted is that the studies on single crop response have shown much higher and positive supply elasticities than the aggregate crop response. This is, however, to be expected and by itself suggests that price incentives can be engineered to affect pattern of allocation of land in favour of staple foodgrains that form a bulk of the subsistence of poor farmers and consumers. Its role in enhancing aggregate production also does seem to be complementary. Thus contrary to the traditional belief, the price policy can be relied on to perform the above two functions to a considerable extent. The second part of the second Chapter deals with the response of marketed supply to price changes. The conclusions which emerge out of the studies on this aspect of the supply response can be briefly listed as follows :

- a) there seems to be a positive response of marketed supply to price for the large farmers in a number of regions, unfortunately the same cannot be said

about the small farmers.

- b) There is no empirical and strongly conclusive evidence to support a positive marketed supply response at the aggregate (all India level) level.
- c) Any benefit of a price policy, it then seems, would benefit the large farmers given the distribution of land, marketed surplus. This emerges as a very important implication which must be for price formulation purposes.

The third chapter i.e. on "criteria for price determination", deals with the multitude of criteria which have to be considered for price fixation. The numerous criteria available for the above purpose obviously seem to be a result of the numerous objectives with which price policy is burdened. Thus, the objective of ensuring a fair return has begotten the cost of production criterion, the objective of inter-sectoral balance has begotten the parity criterion, that of ensuring a rational allocation of land has begotten inter crop parity criterion and so on. The conclusion which emerges shows that there is no one single criterion which is strictly adopted by the price commission - among all other criteria it, however, relies to a great extent on the cost of production criterion which seems to be the most scientific norm for fixing a remunerative price. This criterion, however, is laden with a number of conceptual and practical difficulties which the commission tries at best to minimise while

arriving at the price level. There are, however, factors like inter-crop parity, market price parity, influence on the rest of the economy, link with input prices, etc. which do enter into price/cost calculations.

One important criterion which deserves mention is the 'Parity Criterion' and the second part of this chapter traces the literature on the relevance of terms of trade in price policy. The issue of appropriate price policy is inextricably intertwined with that of ensuring equitable terms of trade between the agricultural and non-agricultural sectors. Naturally, therefore, there have been several studies that have analysed movements in terms of trade and have evaluated the effects of price policy on the terms of trade. A sinking feature of the present position of this subject is the lack of uniformity between the conclusive results. This seems to be due to the diverse empirical data over diverse time periods and with diverse method of analysis used by the researchers. Recent works, however, point quite clearly to the fact that the terms of trade seem to be moving against the agricultural sector. Therefore, two clear cut conclusions emerge from the literature on criteria for price determination. Firstly, there should be greater efforts to provide the proper estimate of cost of production (mainly cost C) so as to give price determination a scientific basis - which would automatically allow for sufficient money incomes to farmers. Secondly, the parity criteria must be relied on to the extent to avoid a deterioration in terms of trade for agriculture, which if

left to continue would nullify any other efforts on part of the government to increase agricultural production.

Finally, the chapter on Evolution of Price policy with reference to foodgrains, brings forth the following favourable and unfavourable features of the price policy.

1) The foodgrains production has shown a favourable trend (being about 152 mt.). This has been of course the result of three basic aspects i.e. an advancing technology, improving sciences and stable and remunerative price. However, this production is still not adequate to ensure the desired equilibrium in the free market in agriculture and hence the need for price policy exists.

2) The public distribution system and procurement system seem to have been favourable though again one cannot say how far the low income consumers benefit from it.

3) As regards cost of production it is the diversity in costs of production which seems to create a disparity in earnings, and difficulties in arriving at a cost-based price acceptable to all.

4) Finally, a very important aspect which emerges is that the instruments of support and procurement price were successful in providing incentive to increase production only when accompanied by technological and infrastructural improvements.

Thus in conclusion the following issues seem to dominate the agricultural price policy arena -

The price policy in agriculture is facing the basic

- problem of one instrument with a multitude of objectives.
- Hence deciding on a fair price acceptable to all conflicting parties is just impossible.
 - The prices finally decided upon is mainly determined by bargaining strength of political forces and only partly by the actual market force.
 - Higher prices is not a panacea for removing stress and strains faced by the farmers, other factors like availability and cost of capital are equally if not more important.
 - Even granted a high price is declared in the context of the Indian agriculture, one cannot guarantee its benefits to all the farmers, given the highly *(skewed)* distribution of assets and income in the agricultural sector. It obviously follows that the big farmers with a large marketable surplus and access to modern agriculture stand to gain.
 - Finally, a point which has not been discussed in the dissertation but has a strong relevance for the entire price problem is that of the dominance of middlemen and traders in India. This has led to high "Price-Margins" which makes it difficult to have a price policy in the interest of consumers and producers. This wide 'price spread' has led to both producers and consumers being dissatisfied with the entire price structure in agriculture. This problem needs to be given adequate attention.

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