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TRADE AND PRICING POLICY OF FOODGRAINS IN INDIA—ISSUES AND STRATEGIES

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ABSTRACT

This paper examines three broad issues (i) exisating foodgrains market mechanism, (ii) price trends and terms of trade in foodgrains and (iii) government interventions in foodgrains marketing mechanism along with distortions and possible remedies. The results revealed that the restrictive policies in agriculture and relatively liberal policies in non-agricultural prices have risen at a faster rate, turning the terms of trade against agriculture. The study suggests that to provide impetus to agriculture, the sectoral terms of trade should be maintained; procurement prices of foodgrains should be raised every year in consonance with general price level. The government must ensure zone-free trading of foodgrains on par with the industrial goods. The public distribution system of foodgrains needs to be revamped and made efficient, accountable and cost effective. The new concept of ceiling/maximum sale price should be introduced keeping in view the marketing costs and reasonable profits/margins of traders and the ruling/consumers price be allowed to operate in between procurement price and ceiling price.

Introduction

An efficient management of the food economy is a prime function of the Government, especially in developing countries like India where a large proportion of population (40 percent) lives below the poverty line (Acharya and Agarwal, 1989). For this, regulation of foodgrains trade and formulation of suitable agricultural pricing policy become an essential part of the large package for national planning and development. It was in this background that two pioneer organisations, namely, Food Corporation of India (FCI) and Agricultural Prices Commssion (APC) currently designated as the Commission for Agricultural Costs and Prices (CACP), were set up by the Government of India in 1965 to pursue policies for the growth of agriculture on one hand and to feed the poor masses of the country on the other hand. Needless to mention that with the setting up of these two institutions and after the introduction of new seed-fertilizer technology during the mid-sixties in India, foodgrains output, which was 50.8 million tonnes in 1950-51 and 74.2 million tonnes in 1966-67, rose to 152.4 million

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tonnes by 1983-84 and 176.5 million tonnes by 1989-90, showing an annual growth rate of 2.6 percent (Bhalla, 1991). One school of thought in agricultural economics is of the opinion that trading and pricing policies pursued by the Government of India has, however, led to some distortions in the economy as few of these policies have proved counter productive to agricultural sector at large (Sidhu, 1993). Further, it is contended that restrictive policies in agriculture and relatively liberal policies in the non-agricultural sector have created a situation where non-agricultural prices have risen at a faster rate, turning the terms of trade against agriculture (Saini, *et al.* 1992). For these reasons the pricing policy of foodgrains in India has always remained a topic of glaring controversy and contention. It is in this context that the present paper examines three main issues viz., (i) existing mechanism of foodgrains trade, (ii) price trends and terms of trade in foodgrains and (iii) government interventions in foodgrains marketing mechanism along with distortions and possible remedies. More specifically, the objectives of the paper are:

(i) To examine the mechanism of foodgrains trade in India,

(ii) to study the trends in prices of foodgrains and terms of trade with other sectors in the country, and

(iii) to analyse factors responsible for rising foodgrains prices and critically examine the plausibility of Government interventions along with distortions and strategies.

Methodology

The paper is based upon secondary data collected from various publications of the Government of India viz., Fertilizer Statistics, Agricultural Situation in India, RBI Bulletin, Reports of the Commission on Agricultural Costs and Prices (CACP), etc. The data were subjected to quantitative analysis. The long term trends in foodgrains prices were worked out by fitting a compound growth function. The terms of trade were examined through computing price parities between different sectors of the economy. The causal factors affecting foodgrains prices were analysed by fitting regression equations. The model used was of the following type:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6)$$

where,

Y = The indices of wholesale prices of foodgrains, paddy, wheat or pulses from 1970-71 to 1988-90.

X_1 = Indicies of production of foodgrain crops in question.

X_2 = Import of foodgrains in question (million tonnes). This variable was absent in case of pulses.

X_3 = Indices of Non-agricultural Net-domestic product (NDP) showing the purchasing power of the people in the country.

X_4 = Money supply (Rs. in crores).

X_5 = The population (in million). However, this variable had to be dropped due to high correlation with X_3, X_4.

X_6 = The fluctuations in cereal prices. This variable has been considered for pulses only.

The variables X_3 and X_4 have been regarded as mutually exclusive ones. Therefore, the regression equations have been fitted separately for each of the variable.

Results and Discussion

This section of the paper provides a brief history of foodgrains trade mechanism in part I, trends in foodgrains and all commodities in India in part II, causal factors affecting foodgrains prices in part III and plausibility of government interventions along with distortions and strategies in part IV.

Foodgrains Trade Mechanism

If we peep into our past it may be recalled that before mid-sixties, a large quantum of sale of foodgrains used to be in village markets through local traders, itinerants, contractors, etc. Since 1965, the Government of India, through FCI, Co-operative Societies, State procurement agencies and traders have entered in a big way, in the foodgrains trading in the country. This direct intervention of the government was pursued to assure the supply of essential commodities to the people, to ensure a fair price to farmers, to minimise violent price fluctuations and to undertake the procurement and maintenance of buffer stock along with its distribution whenever and wherever necessary. Surprisingly, before 1965, the Government procurement of foodgrains was negligible and since the incep-

tion of FCI in 1965, the total procurement has increased from 4.03 million tonnes (1965) to 18.95 million tonnes (1989). Needless to mention that at present, FCI procures about 11-12 percent of the net production of foodgrains in the country. The net production has also gone up with the significant increase in total production of foodgrains after 1965 resulting in drastic decrease in their imports. The maximum import of foodgrains (10.31 million tonnes) was in 1965 and since then, notwithstanding the bad years, the imports have decreased and in some years, the export of foodgrains exceeded the imports showing self-sufficiency of the country. As a major policy trade intervention, the Government has been manipulating the availability of foodgrains in the economy through its stock operation. For this, creation of buffer stock has been regarded as an important Government intervention to even out the year to year fluctuations in the availability of food-grains. In the initial years, the Government of India envisaged to keep 5 million tonnes each of wheat and rice. However, with the continuous increase in the population, a stock of 18-20 million tonnes has been considered as the safe limit. As a general rule, in an agricultural year, the stock is maximum in the month of June and minimum in the month of March. In March 1989, the Government stock was at an all time low of 7.34 million tonnes dur to issue of more foodgrains to meet out shortages. However, the efforts are on the maintain the safe limit.

Trends in Wholesale Prices

In order to compensate the farmers against inflationary pressures and increase in input prices, the prices of agricultural commodites should grow in juxtapose with the industrial prices. For this, Table I, throws reasonable light on the trends in wholesale prices of foodgrains, non-food articles and all commodities. A cursory glance on the table reveals that the wholesale prices of foodgrains observed a growth of 6.75 percent per annum which is markedly lower than the increase in general price level (8.31 percent) and non-food articles (7.37 percent). Among foodgrains, the wholesale prices of pulses registered a noticeable increase of 9.24 per cent though it could not result into an anticipatory increase in their production because pulses are generally grown on marginal lands. Table II shows the similar growth pattern in the case of procurement prices of paddy (6.80 percent), wheat (5.11 percent), maize (6.13 percent) and gram (10.66 percent). A look at the indices also reveals that there has been steady increase in the support prices of foodgrains though these are not in consonance with the increase in general price level.

Table 1: Trends in wholesale prices of foodgrains and all commodities in India (1970-71 to 1989-90)

(Per cent/Annum)

Crops/ Commodites		Growth Rate	Crops/ Commodities		Growth Rate
1.	Paddy	6.76* (0.50)	5.	Foodgrains	6.75* (0.49)
2.	Wheat	5.45* (0.53)	6.	Non-food articles	7.37* (0.56)
3.	Pulses	9.24* (0.69)	7.	All Commodities	8.31* (0.36)
4.	Cereals	6.28* (0.48)			

* Significant at 1 per cent level of probability.
Figures in parentheses show standard errors.

Table 2: Trends in procurement Prices (Rs/quintal) of foodgrains (1971-72 through 1992-93)

Year	Rice		Maize		Wheat		Gram	
	Price	Indices**	Price	indices	Price	Indices	Price	Indices
1971-72	58.0	100.00	55.0	100.00	76.0	100.00	-	-
1975-76	74.0	127.59	74.0	134.55	105.0	138.16	90.0	100.00
1980-81	105.0	181.03	105.0	190.91	117.0	153.95	145.0	161.11
1985-86	142.0	244.83	130.0	236.36	157.0	206.58	240.0	266.67
1986-87	146.0	251.72	132.0	227.59	162.0	213.16	260,0	288.89
1987-88	150.0	258.62	135.0	245.45	166.0	218.42	280.0	311.11
1988-89	160.0	275.86	145.0	263.64	173.0	227.63	290.0	322.22
1989-90	185.0	318.97	165.0	300.00	183.0	240.79	329.0	365.56
1990-91	205.0	353.45	180.0	327.27	215.0	282.89	420.0	466.67
1991-92	230.0	396.55	210.0	381.82	250.0	328.95	450.0	500.00
1992-93	270.0	465.52	250.0	454.55	275.0	361.84	500.0	555.56
Per cent increase Per annum	6.80* (0.10)	-	6.13* (0.13)	-	5.11* (0.15)	-	10.66* (0.26)	-

* significant at 1 per cent level.
** Indicies have been worked out taking 1971-72 as base year in all the commodities except Gram where it is 1975-76. Figures in parentheses are standard errors.

Source : Reports of the Commission for Agricultural Costs and Prices.

As emphasised earlier, the terms of trade between the prices of agricultural and industrial commodities bear great significance for the balanced growth because each sector offers input and output markets for each other. From the analysis presented in Table III, however, it has been observed that foodgrains prices have been kept low through Government interventions (like movement restrictions), whereas agricultural inputs prices, industrial prices and general price level lacked such control measures which resulted in the terms of trade unfavourable to foodgrains in relation to agricultural inputs purchased by the farmers and manufactured industrial goods. This is a matter of serious concern on the part of the government as industries are reaping double benefit from agrculture sector. Obviously, the industries and urban population respectively get raw material and food from agriculture sector comparatively at cheaper rates and at the same time they supply inputs (like chemical fertilizers, insecticides, machinery, herbicides, etc.) and manufactured products for agricultural sector at higher prices, which in turn, affect adversely the real purchasing power of the farmer in the country. To protect the interests of the farmers, it is, therefore, suggested that the prices of agricultural commodties should be fixed keeping in view the increase in the prices of inputs and industrial goods in the country.

Table 3: Indices of wholesale prices and terms of trade between foodgrains and industrial prices (Base 1970-71=100)

(Per cent)

Year	Wholesale Prices				Terms of Trade		
	Foodgrains sold for	Commodities/inputs purchased by farmers	Industrial products	All Commodities	Food grains Vs inputs	Food grains Vs industrial products	Food grains Vs all commodities
1971	103	105	110	106	98	94	97
1975	142	168	171	173	85	83	82
1980	214	225	257	257	87	83	83
1985	278	337	343	358	82	81	78
1986	318	361	359	377	88	88	84
1987	350	400	384	405	87	91	86
1988	370	422	414	435	88	89	85
1989	382	445	442	454	85	86	84

Causal Factors Affecting Foodgrains Prices

In the recent past, Government has been worried about the inflationary price trend in the economy. The variation in prices of commodities is caused by so many factors which inextricably are non-separable. To judge the causal factors behind general price level and foodgrain prices, multiple regression analysis was carried out, the results of which are being depicted in the following section.

i) *General Price Level*

The regression equations fitted to examine the causal factors affecting general price level are given in equations I (a) and I (b). The significance of the variables in the equations at 1 (*) and 5 (**) percent level have also been depicted.

$$\text{Log } Y = -5.4280 + 0.2681 \log X_1 + 1.2681 \log X^*_2 + 2.6078 \log X^*_3 \quad \ldots\ldots 1\,(a)$$
$$(0.3254) \qquad (0.4460) \qquad (0.4132)$$
$$(R^2 = 0.9694)$$

$$\text{Log } Y = -1.4965 - 0.1680 \log X_1 + 0.9243 \log X_2 + 0.5296 \log X_4^* \quad \ldots\ldots 1\,(b)$$
$$(0.3228) \qquad (0.5605) \qquad (0.1043)$$
$$(R^2 = 0.9577)$$

Equation I (a) and I (b) clearly shows that the main causal factors, for increase in general price level, are non-agricultural net dometic product (NDP) and the production of non-foodgrains. Juxtaposed in equation 1 (b), money supply was found to be the major factor of inflationary pressure. On the other hand, foodgrains production did not affect the general price level. It is quite apparent that Governmet procurement and procurement price mechanisms have favoured the producers to some extent.

(ii) *Foodgrains Prices*

The equations fitted for paddy and wheat cereals are elaborated and discussed in equations 2 (a), 2 (b) and 3 (a), 3 (b), respectively.

(a) *Paddy*

$$\text{Log } Y = -3.7420 + 0.4588 \text{ Log } X^*_1 + 0.0177 \text{ Log } X_2^* + 2.8913 \text{ Log } X^*_3$$
$$(0.2266) \qquad (0.0054) \qquad (0.4862)$$
$$(R^2 = 0.9190) \qquad \ldots\ldots\ldots 2\,(a)$$

$$\text{Log } Y = 0.1396 - 0.0921 \text{ Log } X_1 + 0.0151 \text{ Log } X^*_2 + 0.5420 \text{ Log } X^*_4$$
$$(0.1774) \qquad (0.0034) \qquad (0.0522)$$
$$(R^2 = 0.8676) \qquad \ldots\ldots 2 \text{ (b)}$$

(b) *Wheat*

$$\text{Log } Y = 0.0522 + 0.9480 \text{ Log } X^*_1 + 0.0071 \text{ Log } X_2 + 0.0115 \text{ Log } X_3$$
$$(0.1458) \qquad (0.0034) \qquad (0.0334)$$
$$(R^2 = 0.8245) \qquad \ldots\ldots 3 \text{ (a)}$$

$$\text{Log } Y = 0.1546 + 0.3036 \text{ Log } X_1 + 0.0064 \text{ Log } X_2 + 0.3175 \text{ Log } X^*_4$$
$$(0.3567) \qquad (0.0053) \qquad (0.1601)$$
$$(R^2 = 0.7640) \qquad \ldots\ldots 3 \text{ (b)}$$

A study of these equations clearly shows the significant contribution of purchasing power or money supply in raising the wholesale prices of foodgrains in the county. However, the benefit of enhanced wholesale prices have gone to the traders and not to the farmers. It is worth mentioning here that the farmers are given support price of foodgrains which is generally much below the wholesale price. It would not be an exaggeration to say that farm harvest prices of foodgrains are trapped by support prices whereas the wholesale prices are manipulated through market forces (like demand and supply mechanism) by the traders which has been illustrated in part IV of this paper. Further, under these situations, price stabilisation may not be achieved even though the Government so desires as open market operations are required to achieve such stability in the domestic market. Apparently, under Government control some upward tendency of the prices would prevail unless purchasing power with the people or money supply is kept under strict surveillance and control.

(iii) *Pulses*

The regression equations, derived for pulses, are given in 4 (a) and 4 (b).

$$\text{Log } Y = 0.7577 - 0.7440 \text{ Log } X^{**}_1 + 1.7401 \text{ Log } X^*_6 - 0.4569 \text{ Log } X_3$$
$$(0.3401) \qquad (0.4263) \qquad (1.6820)$$
$$(R^2 = 0.9291) \qquad \ldots\ldots (4 \text{ (a)}$$

$$\text{Log } Y = 0.1790 - 0.6965 \text{ Log } X^{**}_1 + 2.8045 \text{ Log } X^{**}_6 - 0.6288 \text{ Log } X_4$$
$$(0.3189) \qquad (1.1071) \qquad (0.5885)$$
$$(R^2 = 0.9348) \qquad \ldots\ldots 4 \text{ (b)}$$

It can be inferred from the above equations that pulses prices unlike cereals exhibit a different behaviour. The fluctuations in cereal prices affect prices of pulses to a considerable extent and 1 per cent fluctuation in cereal prices may lead to 1.74 per cent increase in pulses prices whereas the increased production have led to decrease in prices. However, as expected, the price elasticity with respect to increase in income (through non-agriculture NDP or money supply) was negative indicating thereby, less demand for pulses as the income goes up which is somewhat surprising. This is attributed to more demand for vegetables and superior protenous foods like fish, meat, milk, etc.

Government Interventions, Distortions and Strategies

The foregoing discussion clearly shows in brief the mechanism of direct Government intervention in the foodgrains trading in India. The Commission for Agricultural Costs and Prices (CACP), being a statutory body, advises the Government in evolving a balanced and integrated price structure with due regard to the interests of producers and consumers. On the recommendation of the CACP, Government of India, announces the minimum insurance prices for different crops ahead of the cropping season so that the farmers may take rational decisions in terms of land allocation. The procurement prices are announced by the Government in the marketing season to purchase foodgrains in the country.

In the recent years the Government of India has adopted mixed strategies to control demand, supply and consequently the foodgrain prices in the country. To control demand, the Government adopted statutory rationing of foodgrains by alloting a limited quantity per capita per time period, especially during shortages. However, in the recent years, there has been improvement in the supply situation, therefore, informal rationing has been practised. This helps in arresting the rising prices in the country.

The price mechanism under government intervention has been illustrated in Fig. 1. In the open market (without intervention), the price might be OP on account of open market demand (D) and supply (S) intersecting at point R. However, when the Government, releases the stock (Qo) at minimum issue price OP_o, this will supplement the supply and the supply will shift to S' intersecting the demand (D) at point T. This may lower the open market price from OP to OP'. Since demand (D) will be partly met through public distribution system this may lower down the open market

demand to D'. Eventually new equilibrium will be set with the intersection of D' and S' at point G and the final price may come down to OP*. Reverse process will come into operation by holding back of the stock by the Government thus raising the open market price.

However, this mechanism has led to unexpected distortions as described earlier (part II). Generally, majority of the farmers sell their marketed surplus of foodgrains in the peak season at fixed procurement prices (fixed by the Government rather than determined by the demand and supply conditions) either to the Government or in the open market. Contrary to this, the consumers' prices (generally determined by the demand and supply conditions) are much higher than the producers' prices. Speculators and hoarders further aggravate the situation. It has been perceived that over the years, the gap has been widening giving more prosperity to trading class at the cost of both producers as well as consumers. This type of distortion has been illustrated in Fig. 2. which makes it crystal clear that immediately after the harvest of foodgrain crops, the gap between the procurement and wholesale price is minimum. However, over the time this gap starts widening because the procurement price remains almost constant whereas the wholesale prices for consumers in the market during different seasons increase on the basis of demand and other factors. As a result, over a period, the gap between these prices widens. This necessitates an urgent need to rationalise the price mechanism to watch the interests of both the producers and consumers in the country. For this, the ideal price mechanism has been illustrated in Fig. 3.

The figure clearly explains that besides procurement price the Government should also intervene in framing the ceiling/maximum sale price of foodgrains in the open market so that it may have some check on the consumers' price. The ceiling price may be determined keeping in view the marketing costs and reasonable profit margins of different traders. The ruling/consumers' price may be allowed to operate strictly between these two limits, viz., procurement price and ceiling price. In nutshell, to make this mechanism fully operational, the Government must ensure zone-free trading of foodgrains in the country. Further, the Government should curtail the quantum of procurement which has become unmanageable and intolerably expensive affair. The burden of subsidies and operational losses incurred on FCI are compounding over the years. The public distribution system is becoming highly expensive. This is evident from the fact that if all the costs and subsidies are taken into

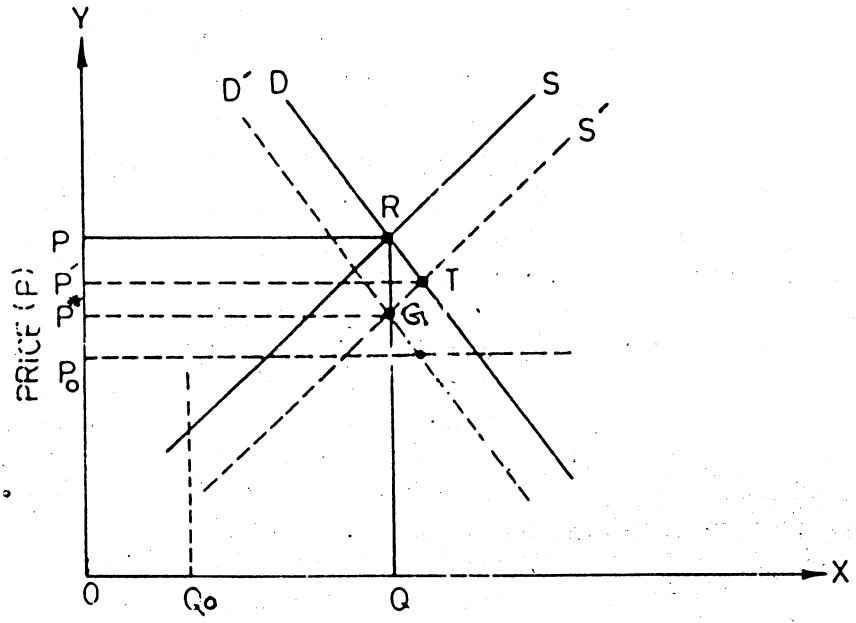

Fig. 1: Price mechanism under Government intervention.

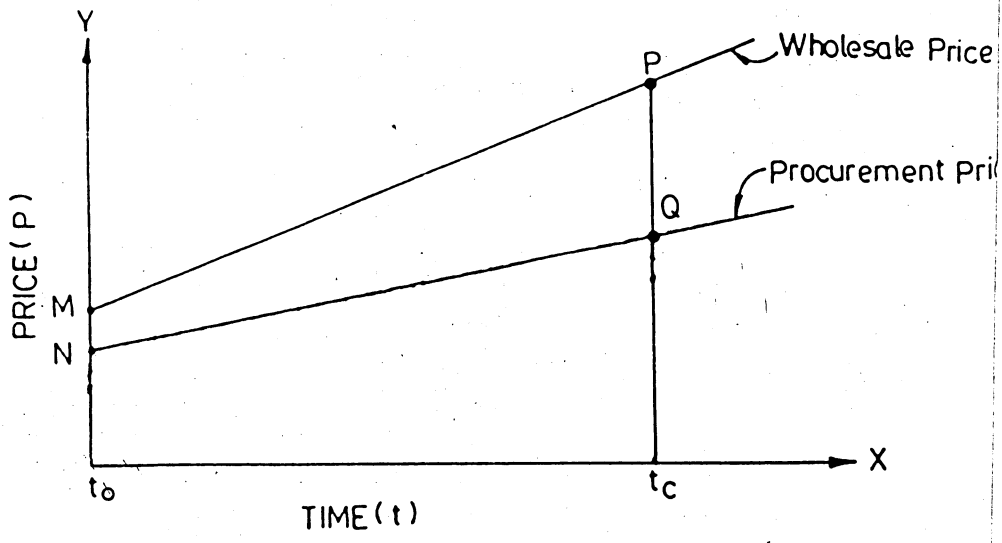

Fig. 2: Growing divergence between procurement and wholesale prices.

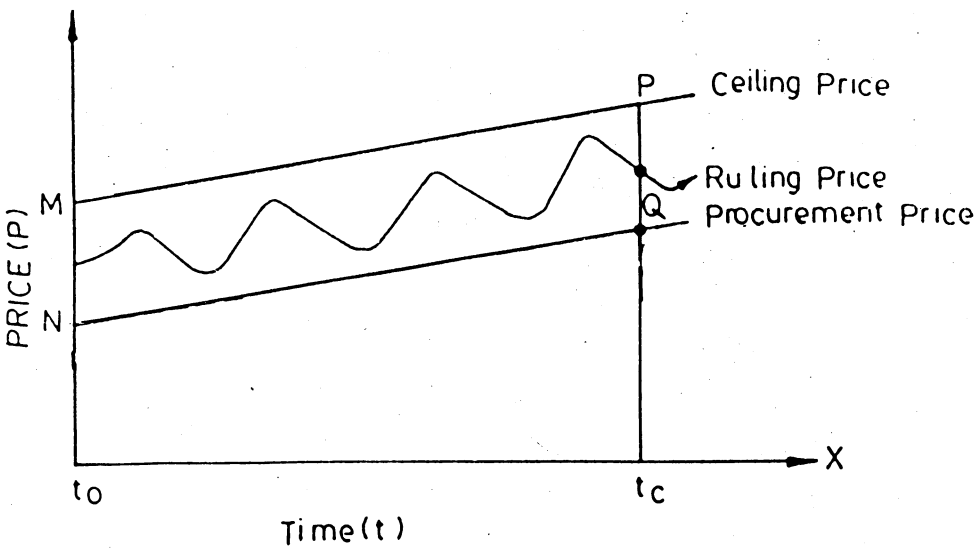

Fig. 3: Ideal price mechanism.

account, the issue prices of FCI would become exhorbitantly higher than the open market prices. Hence, the system needs to be revamped and made efficient, accountable and cost effective. This can be achieved through decreasing the present quantum of procurement and limiting the public distribution. Further, to provide growth impetus to agriculture, the sectoral terms of trade should be maintained. The foodgrains prices may be raised every year in consonance with the general price level in the country.

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