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PRESIDENTIAL ADDRESS

Agricultural Price Policy and Development: Some Facts and Emerging Issues*

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I feel deeply indebted to the members of the Indian Society of Agricultural Economics for electing me as the President for its 56th Annual Conference and for providing me the opportunity to make this presentation. I accepted this honour to be more the result of your affection for and hopes about me rather than an acknowledgement of my professional achievements. I shall try my best to deserve it. The prices of farm products affect, directly or indirectly, the life of everyone. I have had an opportunity of keenly observing the prices of farm products and inputs and their impact on various sections of the population from many vantage points; first as a member of rural family, later as an extension worker, teacher, researcher, rural development administrator and more recently as a policy advisor. For about six years, I had the occasion of associating with the Commission for Agricultural Costs and Prices (CACP) in the formulation of agricultural price policy in India. I, therefore, thought it appropriate to share with you my insights and experiences and place before you some of my concerns and emerging issues relating to agricultural price policy and development.

I

CURRENT POLICY FRAMEWORK

Evolution

Agricultural price policy is basically aimed at intervention in the agricultural produce markets with a view to influencing the level of and fluctuations in prices and price spread from the farm gate to the retail level. As the policy is required to reconcile the objectives of growth and equity, it has always occupied an important place in the economic and political debates because the perceived conflicting objectives need to be assigned weights which are often determined subjectively. Obviously, in India also, agricultural price policy and its instruments have been debated continuously and remained under constant review. Since Independence, its primary role had been to subserve the central objective of making available food to the consumers at reasonable prices. While upto the mid-sixties, the instruments comprised mainly of controls of various forms, imports of foodgrains and their distribution at below the market prices, after the mid-sixties, when new seed-fertiliser technology became available, the price policy was assigned a positive role for augmenting the availability by increasing domestic production. The broad framework of the policy was specified in the terms of reference of the Agricultural Prices Commission (APC), which was set up in 1965,

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to advise the government on a regular basis, for evolving a balanced and integrated price structure (Government of India, 1965). While formulating the price policy, the Commission was required to keep in view not only the need to provide incentive to the producer for adopting the new technology and maximising production but also the likely effect of the price policy on the cost of living, levels of wages and industrial cost structure. Though the thrust of the policy had been to achieve the twin objectives of assuring remunerative prices to the farmer and providing foodgrains to the consumer at reasonable prices, it was amply made clear that the concern for consumer interest should not be allowed to take away the farmer's incentive to adopt improved technology and make necessary investment for the purpose (Dantwala, 1967).

The framework of the policy was modified in 1980 when the balance between the demand and supply of foodgrains was in sight (Government of India, 1980). The emphasis of the policy, as reflected in the revised terms of reference of APC, which was later renamed as Commission for Agricultural Costs and Prices (CACAP), shifted from maximising the production to developing a production pattern consistent with the overall needs of the economy. Further, the Commission was also asked to monitor the movements in the terms of trade for the agricultural sector which reflected the emerging concern for fair sharing of gains of application of technology and public investment between the farmers and consumers. The policy was reviewed in 1986 when a long-term perspective for agricultural price policy was presented to the Parliament (Government of India, 1986). It was emphasised that the policy should seek to build into the system the major factors which in the long run influence the prices of agricultural commodities for making the farm sector more vibrant, productive and cost effective.

The policy was again subjected to a rigorous review after a programme of economic reforms was launched in 1991 and India became a signatory to the new world trade arrangement, which, for the first time, included agriculture also. The primary objective of the reforms is stated to be to put the economy on a high growth path. The reforms package is based on the premise that higher growth is essential even to deal with the problem of poverty and attain various social objectives in a short span of time and that the economy could have grown rapidly but for the lack of incentives for efficiency (Government of India, 1993). The changes in the industrial and trade policies, which are aimed at exposing the industry to competition and thus reducing the protection hitherto enjoyed by the industrial sector, are expected to improve the terms of trade for agriculture and help in attracting more investible resources for this sector. Though the programme did not initially cover agriculture, it was recognised that the economic reforms may not succeed in their objective of broad based growth in incomes and productive employment without sustained development of the agricultural sector. The package of reforms in agriculture is based on the diagnosis that while the sector remained net disprotected,¹ the subsidies arising out of inappropriate pricing of inputs and outputs led to inefficient resource use, eroded the capacity of the government to finance public investment in agriculture and benefited only the producers of a few crops and that too in some regions. The suggested agenda for the agricultural sector, therefore, revolves on setting the prices right and includes withdrawal of subsidies on inputs, targeting the public distribution system (PDS) only to the poor, abolition of food management system and its attendant costs and liberalisation of trade in agricultural commodities.² The essence of the package is that as the subsidies on farm inputs and food are no more sustainable in

terms of fiscal management, these be phased out and adjustment in agricultural prices be made for arresting the deterioration in the terms of trade for the agricultural sector. The agenda of setting the prices right essentially means moving from the 'low input low output price' regime to a regime of 'high input high output prices' and aligning the inter-crop price ratios in the domestic market with that of the world market. Though some steps have already been taken, the approach to reforms in the agricultural sector has been cautious and gradual owing to the far reaching implications of the stipulated changes for growth, food security and inter-class and inter-regional disparities in development. For a better understanding of these implications, it is necessary to review the current policy framework and analyse as to who benefited from the price support programme and subsidies on food and farm inputs.

Policy Instruments: Past and Present

At present, 24 commodities are covered under the minimum price support programme. These include paddy, wheat, jowar, bajra, maize, ragi, barley, gram, *tur*, *moong*, *urad*, groundnut, rapeseed/mustard, toria, soyabean, sunflowerseed, sesamum, nigerseed, copra, cotton, jute-mesta, virginia flue cured (VFC) tobacco and sugarcane which together account for 82 per cent of the gross cropped area and 75 per cent of the total value of crop output in the country. These apart, some other commodities like onion, potato, ginger, chillies, black pepper, castor seed and some fruits are included under the market intervention scheme (MIS). The MIS is much more flexible in terms of period of support operations, coverage of area and level of support prices. The support to the farmers under MIS is provided at a price mutually agreed by the Centre and the state in the specified area during the pre-defined period. The losses, if any, are shared equally by the Centre and the state.

In the case of cereals till 1970-71, apart from the minimum support price (MSP), procurement prices were also fixed and the public agencies procured specified quantities of grains from the market at these prices. The procurement prices were higher than the minimum support prices but lower than the market prices. In 1971-72, the government decided to announce only the procurement prices and provide support to the farmers at these prices. For some years, this appeared to be an attractive proposition for the farmers. However, the basic concern of the agencies remained the procurement of specified quantities of grains rather than ensuring price support to the farmers. The concern with the size of procurement was also reflected in the continuation of restrictions on inter-state movement of grains which depressed the prices in the surplus areas. Recognising that the blurred distinction between the procurement prices and MSP had started depriving the farmers of the guarantee that was inherent in the fixation of MSP, the government, since 1991, on the recommendation of CACP, decided to fix only the MSP in the case of cereals also. Several other measures were also taken to make the price support effective. The inter-state movement restrictions for wheat and coarse cereals were withdrawn to enable the farmers to take advantage of the free market prices. The impact was clearly visible in terms of the quantities offered by the farmers to the public agencies which have fluctuated widely in the subsequent seasons (Table 1). For example, during the 1992-93 marketing season, despite a grant of bonus of Rs. 25 per quintal over and above MSP, the farmers offered only 6.4 million tonnes of wheat to the public agencies as against an average of 9.3 million tonnes during the preceding three seasons. However, during the subsequent three seasons, i.e., 1993-94 to 1995-96, the public

agencies had to purchase an average of 12.3 million tonnes of wheat to provide price support to the farmers. During 1996-97 season again, the level of procurement came down to less than 8.2 million tonnes.

The Food Corporation of India (FCI), which has been the nodal agency for implementing price support policy for rice and wheat was entrusted with the work of price support for coarse cereals also. However, the quantities of coarse cereals purchased at MSP continue to be considerably lower than that of rice and wheat, which has been interpreted, in some circles, as ineffective price support for coarse cereals. In this connection, it must be recognised that the share of coarse cereals in total output of cereals has sharply gone down. The marketed surplus of coarse cereals as a proportion of output is considerably lower than that of rice and wheat. Moreover, as the market prices of coarse cereals generally rule above the support level, the need for undertaking support operations on a large scale does not arise every year. The price support can be considered ineffective only if the prices rule below the support levels. The FCI has been making arrangements with State Governments for purchases of coarse cereals, whenever and wherever the need arises, to prevent the prices from falling below the support levels. For example, during 1992-93, in Maharashtra, as much as 3.7 lakh tonnes of jowar was purchased at the minimum support price. This apart, four lakh tonnes of jowar of one grade below fair average quality (FAQ) was also purchased from the farmers as the quality of the produce had deteriorated due to incessant rains at the stage of grain formation. However, this is not to deny that there were no instances of prices of coarse cereals having ruled below the support levels in some markets in certain years.³

In the case of paddy, apart from the system of price support, there is a provision of levy on rice millers. The millers are required to sell a part of the rice milled by them to the government at a price derived from the minimum support price for paddy. In recent years, the levy component has been as high as 75 per cent in Punjab, Haryana and parts of Uttar Pradesh and 50 per cent in Andhra Pradesh, West Bengal and Orissa. So long as demand for rice remains higher than its supply and millers expect to make a profit by selling rice in the market, the levy system becomes coercive. However, when prices of rice tend to rule easy, the millers prefer to sell to the public agencies more than the prescribed minimum levy. Thus, contrary to the general belief, the system of levy on rice millers is not always coercive.

For other commodities included in the terms of reference of the Commission, excepting sugarcane, the government has been fixing only the minimum support prices. The nodal agencies designated for implementation of the policy are National Agricultural Co-operative Marketing Federation (for oilseeds and pulses), Cotton Corporation of India, Jute Corporation of India and the Tobacco Board. Apart from undertaking purchases at minimum support prices, price support to the farmers is also provided through commercial operations of the state and co-operative marketing organisations. In some states, cotton and oilseeds growers co-operatives undertake the purchase of the members' produce at market prices, which are higher than the minimum support prices. Some state marketing federations and the Cotton Corporation of India undertake commercial purchases of raw cotton from the primary markets which help in lifting up the prices during the peak arrival period. In the case of VFC tobacco, the Tobacco Board negotiates with the traders the minimum auction prices, which are higher than the support prices fixed by the government. Owing to these support operations, the need for undertaking purchases of these commodities at minimum

support prices arises only in a few markets in some years. It is in this context that the level of price support purchases of these commodities should not be compared with that of rice and wheat.

As regards sugarcane, the Government of India fixes a statutory minimum price (SMP), linked to the percentage of recovery, payable by sugar factories to the cane growers. Further, there is a system of levy under which the sugar factories are required to sell a part of the sugar produced by them to the government at a price derived from the SMP of cane. Owing to the peculiar nature of market structure for cane, the need for sharing the profits of the sugar factories with the growers has been felt from time to time. In the mid-seventies, a Sugar Industry Enquiry Commission recommended that 50 per cent of the extra realisation of the factories from sugar should be shared with the cane growers (Government of India, 1974). For implementation of this recommendation, there are broadly two types of systems prevalent in the country. In Maharashtra, Gujarat and parts of Karnataka, where sugar factories are in the co-operative sector, more than 50 per cent of the profits of the factories are shared with the cane growers in the form of additional cane price paid to them. In other states like Uttar Pradesh, Punjab, Haryana and Bihar, where most of the sugar factories are in the private or public sector, the State Governments, based on the assessment of the likely realisation of the factories from non-levy sugar and prices fixed by the Government of India for levy sugar, work out the prices of cane that the factories are required to pay to the cane growers. These have been termed as 'state advised prices' (SAP). Due to an element of subjectivity in determining the SAP, their levels have mostly remained a bone of contention between the State Governments and sugar factories.

Minimum Support Prices: Determination and Issues

The dissatisfaction of various interest groups over the level of administered price arises generally due to a blurred distinction between MSP, procurement price and levy price. The MSP is a price at which the government makes a commitment to purchase all the quantities offered by the farmers but they, in turn, are not obliged to sell to the government. The procurement price is one at which the government buys, at its discretion, certain quantity of output to meet its defined obligations and as in the case of MSP, the farmers are not obliged to sell to the government. However, when procurement is done by imposing some element of compulsion on the farmer or seller, the procurement price in effect becomes a levy price. Due to the element of compulsion, the level of levy price usually remains a controversial issue between the government and the seller. As far as the farmers are concerned, in the present policy environment, except in the solitary case of cotton in Maharashtra, they are not required to sell a part or whole of the produce to the government at a fixed price. The State Government in Maharashtra is operating a scheme under which the state agency is the sole buyer and traders are not allowed to purchase raw cotton from the farmers. However, the agency pays to the farmers a price which is usually higher and in some years close to the minimum support price.⁴

Contrary to the general belief, the cost of production is not the sole basis for arriving at the level of minimum support prices. However, as several aspects of the farm economy like profitability of farm enterprises, efficiency of resource use, allocative efficiency and pricing of inputs are generally discussed in relation to the cost of production, the issue of appropriate

level of MSP naturally revolves on the cost of production. Several scholars have discussed the problems encountered in considering the cost of production for the purpose of determination of the level of MSP (Dantwala, 1966; Kahlon and Tyagi, 1983; Rath, 1985; Sarma, 1988; Acharya and Agarwal, 1994).⁵ The foremost among them is which cost is to be considered for this purpose. The CACP now examines eight concepts of cost, viz., Cost A₁, Cost A₂, Cost B₁, Cost B₂, Cost C₁, Cost C₂, Cost C₂* and Cost C₃. Cost C₂ contains all paid-out and fixed costs including imputed interest on owned fixed capital, imputed rental value of owned land and imputed value of family labour. Cost C₂* is the same as C₂ with all labour evaluated at statutory minimum wages in case these are higher than the actual wages paid by the farmer. Naturally, cost C₂* is marginally higher than the cost C₂. To account for the managerial input of the farmer, cost C₃ is computed by raising cost C₂* by 10 per cent (Table 2). While it may appear to be appropriate to take into account cost C₃ for deciding upon the level of minimum support price, it needs to be recognised that the cost C₃, besides including the imputed value of family labour and imputed interest on owned fixed capital, also includes several elements of income attributable to the farmer like the imputed rental value of owned land and return for management input of the farmer. Thus higher the cost, higher the cost-based price and higher the income (Dantwala, 1981). Then, there is a question as to whose cost should be considered for arriving at the level of minimum support price. There is considerable variation in the cost of production even amongst farms of the same village owing to the differences in the quality of land, source and quality of irrigation and level of technology adoption. For example, in a sample of 10 farms from each of the two selected villages of Haryana, the C₂ cost of production of wheat during 1992-93 varied from Rs. 142 to Rs. 317 per quintal in one village and from Rs. 173 to Rs. 296 per quintal in the other. In this state, the average of the C₂ cost of production of 10 low-cost farms was Rs. 127 per quintal whereas that of 10 high-cost farms was Rs. 436 per quintal. In the case of Punjab, the average cost of production of wheat on 10 low-cost farms was Rs. 199 per quintal whereas on 10 high-cost farms it was Rs. 523 per quintal. When the range is so wide, the average cost loses much of its meaning. Even the range of variation in the state average cost of production is very wide. For example, during 1992-93, the average C₂ cost of production of wheat was Rs. 218 per quintal for Haryana, Rs. 234 for Rajasthan, Rs. 251 for Punjab and Rs. 344 per quintal for Madhya Pradesh. Similarly, the C₂ cost of production for selected states during 1992-93, averaged in the range of Rs. 217 - Rs. 300 for paddy, Rs. 682 - Rs. 832 for cotton and Rs. 450 - Rs. 664 per quintal for gram. In such a situation, if the average cost is used to arrive at the minimum support price, the cost of many farmers would not be covered. It has been shown that the situation of cost of many farms not being covered by the MSP would remain even if what is known as bulk line cost is adopted for arriving at the level of MSP (Dantwala, 1981; Kahlon and Tyagi, 1983; Acharya, 1988). Apart from the questions of which cost and whose cost to be considered for arriving at the level of minimum support price, there are several other problems that are encountered in adopting a cost-plus approach. The MSP is in the nature of a long-term price guarantee to the farmers. It would lose its insurance value if the level is allowed to fluctuate especially downwards. Any mechanical linkage with the cost of production would make the MSP prone to such fluctuations. Cost-plus approach to price determination also ignores the demand dimension. The relative market prices of two commodities (as in the case of wheat and barley) may not be in line with the ratio of their cost of production. Further, the cost-plus approach does not permit encouraging the production of a commodity in which case the

high-yielding technology is available and farmers need to be given signals for its adoption. Moreover, apart from the cost of production, there are several other factors like changes in input prices, demand, supply, behaviour of market prices, inter-crop price parity,⁶ general price level and international price situation in case the commodity is tradeable in the world market, which need to be taken into account for arriving at an appropriate level of support price.

If the MSP is intended to only insure the farmers against an excessive fall in the price, the determination of the level of such a price would not be very complex. But if regional production patterns are such that the MSP, in effect, becomes the price realised by the farmers, as is the case in surplus producing regions, a great care is needed in arriving at the level of this price. For example, in Punjab and Haryana, where bulk of the marketed surplus of wheat (as also of paddy, albeit indirectly) is sold by the farmers to the public agencies, the MSP becomes the price realised by them for their produce. This requires that the MSP is fixed at a level such that the farmers' enthusiasm to use yield-raising inputs and increase the productivity is not thwarted.

In almost all countries, including those where a fixed or partial formula approach is followed, certain degree of informed judgement is used for arriving at the prices of farm products which allows the possibility of taking into account as many relevant factors as possible. Further, the weights assigned to various factors are subjectively determined and the possibility of too high or too little weights being attached to different factors is not ruled out. The CACP so far has preferred not to follow a fixed formula approach in the determination of minimum support prices (Government of India, 1990). This is borne out by the comparison of MSPs fixed in different years and the relevant estimates of cost of production. For example, during the last 12 years, in the case of wheat, the margin allowed over C_2 cost of production fluctuated between 9.6 per cent and 31.6 per cent for Punjab and (-) 21.6 per cent and 14.4 per cent for Madhya Pradesh. Though the MSP of wheat did not cover average C_2 cost of production for Madhya Pradesh for any of the last seven years, it covered variable cost by a considerable margin. In this regard, it is important to note that the average price of wheat realised by the farmers in Madhya Pradesh was considerably higher than C_2 cost of production (Table 3).

Sometimes a case is made out for regionally differentiated support prices on the ground that the quality of the product and the cost of production differ from area to area. In this connection, it may be noted that in quite a few commodities, as per the present practice, the minimum support prices differ according to the grade or quality and the differences reflect the demand dimension. For example, in the case of paddy, separate minimum support prices are fixed for varieties belonging to common, fine and superfine groups. Similarly, separate support prices are fixed for black and yellow soyabean and milling and ball copra. For cotton, the support price varies from variety to variety according to the staple length. In the case of raw jute, the support prices vary according to the varietal group (white and tossa daisee) as well as the grade (1 to 8). For VFC tobacco also, the support prices are fixed separately for varietal groups and styles of the leaf. For sugarcane, the statutory minimum prices payable by the sugar factories are linked to the percentage of recovery. However, for a given variety, grade and quality, the uniform minimum support price is applicable for all the regions of the country (except in the case of raw jute). It may be recalled that a system of regionally differentiated prices for rice and wheat was tried upto 1971 but was given up later on. A system of uniform support price for the whole country leads to more efficient utilisation of

resources by encouraging production in relatively low cost areas and evolving a production pattern on the basis of comparative advantage of different regions (Government of India, 1986).

Anxiety has been expressed in certain quarters about the levels of minimum support prices fixed by the government during the first two years of the launch of the reforms programme. During 1992-93 and 1993-94 marketing season for wheat, the government had announced a bonus of Rs. 25 per quintal over and above the minimum support price. The levels of support prices, inclusive of the bonus, in real terms, were, no doubt, higher than that during the preceding season, these were considerably lower than their levels a decade ago. For the triennium ending (TE) 1994-95, the support prices of wheat, including bonus, in real terms were lower by 10.9 per cent than that for TE 1984-85 and by 27.4 per cent than that for TE 1974-75. In the case of paddy also, the support prices in real terms for TE 1994-95 were lower by 2.2 per cent than that for TE 1984-85 and by 9.5 per cent than that for TE 1974-75 (Table 4, Figure 1). The increases effected in the support prices ought to be viewed in the context of the emerging situation in the cereals economy during the late eighties, viz., (a) the growth of demand (apparent consumption) for cereals during the eighties tended to exceed that of production; (b) in the case of wheat, growth of demand accelerated during the eighties as compared to that during the seventies whereas that of output had decelerated (Government of India, 1991); (c) the stocks of foodgrains in the central pool particularly that of wheat depleted to unretrievable levels after the drought of 1987-88 and again during 1991-92 and the country had to go in for imports of wheat during the following years to replenish the stocks to minimum security levels; and (d) while the prices of cereals in real terms continued to decline, that of edible oils were rising and as the prices of oilseeds moved in sympathy with that of edible oils, the inter-crop parity tended to move in favour of oilseeds and shift the profitability against wheat even in regions where yield per hectare was higher. Apart from these considerations, the steep hikes in the prices of critical inputs could not be ignored. The prices of urea were raised and phosphatic and potassic fertilisers were decontrolled. Though the government provided some adhoc subsidy on decontrolled fertilisers with a view to partly offsetting the increase in prices that occurred after the decontrol, the prices of all the three nutrients taken together increased, within a period of two years, by as much as 63 per cent with the average of index of wholesale prices of fertilisers going up from 111.8 for 1991 to 181.9 for 1993. During this period the tariff/rates of electricity for irrigation were also revised upward in most of the states. The index of rates of electricity for irrigation went up by 43 per cent from 144.9 for 1991 to 207.8 for 1993. There has also been a considerable increase in the wage rates in many states. As these inputs account for a very large proportion of the farmers' expenditure on purchased inputs, it was imperative to provide adequate price signals for maintaining the tempo of increasing the production of wheat and rice for improved food security.⁷

Food Stocks and Management

Another aspect of the price policy that has remained a matter of anxiety during the last three years relates to the level of stocks of foodgrains with the public agencies. The stocks with the public agencies consist of buffer stocks and operational stocks. The buffer stocks include base level stocks which can not be pulled out from the system and food security stocks which are used to reduce the fluctuations in the availability of grains from year to

year. The size of the stocks required to be maintained by the public agencies depends, *inter alia*, on the nature and amplitude of inter-year fluctuations in production and the scale of public distribution system desired to be maintained. The norms have been revised from time to time. For the Eighth Five Year Plan period, based on the recommendations of the Technical Group on Buffer Stocking Policy of Foodgrains (Government of India, 1989), the Government of India prescribed the minimum level of stocks to be maintained by the public agencies at the beginning of each quarter of a year. The prescribed minimum levels are 22.3 million tonnes for July, 16.6 million tonnes for October, 15.4 million tonnes for January and 14.5 million tonnes for April (Table 5). While comparing the stocks held by the public agencies with the prescribed norms, several scholars have ignored the fact that the specified levels are only the minimum levels and in the matter of food, the actual stocks ought to remain above these levels. The Technical Group also did the exercise of working out the level of stocks that may get built up under the minimum price support policy. This varied from 36.2 million tonnes for July 1990 to 39.1 million tonnes for July 1995.

It is necessary to recall that between July 1991 and April 1993, the stocks in the Central pool remained short of even the minimum stipulated levels and the country had to import 3.1 million tonnes of wheat between August 1992 and June 1993. It was only with these imports and relatively larger procurement of 12.8 million tonnes of wheat during April-June 1993 that the stock position of foodgrains in the Central pool improved. The stocks of foodgrains, as on July 1, which stood at 15.1 million tonnes during 1992 increased to 26.4 million tonnes during 1993, to 32.4 million tonnes during 1994 and further to 36.5 million tonnes during 1995. Though at this level, the stocks were higher than the minimum stipulated level, these were still lower than the maximum level anticipated for that date. However, the stocks, as on July 1, 1996, came down to 27.8 million tonnes.

The build up of the stocks needs to be seen in the light of the nature of trend and fluctuations in the production of cereals in the country. Considering a fifteen-year period, it is observed that the output of cereals, which during the period 1980-81 to 1982-83 had averaged at 119 million tonnes jumped to around 134 million tonnes during the period 1983-84 to 1987-88. It again recorded a quantum jump during 1988-89 and, after hovering around 158 million tonnes till 1991-92, stepped up further to an average level of 172 million tonnes during the period 1992-93 to 1994-95. If production displays a growth path which can be best depicted by a step function, the domestic supply may exceed the demand for a year or two when production moves up from one plane to the other, as the domestic consumption generally rises along a gradual secular growth path. In such years, owing to the increased availability of grains, as the market prices tend to not only rule easy but also settle below the remunerative levels, it becomes important to provide effective price support on a considerable scale. As a consequence, while the purchases by the public agencies at support price tend to be higher, the demand for grains under public distribution system tends to be lower than that during the preceding years, resulting in accumulation of stocks with the public agencies. It has happened in the past also. For example, owing to a quantum jump in the production of foodgrains during 1983-84 followed by a good crop during 1984-85, the procurement exceeded the offtake by a considerable margin and as a consequence, the level of stocks of foodgrains with the public agencies had increased to 28.7 million tonnes during July 1985 and 28.3 million tonnes during July 1986. Given that the situations of stocks exceeding the minimum stipulated levels are bound to occur in some years, what is required is the prudent management of stocks. The stocks should be used for (i) reaching the grains

to the poorer sections of the society in a larger measure by keeping the prices of grains distributed to these sections at a reasonable level; (ii) undertaking open market sales of foodgrains to contain the rise in prices during the lean months; and (iii) promoting exports of a part of the available supplies of these grains.

As regards reaching the grains to the poorer sections, a revamped public distribution scheme (RPDS) was launched in 1992 with a view to extending the coverage of distribution of specially subsidised foodgrains to the population living in the hilly and arid areas also. In RPDS areas, foodgrains are supplied at a price lower by Rs. 50 per quintal than the central issue price (CIP) applicable for general PDS areas. The offtake of cereals under RPDS aggregated to 3.5 million tonnes during 1993, 3.6 million tonnes during 1994 and 4.1 million tonnes during 1995, but it was considerably lower than the assessed requirement of about 8 million tonnes for these areas. Efforts were also made to increase the offtake under employment generation/poverty alleviation programmes. Though the offtake under these programmes increased from 1.4 lakh tonnes during 1992 to an average of 3.8 lakh tonnes during 1993 and 1994 and further to 6.7 lakh tonnes during 1995, it was lower than what was expected. The offtake of foodgrains under general PDS was also considerably lower during 1993 and 1994 than that during the preceding two years. The explanation for lower offtake could be found in increased production in both surplus and deficit areas resulting in comfortable availability of the grains in the open market as also the steep hikes in CIP during January 1993 and February 1994 with a view to containing the food subsidy. Within a period of 13 months, the issue price of wheat was raised by 43.6 per cent whereas the increase in market prices during this period was only 14.2 per cent. In the case of rice, while the issue prices were raised by 42.4 per cent, the increase in market prices was only 11.6 per cent during this period. While the offtake under PDS, RPDS and other schemes remained low, with a view to containing the rise in the market prices during the lean months, wheat and rice from the Central pool were sold in the open market. The open market sales aggregated to 10.2 lakh tonnes during 1993, 44.8 lakh tonnes during 1994 and 78.3 lakh tonnes during 1995.

These apart, the available stocks were utilised to promote the exports, which also helped in reducing the carrying cost of these grains. The steps taken to promote the exports include decanalisation, relaxation of stock limits and suspension of levy by some State Governments on superfine non-basmati rice meant for exports, abolition of minimum export price and extension of benefits of the export oriented unit scheme to the rice processing units exporting at least 50 per cent of their output. The FCI was also authorised to export wheat and rice from its stocks at prices not below the CIP. The exports of rice, which after averaging at 6.8 lakh tonnes during the period 1991-92 to 1993-94 had increased to 8.9 lakh tonnes during 1994-95, went up by a considerable margin to over 54 lakh tonnes during 1995-96. There was also an increase in the exports of wheat from 0.9 lakh tonnes during 1994-95 to 6.2 lakh tonnes during 1995-96.

In the years when market prices rule easy and public agencies are required to purchase a considerable proportion of the market arrivals at a fixed support price, the farmers tend to sell a large part of their marketed surplus in the immediate post-harvest period. Even within the immediate post-harvest period, the arrivals, particularly in surplus producing areas, get increasingly concentrated only during a period of 5 to 6 weeks. The concentration of market arrivals during such a short period puts considerable pressure on handling, storage and movement facilities available with the public agencies. It also comes in the way of

adherence to the prescribed quality specifications by the procurement agencies. With a view to easing this problem, a system of staggered procurement of wheat with graduated support price structure has been suggested in some quarters (Tyagi, 1990; Vyas, 1994; Government of India, 1995e). Such a system essentially implies fixation of a price higher than the MSP, for the produce offered by the farmers to the public agencies later on in the season, to cover at least the holding cost. In this connection, it needs to be remembered that in the absence of adequate scientific storage facilities at the farm or village level, the losses due to insects, rodents and climatic changes during storage could be quite substantial. Further, a majority of the farmers usually dispose off their produce immediately after harvest to meet their requirements of cash for repayment of debts and fulfilling other social obligations. In such a situation, a system of staggered procurement with graduated price structure may not benefit these farmers much. The system might rather indirectly encourage speculative trading practices by reducing the price risk, as it would provide for a minimum rise in prices from the peak marketing period to the later months. This would also set a floor to the intra-year price rise, defeating the very purpose of procurement of foodgrains in the post-harvest season and distribution in the later months with a view to reducing the intra-year price spread.

There is also the question of determination of the holding cost which is to be offered to the farmers over the MSP for the grains delivered to the procurement agencies later on in the season. It has been shown that the raise in MSP to cover the holding cost, that would need to be offered to the farmers to make the holding of grains attractive works out to at least 11 per cent for a period of six months (Government of India, 1995 b). In case a price higher by 11 per cent than the MSP is fixed for the produce to be offered by the farmers to the procurement agencies after six months in the season, it would be viewed as benchmark for the level of MSP for the following season. The economy will not be able to sustain a rate of increase of such magnitudes in the MSP for staple foodgrains year after year. This apart, it will bring in uncertainties with regard to the quantities of foodgrains which may eventually become available to the public agencies during a particular year. Further, such a system of offering a staggered price cannot be kept confined to a commodity like wheat alone for which the harvesting season does not differ much amongst the major producing states. For many other important crops, the harvesting season varies across agro-climatic regions of the country. In case such a system is extended to these crops also, it would not only result in multiplicity of support prices for a single crop but would also complicate the support price structure and make its effective implementation difficult. In view of these implications, the CACP had not favoured this proposal because a system of staggered procurement with graduated price structure would not only create more distortions in the marketing and pricing system but also make food management more difficult and costly in the medium term (Government of India, 1995 b).

II

WHO BENEFITED FROM FOOD AND INPUT SUBSIDIES

Food and input subsidies have been used as complementary instruments of agricultural price policy which sought to (i) assure a remunerative and relatively stable price environment for the farmers for inducing them to increase the production and thereby augment the

availability of foodgrains; (ii) improve the physical and economic access of the masses to food; and (iii) evolve a production pattern which is in line with the overall needs of the economy.

Self-Sufficiency in Cereals

Of the several achievements of India's development strategy, improvement in the level of food security has been widely acknowledged the world over (Vyas, 1987; Tyagi, 1990; World Bank, 1991). It may be recalled that with the increase in domestic production, the share of imports in the net availability of cereals, which had increased to as much as 16 per cent during 1966 decreased during the second half of the seventies. However, the dependence on imports could not be completely eliminated till recently. Considering a block of five years, the net imports averaged at 1.7 million tonnes during the first half of the eighties and 0.5 million tonnes per year during the period 1985 to 1990. It was only during the period 1991 to 1995 that the exports of cereals exceeded the imports by about 2.8 million tonnes. This became possible, owing to a considerable increase in the production of cereals. The growth of production of cereals accelerated from 2.61 per cent per annum during the period 1967-68 to 1980-81 to 3.06 per cent per annum during the period 1980-81 to 1994-95. The rate of growth has been even higher at 3.15 per cent per annum during the last decade, i.e., 1984-85 to 1994-95 (Table 6). In absolute terms, the production of cereals which had increased from 72 million tonnes during TE 1964-65 to 90.5 million tonnes during TE 1974-75 went up to 130.2 million tonnes during TE 1984-85 and further to 171.5 million tonnes during TE 1994-95 (Table 7). Apart from the increase in the availability from domestic production, four important developments in the cereals economy need to be noted. Firstly, in the incremental production of 99.5 million tonnes between TE 1964-65 and TE 1994-95, the share of rice and wheat taken together was as much as 91.5 million tonnes. With rice and wheat contributing more to the incremental output, the share of coarse cereals, a component subject to wide inter-year fluctuations, in the total output of cereals, came down from 34 per cent during the TE 1964-65 to 19 per cent during TE 1994-95. Secondly, during the last decade, there has been a more diversified growth of production which helped in increasing the physical access to food. The contribution of rice to the incremental production during the last decade was considerably more than that of wheat. In the incremental production of cereals between TE 1984-85 and TE 1994-95, the contribution of rice was 22.9 million tonnes, that of wheat 16.7 million tonnes and that of coarse cereals 1.7 million tonnes whereas in the incremental production between TE 1974-75 and TE 1984-85, the contribution of rice was 14.2 million tonnes, that of wheat 20.6 million tonnes and that of coarse cereals 4.9 million tonnes. Further, the growth of production of rice during the last decade has been more dispersed geographically. The contribution of West Bengal, Tamil Nadu, Orissa, Madhya Pradesh, Karnataka and Bihar taken together, in the incremental production of rice between TE 1984-85 and TE 1994-95, was as much as 13.2 million tonnes whereas these states had contributed only 2.1 million tonnes in the incremental production of rice between TE 1974-75 and TE 1984-85. Thirdly, the increase in production was realised mainly by the improvements in yield per hectare. The growth of yield of rice accelerated

from 1.45 per cent per annum during the period 1967-68 to 1980-81 to 2.98 per cent per annum during the period 1980-81 to 1994-95 and that of wheat from 2.62 per cent to 3.01 per cent per annum during this period. Even in the case of coarse cereals, the rate of growth of yield during the latter period was considerably higher than that during the earlier period. Fourthly, the growth of yield was achieved at declining cost of production per quintal in real terms (Sinha, 1994; Mishra, 1994; Tyagi, 1990; Acharya and Verghese, 1991; Kumar and Rosegrant, 1994).

Economic Access to Food

While it is recognised that the situation of food supply has become comfortable, several questions regarding economic access to food are being raised. One way to measure the change in the degree of economic access to food is to examine the trend in the proportion of per capita income required to buy a unit of staple food (Tyagi, 1988, 1990). Using the implicit retail prices derived from the consumer expenditure surveys of National Sample Survey Organisation (NSSO), it is observed that the average per capita income required to buy a quintal of wheat in the urban areas which declined from 16.2 per cent in 1973-74 to 10.1 per cent in 1983-84 came down further to 7.1 per cent in 1990-91. For the rural areas, the percentage of per capita income required to buy a quintal of wheat declined from 15.4 per cent in 1973-74 to 8.7 per cent in 1983-84 and further to 5.9 per cent in 1990-91. This happened in the case of rice also (Table 8). In 1993-94, the per capita income required to buy a quintal of wheat and rice was nearly the same as that in 1990-91. But in 1994-95, based on the retail prices for rural areas compiled by the Labour Bureau,⁸ it is observed that the percentage of average per capita income required to buy a quintal of wheat and rice came down further to 5.0 and 7.8 per cent respectively. For urban centres also, as per the retail prices compiled by the Ministry of Civil Supplies,⁹ the proportion of average per capita income required to buy a quintal of wheat during 1994-95 was lower than that during 1990-91.

Another way of measuring the trend in economic access is to examine the difference between the rate of increase in per capita income at current prices and that in the prices of cereals. Between 1974-75 and 1984-85, while the average per capita income increased at the rate of 9.8 per cent per annum, the prices of wheat and rice, as measured by the wholesale price indices, increased at the rate of 3.6 and 5.9 per cent per annum respectively. Between 1984-85 and 1994-95 also, the rise in the prices of wheat as well as rice had been at a rate much lower than the rate of increase in per capita income. While the average per capita income increased at the rate of 12.9 per cent per annum, the prices of wheat and rice increased at the rate of 9.8 and 9.7 per cent per annum respectively (Table 9, Figure 2).

During the last two decades, the prices of rice and wheat increased at a rate lower than that of other commodities. Between 1974-75 and 1984-85, the prices of wheat in real terms¹⁰ declined at the rate of 4.0 per cent per annum and that of rice at 1.9 per cent per annum. Between 1984-85 and 1994-95 also, real prices of wheat and rice declined at the rate of 1.3 per cent and 1.4 per cent per annum respectively (Figure 3). The prices of wheat and rice in real terms during TE 1994-95 were lower by 19.6 per cent and 21.1 per cent respectively than their level during TE 1984-85. Thus the economic access to staple cereals in the country

has continued to increase even in recent years. If certain sections of the population are not able to have access to food due to very low purchasing power, the solution lies in creating more employment and income opportunities for them rather than solely relying on keeping the product prices at levels which may thwart the enthusiasm of the farmers for adopting new technology and making investment for increasing the production.¹¹

Farm Prices, Net Incomes and Terms of Trade

In the context of fair sharing of gains of technological progress and public investment between the consumer and the farmer, it is also important to assess the trend in prices realised by the farmers. For an individual commodity, the prices realised by the farmers are best represented by the farm harvest prices. The farm harvest prices of wheat and paddy in real terms (deflated by the index of prices paid by the agricultural sector) had been declining upto 1986-87 and 1987-88 but marginally recovered thereafter. However, the average of real farm harvest prices of wheat for TE 1993-94 was marginally lower than that for TE 1983-84 (Figure 4). The information on prices received by the farmers is also available from the Comprehensive Scheme on Cost of Cultivation of Principal Crops.¹² The real prices of wheat and paddy received by the farmers reveal a generally declining trend upto the end of eighties. Although the data set for the latest couple of years is not yet available, the declining trend appears to have been somewhat arrested.

However, the farmer is interested more in the net income from the cultivation of a crop than in the price of the product received by him. The data on gross income and cost of cultivation per hectare are available from the Comprehensive Scheme on Cost of Cultivation of Principal Crops. Though the CACP uses eight different concepts of costs, we preferred to use a cost concept C_1^* which includes all operational and fixed costs, imputed interest on own fixed capital and imputed value of family labour. In fact, C_1^* is CACP's C_1 plus rent paid for leased-in land. The difference between gross income and cost C_1^* provides a measure of return from the cultivation of a crop for land and managerial input of the farmer. The net income per hectare, thus calculated, was deflated by the weighted average of the index of prices paid by the agricultural sector for commodities purchased for final consumption and that for capital formation to work out net income in real terms from the cultivation of wheat and rice. It is observed that the net returns in real terms from rice and wheat were either maintained or improved since the early eighties, owing to the increase in yield per hectare (Table 10). The net income from the cultivation of wheat in real terms (at 1981-82 prices) in Punjab, which had initially declined from Rs. 2,468 per hectare during 1970-75 to an average of Rs. 1,331 during 1975-80, recovered to Rs. 1,580 during 1980-85, Rs. 1,924 during 1985-90 and increased to Rs. 2,525 per hectare during 1990-93. In Haryana, the net income in real terms from the cultivation of wheat, which had declined sharply from Rs. 2,433 per hectare during 1970-75 to Rs. 973 during 1975-80, recovered to Rs. 1,253 during 1980-85, Rs. 1,875 during 1985-90 and increased to Rs. 3,159 per hectare during 1990-93. In the case of paddy, the net income in real terms in Punjab, which had averaged at Rs. 2,477 per hectare during 1980-85 and tended to stagnate around that level during the period 1985-90, marginally improved to an average of Rs. 2,674 per hectare during 1990-93. In Haryana, where basmati variety occupies a considerable part of the total area under paddy, the net returns increased from Rs. 2,362 per hectare during 1985-90 to Rs. 3,542 per hectare

during 1990-93 (Figure 5).

It may also be relevant here to examine the trend in the net barter terms of trade for the agricultural sector. The indices of prices received and prices paid for goods and services purchased by the agricultural sector, as worked out by the CACP, show that the trend of deterioration in the barter terms of trade, which had set in during the early seventies got arrested in the late eighties and improved somewhat in recent years (Table 11, Figure 6). The improvement in the terms of trade since the late eighties occurred despite a sharp increase in the prices of critical farm inputs like fertilisers, insecticides, electricity for irrigation, diesel oil and oilcakes, owing mainly to higher prices realised by the agricultural sector for raw cotton, groundnut, coarse cereals, pulses, gur, meat and meat products and increase of a lower order in the prices paid by the agricultural sector for items of final consumption (Table 12). It is significant to note that the index numbers of prices received by the agricultural sector for wheat continues to be the lowest amongst all the items included in the construction of terms of trade. The index numbers for paddy/rice, sugarcane and fruits/vegetables are also lower than that for other items. Obviously, the improvement in the terms of trade for the agricultural sector observed during the last five years is not because of the rise in the prices of rice and wheat which are the staple food for the masses.¹³ While looking at the terms of trade for the agricultural sector, how important is the choice of price indicator is best illustrated by the behaviour of wheat prices during 1996. The price rise, which occurs in the market when the farmers have disposed off most of their surpluses, does not indicate increase in the prices realised by the farmers.

The observed recovery in the barter terms of trade for the agricultural sector in recent years does not deny the fact that the real incomes of a significant proportion of farm families in many regions continue to be low. In this connection, it is important to recognise that the price policy can not serve the objectives of an incomes policy. If per capita income of farm families continues to be low due to small holdings, poor quality of land and water or low marketable surplus, non-price measures would be needed for augmenting their incomes. Nevertheless, some instruments of price policy, like input subsidies can induce these farmers to use modern inputs and invest in yield-raising infrastructure. The policy can also help, as it did in the past, in making available the basic staple foodgrains at reasonable prices thereby inducing them to switch over their small land base to high value crops.

Crop Diversification

With the improved availability of staple cereals at declining real prices, the farmers in several regions diverted the resources from low yielding coarse cereals to other crops, which helped in increasing the availability of other commodities. Between TE 1984-85 and TE 1994-95, the area under oilseeds increased by 73.4 lakh hectares, vegetables and fruits by 18.2 lakh hectares, sugarcane by 4.6 lakh hectares and condiments/spices by 3.4 lakh hectares. The expansion in area under these crops occurred owing to both increase in the gross cropped area and shift away from low yielding cereals. Amongst cereals, while the area under rice increased by 19.7 lakh hectares and wheat by 11.9 lakh hectares, that under coarse cereals declined by 72.1 lakh hectares (Table 13). In the context of the need to augment the supply of other commodities for meeting the demand in the domestic market as well as for savings or earning foreign exchange, such shifts, which have occurred at the margin, is

a welcome development. The increase in the area was most conspicuous in the case of oilseeds which improved the availability of edible oils in the country. The increase in the production of oilseeds provides yet another example of as to how the dovetailing of trade policy with domestic price policy and interaction of these with technology could help in achieving the objective of evolving a production pattern consistent with the overall needs of the country (Acharya, 1993).

Thus the agricultural price policy which was considered as an integral part of the strategy of agricultural development subserved the objectives of achievement of self-sufficiency in foodgrains, fair sharing of gains of technology and public investment between the farmers and the consumers, improvement in the economic access to food and the needed diversification of the cropping pattern consistent with the emerging pattern of demand and development of backward and dryland regions. Further, owing to the increased economic access to food, the industry and the governments could keep their wage bills low as the wages in the organised sector are linked to the prices of consumer goods and foodgrains have a considerable weightage in the price index. The input subsidies also helped the government in keeping the food subsidy bill low. The benefits of input and food subsidies have, thus, been shared by all the sections of the society, i.e., surplus producing farmers, other farmers who are net purchasers of foodgrains, landless labourers, urban consumers and the industry.

Some scholars have measured the benefits of food subsidy to various sections of the society in terms of per capita purchases from the public distribution system multiplied by the difference in the market prices and issue prices of grains. This is too narrow a view of the role of food subsidies and the estimates of benefits to various sections or regions so arrived at are misleading. The market prices are not independent of the issue prices, quantities distributed under PDS and the overall availability of foodgrains in the country. Further, the availability over time is not independent of price support programme with food and input subsidies being its integral components. What needs to be recognised is that the subsidies have been an important input in the achievement of the objective of food self-sufficiency and accelerated growth of the economy.

III

POLICY ISSUES

Growth of Agricultural Production: Past Performance and Outlook

While analysing the implications of the suggested package of reforms, it would be relevant to take stock of the performance of agricultural production in the recent past and sources of future growth. The growth of agricultural production accelerated from 2.89 per cent per annum during the period 1974-75 to 1984-85 [decade ending (DE) 1984-85] to 3.80 per cent per annum during the period 1984-85 to 1994-95 (DE 1994-95), despite a deceleration in the growth of cropped area from 0.51 per cent to 0.37 per cent per annum, owing to the improvement in yield per hectare during the latter period at a rate higher than that during the preceding period. The rate of growth of productivity per hectare of all the crops taken together went up from 2.07 per cent during DE 1984-85 to 2.51 per cent per annum during DE 1994-95 (Table 14). While there was no acceleration in the growth of production

of foodgrains during DE 1994-95,¹⁴ the growth of production of non-foodgrains accelerated considerably from 2.71 per cent per annum during DE 1984-85 to 5.02 per cent per annum during DE 1994-95. However, the growth of production of foodgrains during DE 1994-95 could be maintained at a rate of 3.0 per cent per annum despite a decline in area during this period, owing to the acceleration in the growth of yield per hectare. In the case of non-foodgrains, the acceleration in the growth of production during DE 1994-95 occurred owing to a step up in the rate of growth of both the productivity per hectare and area under these crops. While the area under foodgrains, which had increased at the rate of 0.31 per cent per annum during DE 1984-85, declined at the rate of 0.32 per cent per annum during DE 1994-95, that under non-foodgrains increased at the rate of 1.08 and 2.58 per cent per annum respectively during these periods.

In the context of growth of production of foodgrains remaining stagnant at around 3.0 per cent per annum during the last decade, it is important to recognise that despite the projected deceleration in the growth of population, the growth in demand for foodgrains may not slow down if the growth of income is accompanied by redistribution in favour of the poor. Further, with the rise in incomes, the consumption pattern of some households shifts away from cereals to items like milk, milk products, meat and eggs which, in turn, would also increase the demand for foodgrains as feed. Even the conservative projections of demand for foodgrains in the country suggest that, during the next decade, the annual incremental output of foodgrains would need to be higher than that achieved so far during the nineties.¹⁵ Apart from foodgrains, the growth of production of other agricultural commodities would also need to be stepped up as this is critical for balanced and accelerated growth of the economy. Despite the opening up of the opportunities to import some of the agricultural commodities under the changed world economic environment, it would be prudent to have a strategy for agriculture to keep its aggregate production potential in line with the objective of accelerated growth along with improved food and nutrition security and development of dryland and relatively backward areas.

As the scope for extension of area is limited, acceleration in the growth of agricultural production would depend on increases in the intensity of cropping and further acceleration in the growth of yield. This would, *inter alia*, require better utilisation of water resources and upgradation of technologies for both rainfed and irrigated areas which would necessitate adequate investment in the agricultural sector. Though there has been, of late, a turnaround in the trend in capital formation in agriculture, the investment during TE 1992-93 was considerably lower than that during TE 1980-81. Total gross capital formation in agriculture in real terms (at 1980-81 prices), after declining from Rs. 5,043 crores during TE 1980-81 to Rs. 4,260 crores during TE 1988-89, recovered to Rs. 4,578 crores during TE 1992-93. The recovery in investment during the recent years occurred owing to the increase in investment by the private sector. While the investment in agriculture by the private sector which had declined from Rs. 3,288 crores during TE 1980-81 to Rs. 2,844 crores during TE 1988-89, increased to Rs. 3,505 crores during TE 1992-93, that by the public sector declined from Rs. 1,755 crores during TE 1980-81 to Rs. 1,416 crores during TE 1988-89 and further to Rs. 1,073 crores during TE 1992-93. Notwithstanding this recovery, the share of agriculture in the total private investment during TE 1992-93 was considerably lower than that

during TE 1980-81. Recognising the importance of capital formation in accelerating the growth of agricultural sector, there is a need to step up the public investment particularly in areas where the levels of agricultural production continue to be considerably lower than the potential and at the same time, strengthen the incentive framework for agriculture with a view to attracting more private investment into this sector (Government of India, 1995 d).

Many scholars have been arguing that aggregate supply response to prices is weak and it responds more favourably to non-price factors like marketing infrastructural facilities and input delivery services than to better prices. In this connection, it ought to be recognised that the marketing infrastructure helps the farmers in expanding the market for their produce and in getting better prices. When the farmers start getting right price signals, they look for and adopt the modern inputs and new technology for increasing the production. If production responds to expansion in marketing infrastructure, it essentially means, the price response is positive and strong. A recent World Bank study (Maurice and Valdés, 1993) provides evidence that a failure to get prices right can have enormous adverse effects on the growth of agricultural output. If prices received by the farmers are not at appropriate levels, they can dominate everything else - education, research, adequate input supplies - by destroying incentives (Johnson, 1995). However, recognising that the right price is a necessary but not the sufficient condition for higher growth of agricultural production, the incentive framework must encompass a combination of productive technology package for various regions, adequate and timely availability of inputs including credit, infrastructural facilities for marketing and above all a stable and remunerative price environment. It is in the context of the need for maintaining the incentive framework for the agricultural sector without undue rise in the prices of farm products, some of which account for a considerable part of the expenditure of the masses, that the issues relating to the continuation of price support programme, withdrawal of food and input subsidies and opening up of the trade for agricultural commodities need to be analysed.

Price Support Programme

With the increasing trend of crop specialisation according to the comparative advantage of various regions and consequent increase in market orientation, the prices would guide the farmers' decisions much more than in the past. If the price support mechanism is not in place, as the marketing infrastructure in several areas continues to be weak, the farmers would suffer owing to wide fluctuations in prices and consequently they may lose the enthusiasm to increase the production and the tempo of growth may slow down. With the farm sector getting increasingly linked to the world market, the role of minimum support price would be even more crucial. It is well known that the prices in the international market are more volatile than those in the domestic market (Nayyar and Sen, 1994). Unless the policy of minimum support price continues, as the recent experiences of cotton and pulses as also wheat show, we may end up in importing price instability rather than benefiting the farmers. In a more liberalised economic environment, a price support programme becomes all the more important to prevent any adverse impact on the farm sector. It is rather imperative to make it more effective in all the areas so that the farmers in hitherto low productivity

regions also get the right price signals to adopt modern inputs and invest in yield-raising infrastructure for increasing the production.

While the instrument of minimum support price would help the farmers in minimising price uncertainty and realising a better price even in the years of bumper production, for improvement in the overall realisation of the farmers, it would be necessary to lay emphasis on co-operative marketing and strengthening the marketing infrastructure which continues to be inadequate in several areas. This apart, it would also be important to improve the performance of the domestic market. Several provisions such as stock limits, credit controls, levy on rice millers and sugar factories, restrictions on trade in rice and wheat in certain areas of West Bengal and state monopsony in cotton in Maharashtra come in the way of efficient functioning of the market. There is a need for a fresh look at these provisions with a view to improving the realisation of the farmers.

Food Corporation of India and Food Subsidy

So long as a policy of MSP is pursued, an agency is needed to implement the policy. The agency is expected to intervene in the market and purchase all the quantities offered at the MSP. In the case of cereals, the FCI is performing this role since its inception in 1965. But a case for abolition of this agency is being made out in certain quarters on the basis of high cost of its operations and consequent increase in the food subsidy. The total food subsidy reimbursed by the government to the FCI in a year includes the subsidy on sugar, preceding year's arrears and carrying cost of the stocks from one year to the other. Further, as the quantity handled by the FCI varies from year to year, the figures of budgeted subsidy needs to be interpreted with care. For an objective assessment of the cost incurred by the FCI vis-a-vis the private trade in handling of foodgrains what is relevant is the cost of procurement and distribution of a unit of grains.

The latest estimates of procurement incidentals and distribution costs incurred by FCI for wheat pertain to the year 1994-95 (Table 15). Out of the total procurement incidentals of Rs. 75.78 per quintal, mandi charges, purchase/sales tax and gunny cost, taken together, a component over which the FCI has no control, account for as much as 67 per cent. In the total cost of distribution, interest and freight, a component which depends on the rate at which credit and transport facility is made available to it by the financial institutions and the railways as also the average distance the grains are transported, account for as much as 69 per cent. During 1994-95, FCI incurred an expenditure of Rs. 181.29 per quintal on procurement and distribution of wheat. Out of this, Rs. 129.80 or 71.6 per cent was on items over which the Corporation has no control whatsoever. The implication is that the private trade would also have to incur an expenditure of this magnitude if it operates in the formal marketing channel, carries the grains to the distance equivalent to the average lead of FCI and concessional transport, as provided to the FCI, is also made available to it. Even the shortages during storage and transit are not high. Considering both wheat and rice together, the losses or shortages during storage and transit are estimated at 0.98 per cent during 1994-95.¹⁶ It is doubtful whether these in the private channel could be lower than this. Keeping aside the ideological arguments against a public sector organisation, the only basis

of criticism of FCI's cost could be the establishment charges and administrative overheads which aggregate to Rs. 14.99 per quintal, accounting for 2.8 per cent of the economic cost of wheat. But even these are considerably lower than the net margins of the private trade (Government of India, 1985; Acharya, 1985). Studies have shown that the wholesale prices of rice and wheat in the urban centres have not been lower than the economic cost of cereals handled by the FCI (Jharwal, 1994).

A related aspect is the carrying cost of grains, i.e., the cost incurred by the FCI in carrying the inventory of grains from one year to the other. The carrying cost of FCI during the last two years has remained around 29 per cent of the economic cost at the godown (Table 16). The most important item of carrying cost is interest charges, which work out to around 56 per cent of the total carrying cost. In the absence of public agency, the private trade is expected to carry the inventory from a year of bumper harvest to a lean production year and it would undertake this operation if a return at least equivalent to the carrying cost is anticipated. Considering the interest and other costs, it has been shown (Tyagi, 1990) that the private trade would undertake this operation only when it would be assured of a return of more than 35 per cent. Even if the difference in the rate of interest, at which the credit is available to the FCI and that to the private trade, is taken into account, the carrying cost incurred by the FCI cannot be considered to be higher than that of the private trade. These observations are not to suggest that there is no scope for improvement in the efficiency of the food management system but only to emphasise that food subsidy is not the subsidy to the FCI.

Input Subsidies and Cost Recovery

The input subsidies are being questioned as they have increased in volume and are being considered as a burden on government finances. The decline in public investment in agriculture and irrigation is being attributed to these subsidies. In this connection, it must be recognised that increase in the volume of subsidies is not entirely attributable to the farm sector. The estimates of subsidies depend on the concept adopted for this purpose. The theoretical concept may provide vastly different estimates than those presented in the government budgets. For example, though the fertiliser subsidy, according to government budgets, increased from Rs. 505 crores during 1980-81 to Rs. 5,241 crores during 1994-95, studies have shown that nearly half of this was in effect the subsidy to the fertiliser industry or its feedstock supplying agencies (Gulati, 1989; Tyagi, 1991; Vidya Sagar, 1993).¹⁷ The subsidy on electricity for irrigation is estimated as the difference between the unit cost of generation and distribution and average user charges multiplied by the total electricity supplied to the agricultural sector. It is well known that a considerable part of the unit cost of electricity is due to inefficiency in the transmission and distribution systems. An even more important aspect is the treatment of the difference between average unit cost of electricity and user charges for the agricultural sector as subsidy. Even a profit maximising monopolist does not charge the same price from all the groups of buyers in case the price elasticities of demand are different and segmentation of the market is possible. Given the differences in price elasticities of demand for electricity among various consumer categories,

viz., domestic, commercial, industrial, railways and agriculture, price of electricity charged from the agricultural sector ought to be lower than that for other categories of consumers. This, if taken into account, would suggest that the per unit subsidy on electricity supplied to the agricultural sector is considerably lower than what is generally projected. Further, the estimates of total electricity used in agriculture are inflated due to the residual method employed in these assessments. In the case of canal irrigation projects, the costs of operation and management are inflated on account of inefficiencies in management and unduly high wage bill. These methodological problems apart, it needs to be accepted that the prices of fertiliser and user charges for electricity and canal irrigation have been lower than what ought to have been. However, the withdrawal of subsidies and consequent increase in the prices of critical inputs is bound to dampen the enthusiasm of the farmers to use modern inputs and invest in yield-raising infrastructure as it would result in a further squeeze in the income from farm enterprises (Acharya, 1994 b).

Sometimes it is argued that the adverse effect of a raise in input prices on production and farm incomes can be mitigated by compensating the farmers through increase in output prices. In this connection, it needs to be remembered that nearly 59 per cent (62 million out of 105 million) of the farmers in the country operate less than one hectare of land. These farmers are net buyers of grains. In addition, more than 19 per cent of the farmers (20 million) operate between one and two hectares of land, with very little marketed surplus. For most of these small and marginal farmers, prices of inputs are more important than the level of output prices. The available data from the All-India Agricultural Census indicate that the share of these farmers in total area irrigated by canals is around 40 per cent and by tubewells 38 per cent. These farmers account for 42 per cent of electrified wells and 35 per cent of tubewells with electric pumpsets. The share of small and marginal farmers in total area under paddy is 46 per cent and under wheat 37 per cent. The use of fertilisers by small and marginal farmers and by those in unirrigated areas is also not insignificant. The studies show that by the late eighties, 80 per cent of the farmers had adopted fertiliser use and besides nearly 85 per cent of the irrigated lands, 50 per cent of unirrigated lands were receiving some fertiliser application (Desai and Rustagi, 1991; Rao and Gulati, 1994). As a consequence of a raise in the prices of fertilisers or user charges for electricity and canal irrigation, the cost of production for these farmers would also increase and as this would not get fully compensated by the product prices, the cost of living of these families would go up. Further, as majority of them are net buyers of foodgrains, they would end up paying higher prices for both the inputs and the grains purchased by them. As regards compensating the farmers who produce primarily for the market, it needs to be noted that except for paddy and wheat growers in surplus producing regions, the prices realised by them are generally not the administered prices. The adjustment in floor prices may not help much in compensating the farmers for increase in input prices.

In the case of rice and wheat, the compensation for the rise in input prices to the surplus producers in areas where every year considerable quantities of these grains are purchased by the public agencies at minimum support price can no doubt be provided by suitably adjusting the level of support prices. But increases in the minimum support prices of wheat and rice beyond a point would increase the quantities of these grains that would have to be

purchased by the public agencies and would also lift up the prices of these grains in the market, contributing to the inflationary pressures in the economy. Further, if procured grains are distributed to the vulnerable sections at affordable prices, the food subsidy bill would increase. This is amply borne out by the experience in the recent past, when several measures were taken to contain the increase in the level of subsidies. The prices of phosphatic, potassic and low analysis nitrogenous fertilisers were decontrolled and that of urea were raised substantially. Canal irrigation charges were raised in a few states. The electricity rates for irrigation were also hiked in many states. Between 1991 and 1993, the prices of fertilisers went up by 63 per cent and the rate of electricity by 43 per cent. Though a little later, some states reduced the electricity tariff and adhoc subsidy on P and K fertiliser was given, the index of wholesale prices for the year 1995 was 86 per cent higher for fertilisers and 55 per cent higher for electricity for irrigation than that for 1991. When the farmers were compensated for these increases in the prices of crucial inputs, the procurement by public agencies had to be increased and despite raise in the issue prices, food subsidy bill went up.

What needs to be recognised is that compensating the farmers for a raise in input prices through increase in output prices is neither feasible for all crops nor free from adverse consequences on food security, general price level and food subsidy bill. Several scholars have analysed the implications of withdrawal of input and food subsidies using partial or computable general equilibrium models.¹⁸ Most of these studies reveal that after the withdrawal of the subsidies, the poor will be worse off. However, these also reveal that if reduction in subsidies is accompanied by additional investment in irrigation, both welfare of the poor and growth would improve. In accepting such propositions, it must be kept in view that while the effect of withdrawal of subsidies would be widespread and immediate, the benefits of additional investment in irrigation would be localised and percolate only after a lag. Further, as only a part of the subsidy shown in government budgets is the subsidy to the farm sector, a raise in the prices of inputs or user charges would not substantially reduce the total outgo of the government under these heads. For improvement in budgetary resources, it may be desirable to look at the avenues in other sectors also where there are several cases of explicit/hidden subsidies and duty evasions, with much less repercussions of withdrawal and tightening.

However, as the fertilisers and irrigation would continue to remain critically important for accelerating the growth of agricultural production in the foreseeable future, improvement in their use efficiency need utmost attention. Though average consumption of fertiliser has gone up considerably in both irrigated and rainfed areas, for several crops and in many areas the fertiliser application is still at the promotional stage. The fertiliser use is yet to pick up in the case of coarse cereals, pulses and oilseeds and there is periodic discontinuation of use by a significant proportion of farmers, particularly in rainfed areas. There is a need for increasing the rate of fertiliser application in the central and eastern regions, apart from promoting the balanced use of three nutrients. In some areas where the farmers tend to apply higher than recommended dosages of fertilisers, the facilities of soil testing for generating location-specific recommendations regarding nutrient deficiency and training of the farmers need to be strengthened for improving the efficiency of fertiliser use (Vaidyanathan and Desai, 1994).¹⁹

In the case of electricity, the flat rate system and irregular supply have been identified as the main reasons for inefficient use of both electricity and groundwater. For solving the problem of overuse of groundwater, while some raise in electricity charges for irrigation may help in discouraging the farmers to go for water intensive crops in certain areas, the emphasis would need to be on farmers' education and replacement of flat rate by a system of metered supply. Further, it would also be important to improve the efficiency of the transmission and distribution systems and reduce power thefts and defaults in payments for increasing the cost recovery.

As regards the low irrigation charges leading to the problem of waterlogging and salinity, the studies (Dhawan, 1995) have shown that the incidence of waterlogging and salinity in India is not unduly more than that occurring elsewhere in the world. The degradation of land due to waterlogging and salinity accounts for only one-tenth of the total degraded land and at least half of such lands are naturally waterlogged or salinised. The total area classified as canal related degraded lands is about six million hectares. The incidence and corrective measures taken to overcome the problem vary from state to state and even from command to command. Wherever private dugwell irrigation within the command areas has been encouraged, the incidence of waterlogging and salinity has been considerably lower. The wasteful and overuse of canal water arises largely due to water charges at flat rates which do not give the user a correct idea about the scarce nature of this input. Further, as the irrigation rates have not been revised since long in many states, these have become much divorced from even the operation and maintenance expenses. There is certainly a case to rationalise the irrigation rates but there has to be a link between the quality of service provided by the management of command areas and payment of service charges. The absence of this link has often provided a ground for resisting the rise in canal charges (Rao, 1994). The improvement in the management of canal water supply system and efficiency in water use at the farm level would need much more attention. Several suggestions have been made in this regard by various committees and scholars (Vaidyanathan, 1991, 1994; Government of India, 1992; Gulati *et al.*, 1994).

Trade Policy

As regards the trade policy, till the end of the eighties, except for traditional items like tea, coffee, tobacco and spices, both imports and exports were kept restricted. The trade flows were perceived as residual in ex ante sense and controlled through either quantitative restrictions, canalisation or some combination of both. Apart from the constraint of balance of payments, the rationale underlying the trade policy regime has been a concern about the level of domestic prices particularly of exportables or importables which are wage goods, or inputs for wage goods, because majority of the poor in India do not have incomes that are index linked (Nayyar and Sen, 1994). The question of export of a farm product arose only when the supply exceeded the effective demand by a large margin. The instrument of import was deployed to further the objective of augmenting the domestic availability but its effect on the incentives for encouraging domestic production was also kept in view.

The trade policy regime has undergone a considerable change during the last few years.

Canalisation has almost been abandoned. The imports of most of the agricultural commodities have been decanalised and duties brought down. Quantitative restrictions on exports of several commodities have been removed and for many others the ceilings have been raised. The recent trade policy regime for agricultural commodities can be summed up as follows: the exports of basmati rice, hybrid jowar, HPS groundnut, sesamum, safflower, coconut, copra, spices, fruits, vegetables and cashew are allowed freely. The export of non-basmati rice, wheat, jowar, bajra, maize, ragi, barley, rapeseed, mustard, sunflowerseed, pulses and raw cotton is also allowed freely but within the quantitative ceilings specified from time to time. The export of onion and nigerseed is canalised. The export of edible oils is also allowed but only in consumer packs of upto 5 kg. The import of major edible oils (except coconut oil) has been placed under open general licence (OGL) with a reduced duty of 20 per cent. The import of cotton is also allowed under OGL without duty. In the case of pulses, the duty on imports, which have been under OGL since long, has been brought down to 5 per cent. The import of raw jute is also allowed under OGL. Clearly, the changes in trade policy, already effected, represent a fundamental departure from the past regime. The degree of openness has considerably increased.

Some scholars have analysed the implications of liberalisation of trade in agricultural commodities for growth, welfare and inter-regional inequalities (Bhagwati and Srinivasan, 1993; Nayyar and Sen, 1994; Pursell and Gulati, 1993; Parikh et al., 1993; Bhalla, 1995). Several aspects of a free trade regime, which implies linking the price structure in the domestic market with that in the world market, need to be carefully considered. First, the prices of essential commodities cannot be delinked from the level of incomes of the masses; second, the relative price structure that prevails in the world market is not based on the comparative advantage that different countries have in producing various commodities but reflects only the residual market. Third, the world market price structure is highly distorted due to subsidies on exports granted by some countries. Though the new trade arrangement under World Trade Organisation (WTO) provides for partial reduction in subsidies and border protection measures over a period of 6 to 10 years, the actual changes and the commodities which are going to be affected more would be known only at the end of the implementation period (FAO, 1994). There are many areas in which the agreement is not explicit. Fourth, the countries which had developed their land use pattern on the basis of the then existing world market price structure are likely to suffer with the recent changes in the world trade regime. Even the strong supporters (OECD) of WTO feel that though the new accord would add \$ 200 billion a year to the world economy, countries in Sub-saharan Africa would suffer a net trade loss of \$ 2.6 billion a year by the year 2000. This would happen because as subsidies to European and US farmers are cut, prices of wheat and corn which are import staples for many African countries will rise. Conversely, free trade would drive down prices for African cash crops such as coffee and cocoa as favourable access enjoyed by many African countries to European markets would be reduced. Similarly, Latin American and Caribbean countries may also encounter a negative effect on balance of trade because these are net food importers. Fifth, a complete free trade may result in increased price instability in the domestic market because the world market is highly volatile. Both inter-year and intra-year fluctuations in the prices of agricultural commodities in the world market are very sharp. For example, during the eighties, within a single year the difference

between the minimum and maximum price in the world market was reported to be as high as 76 per cent in rice and 60 per cent in wheat (Tyagi, 1990). Even during 1995, the difference between the minimum and maximum prices of wheat was 41 per cent and that of rice 36 per cent (World Bank, 1996). Sixth, the small country assumption does not hold good for India. The experience suggests that India's entry in the world market would affect the world prices and as a consequence the gains from free trade may be smaller than expected.

A comparison of the prices in the domestic market with that in the world market indicates that a move towards more open trade regime is likely to increase the prices of rice, cotton and to some extent wheat in the domestic market and decrease the prices of edible oils and sugar. There would be gainers as well as losers from opening up of the trade. Amongst the farmers, growers of rice, cotton and wheat would be gainers. The losers would be net buyers of rice and wheat and growers of sugarcane and oilseeds. As any increase in the average level of prices of rice and wheat has far reaching implications not only for the economic access to food of the masses but also for the general price level, freeing of trade in these cereals would not be in the overall interest of the country. A watch on the impact of exports and imports on the availability of these grains and thereby on the price level in the domestic market would be critically important for food security. From this point of view, the option of imposing quantitative restrictions from time to time needs to be retained but with a view to deriving the gains from exports whenever the domestic price policy considerations so warrant, announcement of export quota in time becomes quite critical. An *ad hoc* policy which is formulated and announced on a month-to-month basis is not conducive to the improvement of the quality to international standards and developing our own markets by establishing the country as a reliable supplier. Such a policy, which is announced after the peak arrival period is over, also does not help the farmers in realising a better price. In the case of commodities like rice, wheat and cotton, where some surpluses have started emerging, it would be prudent to adopt a medium-term policy of exports of some minimum quantities and announce the policy well in advance to enable the exporters to go in for contracts, make purchases during the peak arrival period and meet the delivery schedules stipulated by the importers.

Oilseeds Policy

The impact of trade liberalisation is likely to be much more serious in the case of oilseeds. Several scholars have commented on the policy of promoting the production of oilseeds in the country. While some suggest that the promotion of the production of oilseeds should constitute an integral component of the country's overall strategy to promote sustained and balanced growth of the agricultural sector (Shenoy, 1993; Acharya, 1993 and 1994 a; Bhalla, 1995; Ninan, 1995), others argue that the increase in the production of oilseeds is indicative of a high degree of allocative inefficiency (Pursell and Gulati, 1993; Gulati *et al.*, 1996). The main argument against the policy of encouraging the production of oilseeds is that the increase in the production has come about at the cost of cereals, pulses and cotton in which India has a comparative advantage and that the production is taking place at double the world prices.

The analysis of changes in area under different crops reveals that between TE 1984-85 and TE 1994-95, the area under soyabean increased by 31 lakh hectares, rapeseed/mustard by 23.4 lakh hectares, sunflower by 15.8 lakh hectares, *kharif* groundnut by 6.4 lakh hectares and under *rabi* groundnut by 1.9 lakh hectares (Table 17). At the aggregate level, the expansion in the area under oilseeds was accompanied by an increase in the area under rice, wheat, maize, fruits/vegetables, condiments/spices and sugarcane, with gross cropped area going up by 75.6 lakh hectares. During this period, there has been a considerable decrease in the area under jowar, bajra and low yielding coarse cereals. In the case of pulses and cotton also, some marginal decrease in area has occurred but it should be interpreted with caution as the area under pulses as also under cotton in some states is characterised by wide inter-year fluctuations. The increase in the area under oilseeds occurred mainly through the expansion of cropped area and shift from low yielding coarse cereals. With area under low yielding coarse cereals declining and that under rice, wheat and maize increasing, fluctuations in the cereals production have considerably reduced and as the growth of production of cereals has remained at a comfortable level, this shift in area at the margin helped in achieving a production pattern which is consistent with the emerging demand pattern. Further, such shifts have taken place in those regions where irrigation facilities are inadequate and which do not have a comparative advantage in growing cereals. In several drought-prone areas where crop failures in the case of even a drought hardy crop of jowar are not uncommon, sunflower crop has proved to be a boon to the farmers. Similarly in many areas, where the farmers, due to inadequate irrigation facilities, had to either leave the land fallow or suffer the loss of inputs, they are able to raise an oilseed crop under limited moisture conditions as these crops have better capacity to tide over the moisture stress. The growth of oilseeds production through such changes in agronomic practices has largely benefited the farmers of dryland or rainfed areas which, to some extent, reduced the disparities between irrigated and dryland regions and between resource rich and resource poor farmers. This becomes even more clear if statewise changes in the cropping pattern are examined (Table 18).

As regards the cost of production of oilseeds and edible oils, several points need to be noted. First, the cost of production of mustard oil and sunflower oil is considerably lower than that of groundnut oil (Acharya, 1993). With the increase in the share of mustard oil and sunflower oil in the total output of edible oils, the average cost of production of edible oils basket has come down. Between 1980-81 and 1993-94, in the incremental production of 25.5 lakh tonnes of seven edible oils, mustard oil and sunflower oil together accounted for 48 per cent. Second, it has been shown that increase in the production of mustard has come about at decreasing real cost. Third, oilmeals and extractions need not be treated as simply a by-product of oilseeds/edible oils production process as these have not only increased the supply of cattlefeed but also helped in earning foreign exchange. The earnings from exports of oilmeals increased from Rs. 134 crores during 1985-86 to Rs. 2,324 crores during 1993-94. Fourth, a comparison of cost of production of various edible oils in the country and landed cost of imported edible oil (Rs. 1,440 per quintal during 1993-94 and Rs. 2,068 per quintal during 1994-95) reveals that the domestic cost of production²⁰ of major edible oils is not higher than the landed cost (Table 19). Further, the bulk of the imported oil consists of palmolein which has limited preference in the domestic market. The consumer preference, though somewhat weakened due to the entry of blended oils, continues to be strong in several areas. For example, there is a strong preference, as a cooking medium, for

mustard oil in north-east India, groundnut oil in western and southern states and coconut oil in Kerala.

Though it is true that the expansion of area contributed more to the increase in the production of oilseeds, at least two phases in the growth of production of a commodity need to be recognised. First, when area expansion is rapid, the contribution of improvement in yield to the increase in production is bound to remain low. Second, when the rate of expansion in area slows down, the growth of production takes place mainly through the improvement in yield. Between TE 1974-75 and TE 1984-85, when expansion in area under oilseeds (nine oilseeds taken together) was slow, the improvement in yield, which was only marginal, contributed as much as 65.7 per cent to the incremental production. However, between TE 1984-85 and TE 1994-95, when area increased at a rapid rate, despite the rate of improvement in the average yield being nearly the same as that during the preceding decade, the contribution of improvement in yield to the incremental production worked out to only 34.4 per cent. While comparing the contribution of improvement in yield to the incremental production of different crops, it should not be forgotten that oilseeds are generally grown on marginal and less fertile lands with no or at the most limited irrigation facilities and crops like wheat are largely grown on better lands under assured irrigated conditions. Given the agro-climatic conditions under which oilseeds crops are grown in the country and very high degree of location specificity of technology, the yield improvement and its interaction with area contributing as much as 48.2 per cent to the incremental production is not a small achievement. In the case of groundnut, the contribution of improvement in yield and interaction effect to the incremental production between TE 1984-85 and TE 1994-95 was as much as 63.5 per cent. During this period the contribution of these components to the incremental production of mustard was 41.7 per cent, of soyabean 30.9 per cent and of sunflower 16.9 per cent (Table 20). Thus it is not the expansion in the area only which has contributed to increase in the production of oilseeds. However, as the possibility of further expansion in area is limited, efforts for improvement in the yield of oilseed crops through upgradation of technologies would need to be stepped up. With a view to inducing the growers to adopt yield-raising inputs for increasing the production, it would be necessary to maintain a favourable price climate. In this connection, while the policy of minimum price support is pursued vigorously and oilseed growers' co-operatives play a greater role in increasing the share of growers in the consumers' rupee, it would also be important to dovetail the trade policy and the duty structure on imported oils with the domestic price policy so that the incentive framework for oilseeds remains in place for increasing the production of oilseeds and development of dryland and hitherto less developed regions. The production potential and processing infrastructure built up over a long period, if dismantled, cannot be rebuilt without incurring heavy economic and social costs.

IV

CONCLUDING OBSERVATIONS

A false impression is being created that price support programme and input and food subsidies have benefited only a few crops and farmers in only some regions. In fact, the instruments of minimum support prices, food subsidy and input subsidies have played an

important role in achieving the objectives of food security and accelerated growth of economy and benefited all the sections of the society. The regime of low-input prices and low-output prices was consistent with the average income level of the masses and yet encouraged the farmers to adopt new technology and increase production. Despite the pressure generated by a feeling of crisis, the approach to withdrawal of input and food subsidies and liberalisation of trade in agricultural commodities has been cautious and gradual, owing to the far reaching implications of these for food security, growth and equity.

In the context of the several suggestions being made to reformulate the agricultural development and price policies, it ought to be recognised that the economy can be made market friendly but it is doubtful whether markets can be made poor-friendly. For the poor, landless labourers, small and marginal farmers as also for other farmers who do not have the capacity to hold the produce, in a market friendly economy, government support of appropriate type and a member-friendly co-operative structure are unavoidable. Our analysis reveals that at the present juncture (a) the objective of self-sufficiency in cereals should continue to remain on the top of the agenda which is desirable from the point of view of both efficiency and equity; (b) the policy of minimum guaranteed prices for agricultural products need to be continued and implemented effectively in all the regions of the country; (c) a mix of input and food subsidies should remain an integral part of agricultural price policy and, in turn, of the development strategy; (d) a policy of buffer stocking of cereals and public distribution of foodgrains must continue for stabilising the prices in the interest of both producers and consumers; (e) keeping in view the important role played by the Food Corporation of India in providing price support to the farmers and reaching the foodgrains in even remote and difficult areas, the institution need to be retained as an important component of food security and management system; (f) the production of oilseeds be encouraged in the country with a view to augmenting the availability of edible oils and deriving gains from the exports of extractions as also for development of rainfed and dryland areas; (g) with a view to improving the nutritional level of masses, the production of pulses, which are mainly grown in dryland/rainfed areas, be encouraged by inducing the farmers to adopt yield-raising inputs and reducing the spread between prices in the retail market and those received by the farmers which may, *inter alia*, require undertaking purchases of one to two lakh tonnes of pulses every year during the peak arrival period from major producing areas and selling the processed pulses later on in the season either in the open market or through PDS outlets; (h) as a part of medium-term policy, a minimum quantity of rice and wheat be allowed for export every year on a regular basis and simultaneously distribution of subsidised cereals to economically weaker sections be increased by keeping the issue prices at affordable levels; (i) a minimum quantity of raw cotton be allowed for export every year and for meeting the domestic shortfall in availability in some years, the present policy of imports of cotton under OGL without duty be continued; and (j) for increasing the realisation of farmers, marketing infrastructure, which continues to be weak in several areas, should be strengthened, marketing by growers co-operatives be encouraged, and efficiency of the functioning of the domestic market be improved.

NOTES

1. In spite of subsidies on inputs, as the output prices were maintained at below world levels, the agricultural sector has been net taxed (Gulati and Sharma, 1992, 1994).
2. For example, see Bhagwati and Srinivasan (1993); Pursell and Gulati (1993); Government of India (1993); Vyas (1994); and Singh (1994).
3. Such instances have been observed in the case of paddy and wheat also.
4. In this connection, the CACP has also been repeatedly recommending to the Government to allow private trade in Maharashtra to purchase raw cotton from the farmers. For example, Government of India (1994).
5. In 1981, the Indian Society of Agricultural Economics (ISAE) also debated the issue of agricultural price determination in one of its conferences and the papers and proceedings have been published in the *Indian Journal of Agricultural Economics*, Vol. 36, No. 4, October-December, 1981. In March 1991, the ISAE, at the instance of Government of India, again organised a Seminar at New Delhi on issues relating to cost of production and determination of prices of agricultural commodities.
6. For a detailed discussion on implications of eight different concepts of parity, see Acharya (1981).
7. But it did not adversely affect the economic access of masses to food as discussed in the subsequent sections.
8. Labour Bureau, Government of India, Shimla, compiles retail prices for rural areas for the construction of the series of consumer price index numbers for agricultural labour in different states. These are published in *Indian Labour Journal*. We have used simple average of retail prices for the month of September 1994 and March 1995 to represent retail prices for the year 1994-95.
9. Ministry of Civil Supplies compiles weekly retail prices of various essential commodities for a large number of urban centres. We have considered average prices of 13 major cities for December 1994 as representative of retail prices of wheat and rice in urban areas.
10. Wholesale price index deflated by the GDP deflator.
11. For more details, see Dantwala (1985, 1996).
12. State level estimates of average yield and value of main product per hectare are available from various reports of CACP. The ratio of these two provides the implicit price received by the farmers for their produce. These were deflated by the index of prices paid by the farmers to work out the real prices received by the farmers. As the data for different years do not pertain to the same sample of farms, these should be interpreted with caution.
13. In the absence of price support policy, the marginal improvement witnessed in the terms of trade would not have been possible. In this connection, also see Mungekar (1992) who has observed that in the absence of price support policy, the terms of trade in the post 1974-75 period would have been more unfavourable to agriculture than what they were. Commenting on the prices of foodgrains, as a group, deflated by the index of prices paid by the agricultural sector, Thamarajakshi (1994) observed that foodgrain prices rose during the sixties and upto 1974-75, dipped in the next two years and subsequently fluctuated showing no distinct trend.
14. In fact, the growth of production decelerated marginally from 3.1 per cent per annum during DE 1984-85 to 3.0 per cent per annum during DE 1994-95.
15. Several scholars and institutions have projected the demand for foodgrains in the country for the year 2000 and beyond. There is a considerable divergence between these projections. For example, to meet the projected demand for foodgrains, including that for livestock feed, the required level of production in the year 2000 A.D. varies from 197-213 million tonnes as worked out by the World Bank to 243-259 million tonnes by Bhalla (1995).
16. An analysis of losses in storage and transit during the last 15 years reveals that these have been brought down from around 2.5 per cent during the early eighties to around one per cent in recent years.
17. Gulati and Sharma (1994) have estimated that during TE 1992-93, the subsidy to the farm sector amounted to Rs. 8,645 crores, which includes Rs. 2,498 crores on fertilisers (50 per cent of amount shown in government budgets), Rs. 1,715 crores on irrigation (difference between working expenses of major, medium and minor irrigation schemes and irrigation charges collected from the farmers) and Rs. 4,154 crores on electricity.
18. For example, see Janvry and Subbarao (1986); Parikh and Suryanarayana (1990); Ratha and Sharma (1992); Parikh (1993); and Parikh *et al.* (1993).
19. With the increase in the rate of fertiliser application, concerns have been expressed about the decline in aggregate fertiliser response in Indian agriculture. Recently, a study based on careful analysis of disaggregated data (Vidya Sagar, 1995) has shown that the fertiliser response curves in agriculturally developed regions have shifted upwards, implying an improvement in the use efficiency of fertilisers and both in trans-gangetic and coastal regions, the increase in the use efficiency was achieved within the extended range of fertiliser application. The analysis does not show that efficiency of fertiliser use in India has declined due to the extension of fertiliser rates in agriculturally advanced regions.
20. If labour cost is not included (under the assumption that in rainfed and dryland areas, the alternative opportunities of employment are meagre), the cost of production is generally lower. Even if labour cost is included, the cost of production is either lower or comparable with the landed cost.

TABLE 1. PROCUREMENT/PRICE SUPPORT PURCHASES OF CEREALS
(lakh tonnes)

Year (1)	Rice (October-September) (2)	Wheat (April-March) (3)	Coarse Cereals (October-September) (4)	Total (5)
1986-87	91.6	105.4	0.2	197.2
1987-88	69.0	78.8	2.1	149.9
1988-89	77.3	65.8	0.4	143.5
1989-90	118.6	89.4	1.9	209.9
1990-91	126.7	110.7	2.0	239.4
1991-92	102.5	77.5	*	180.0
1992-93	130.5	63.8	4.0\$	198.3
1993-94	142.6	128.4	0.3#	271.3
1994-95	137.0	118.7	*	255.7
1995-96	98.8	123.3	-	222.1

Source: Food Corporation of India. * : Negligible.

\$: Does not include 4.0 lakh tonnes of black and discoloured jowar.

: Does not include 0.71 lakh tonnes of black and discoloured jowar.

TABLE 2. COST OF PRODUCTION OF SOME AGRICULTURAL COMMODITIES
(Rs./qtl)

Commodities/State (1)	A ₁ (2)	A ₂ (3)	B ₁ (4)	B ₂ (5)	C ₁ (6)	C ₂ (7)	C ₂ * (8)	C ₃ (9)
Wheat								
Punjab	119	141	134	234	151	251	257	283
Haryana	114	115	130	192	155	218	228	251
Rajasthan	107	124	128	189	173	234	248	273
Madhya Pradesh	193	193	224	316	252	344	352	387
Paddy								
Punjab	105	123	119	209	134	224	230	253
Haryana	169	171	188	260	229	300	306	336
Madhya Pradesh	169	169	189	260	224	295	309	340
Assam	86	90	93	154	156	217	267	293
Cotton								
Punjab	364	418	401	717	515	832	868	955
Haryana	319	319	348	505	525	682	685	754
Gram								
Rajasthan	186	222	221	358	313	450	489	538
Haryana	249	250	294	530	427	664	681	749
Madhya Pradesh	298	298	344	509	398	563	576	634

Source: CACP, Government of India (1995 a, 1995 b).

TABLE 3. MSP AND COST OF PRODUCTION OF WHEAT AND IMPLICIT PRICE
(Rs./qtl)

Crop year (1)	MSP (2)	Punjab			Madhya Pradesh		
		Cost C ₂ (3)	Per cent margin in MSP over C ₂ (4)	Realised price (5)	Cost C ₂ (6)	Per cent margin in MSP over C ₂ (7)	Realised price (8)
1981-82	142	118.77	19.6	138.10	132.67	7.0	169.92
1982-83	151	125.19	20.6	150.85	132.00	14.4	193.52
1983-84	152	137.47	10.6	154.59	140.18	8.4	176.82
1984-85	157	136.33	15.2	161.71	142.70	10.0	173.90
1985-86	162	129.29	25.3	162.42	153.72	5.4	193.46
1986-87	166	151.49	9.6	163.18	166.79	-0.5	195.81
1987-88	173	139.95	23.6	172.69	178.11	-3.0	234.02
1988-89	183	150.01	21.9	185.87	222.45	-21.6	268.75
1989-90	215	164.24	30.9	208.64	232.11	-8.0	267.02
1990-91	225	190.79	17.9	225.18	255.86	-13.7	303.85
1991-92	275	210.41	30.6	282.31	317.17	-15.3	399.06
1992-93	330	250.72	31.6	332.05	343.69	-4.1	376.27

Source: CACP and Comprehensive Scheme on Cost of Production.

TABLE 4. PROCUREMENT/MINIMUM SUPPORT PRICES OF PADDY AND WHEAT
(Rs./qtl)

Marketing year (1)	Nominal prices		Real prices*	
	Paddy(Common) (2)	Wheat(FAQ) (3)	Paddy(Common) (4)	Wheat(FAQ) (5)
1971-72	53.14	76.00	114.90	164.32
1972-73	54.18	76.00	106.15	148.90
1973-74	70.00	76.00	117.00	127.03
1974-75	74.00	105.00	106.29	150.82
1975-76	74.00	105.00	109.10	154.80
1976-77	74.00	105.00	102.76	145.81
1977-78	77.00	110.00	100.68	143.83
1978-79	85.00	112.50	109.10	144.40
1979-80	95.00	115.00	105.93	128.23
1980-81	105.00	117.00	105.00	117.00
1981-82	115.00	130.00	104.46	118.09
1982-83	122.00	142.00	102.78	119.63
1983-84	132.00	151.00	102.88	117.68
1984-85	137.00	152.00	99.26	110.13
1985-86	142.00	157.00	95.96	106.10
1986-87	146.00	162.00	91.67	101.72
1987-88	150.00	166.00	86.65	95.89
1988-89	160.00	173.00	85.49	92.44
1989-90	185.00	183.00	91.20	90.21
1990-91	205.00	215.00	91.08	95.52
1991-92	230.00	225.00	89.23	87.29
1992-93	270.00	275.00**	96.12	97.90**
1993-94	310.00	330.00**	102.16	108.75**
1994-95	340.00	350.00	99.92	102.86

*: Deflated by GDP deflator (1980-81=100). **:Including a bonus of Rs 25.

TABLE 5. STOCKS* OF FOODGRAINS WITH THE PUBLIC AGENCIES**
(lakh tonnes)

Period (1)	January (2)	April (3)	July (4)	October (5)
Minimum	154	145	223	166
Actual				
1990	129	126	208	175
1991	191	171	209	155
1992	147	123	151	103
1993	131	147	264	226
1994	235	222	324	275
1995	310	277	365	306
1996	292	245	278	

Source: Food Corporation of India.

*: At the beginning of the month and includes rice, paddy in terms of rice, wheat and coarse cereals.

** :Includes central pool as well as stocks held by states on their account.

TABLE 6. ALL-INDIA COMPOUND GROWTH RATES OF CEREALS
(per cent per annum)

Period/Crops (1)	Area (2)	Yield (3)	Production (4)
1967-68 to 1980-81			
Rice	0.77	1.45	2.22
Wheat	2.94	2.62	5.65
Coarse cereals	-1.03	1.64	0.67
All cereals	0.37	1.7	2.61
1980-81 to 1994-95			
Rice	0.49	2.98	3.48
Wheat	0.68	3.01	3.7
Coarse cereals	-1.9	2.31	0.54
All cereals	-0.34	2.9	3.06
1974-75 to 1984-85			
All cereals	0.39	2.94	3.35
1984-85 to 1994-95			
All cereals	-0.35	3.51	3.15

Source: Government of India (1996) and Commission for Agricultural Costs and Prices.

TABLE 7. PRODUCTION OF CEREALS IN INDIA
(million tonnes)

Period (Triennium ending) (1)	Rice (2)	Wheat (3)	Coarse cereals (4)	Total (5)
1964-65	36.51	10.96	24.57	72.04
1974-75	40.96	23.54	26.03	90.53
1984-85	55.18	44.11	30.94	130.23
1994-95	78.11	60.84	32.59	171.54

TABLE 8. AVERAGE PER CAPITA INCOME AND RETAIL PRICES OF WHEAT AND RICE

Year (1)	Per capita income at current prices (Rs.) (2)	Average retail prices(Rs./kg)			
		Wheat		Rice	
		Rural (3)	Urban (4)	Rural (5)	Urban (6)
1973-74	902.80	1.39 (15.4)	1.46 (16.2)	1.81 (20.0)	1.96 (21.7)
1977-78	1,257.90	1.31 (10.4)	1.47 (11.7)	1.78 (14.2)	1.99 (15.8)
1983-84	2,303.60	2.00 (8.7)	2.32 (10.1)	3.17 (13.8)	3.49 (15.2)
1986-87	2,962.40	2.13 (7.2)	2.51 (8.5)	3.24 (10.9)	3.72 (12.6)
1990-91	4,983.00	2.93 (5.9)	3.56 (7.1)	4.33 (8.7)	4.97 (10.0)
1993-94	7,060.30	4.17 (5.9)	5.03 (7.1)	6.19 (8.7)	7.23 (10.2)
1994-95	8,237.40	4.12 (5.0)	5.47 (6.6)	6.46 (7.8)	8.28 (10.0)

Figures in parentheses are percentages of per capita income.

TABLE 9. COMPOUND GROWTH RATES OF PER CAPITA INCOME AND PRICES

Perticulars	1974-75 to 1984-85	1984-85 to 1994-95	1974-75 to 1994-95
(1)	(2)	(3)	(4)
Per capita income at current prices	9.77	12.88	11.20
Wholesale prices			
Nominal* Wheat	3.65	9.75	6.35
Rice	5.92	9.66	7.31
Real** Wheat	-4.02	-1.32	-2.66
Rice	-1.90	-1.40	-1.78

*: Wholesale price index.

** : Deflated by implicit price (GDP) deflator.

TABLE 10. AVERAGE NET INCOME (REAL) FROM WHEAT AND PADDY
(Rs./hectare) (Deflator 1981-82=100)*

Crop/Year	Punjab	Haryana
(1)	(2)	(3)
Wheat		
1970-71 to 1974-75	2,468	2,433
1975-76 to 1979-80	1,331	973
1980-81 to 1984-85	1,580	1,253
1985-86 to 1989-90	1,924	1,875
1990-91 to 1992-93	2,525	3,159
Paddy		
1970-71 to 1974-75	NA	NA
1975-76 to 1979-80	NA	NA
1980-81 to 1984-85	2,477	NA
1985-86 to 1989-90	2,474	2,362
1990-91 to 1992-93	2,674	3,542

NA: Not available.

*: Deflator is weighted average of index numbers of prices paid by the agricultural sector for commodities purchased for final consumption and capital formation with base changed to 1981-82.

TABLE 11. INDEX NUMBERS OF PRICES RECEIVED, PRICES PAID AND TERMS OF TRADE FOR AGRICULTURAL SECTOR

(TE 1972-73=100)

Year	Prices received (PR)	Prices paid (PP)	Terms of trade (PR/PP) X 100	Three yearly moving average		
				Prices received (MPR)	Prices paid (MPP)	Terms of trade (MPR/MPP) X 100
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1961-62	51.5	63.9	80.6			
1962-63	52.8	66.3	79.6			
1963-64	56.6	77.6	72.9	53.6	69.3	77.4
1964-65	67.2	71.5	94.0	58.9	71.8	82.0
1965-66	77.7	75.5	102.9	67.2	74.9	89.7
1966-67	93.7	83.0	112.9	79.5	76.7	103.7
1967-68	100.2	86.7	115.6	90.5	81.7	110.8
1968-69	92.7	88.2	105.1	95.5	86.0	111.1
1969-70	96.1	94.4	101.8	96.3	89.8	107.3
1970-71	100.5	100.5	100.0	96.4	94.4	102.2
1971-72	102.5	105.1	97.5	99.7	100.0	99.7
1972-73	116.9	112.9	103.5	106.6	106.2	100.4
1973-74	145.0	132.3	109.6	121.5	116.8	104.0
1974-75	166.8	166.9	99.9	142.9	137.4	104.0
1975-76	142.4	168.3	84.6	151.4	155.8	97.2
1976-77	157.0	173.2	90.6	155.4	169.5	91.7
1977-78	164.8	181.6	90.7	154.7	174.4	88.7
1978-79	157.1	183.9	85.4	159.6	179.6	88.9
1979-80	185.4	209.3	88.6	169.1	191.6	88.3
1980-81	213.6	244.8	87.3	185.4	212.7	87.2
1981-82	224.2	270.5	82.9	207.7	241.5	86.0
1982-83	237.2	279.9	84.7	225.0	265.1	84.9
1983-84	261.1	302.6	86.3	240.8	284.3	84.7
1984-85	276.8	321.8	86.0	258.4	301.4	85.7
1985-86	278.0	337.4	82.4	272.0	320.6	84.8
1986-87	308.0	361.2	85.3	287.6	340.1	84.6
1987-88	348.2	400.5	86.9	311.4	366.4	85.0
1988-89	364.0	422.2	86.2	340.1	394.6	86.2
1989-90	393.5	455.1	86.5	368.6	425.9	86.5
1990-91	454.3	505.1	89.9	403.9	460.8	87.7
1991-92	525.0	570.1	92.1	457.6	510.1	89.7
1992-93	535.9	623.0	86.0	505.1	566.1	89.2
1993-94	603.4	662.1	91.1	554.8	618.4	89.7
1994-95	724.2	733.6	98.7	621.2	672.9	92.3

Source: Commission for Agricultural Costs and Prices, Government of India.

TABLE 12. CHANGES IN INDEX NUMBERS OF PRICES RECEIVED AND PAID BY THE AGRICULTURAL SECTOR FOR SOME IMPORTANT ITEMS
(TE 1971-72=100)

Particulars (1)	Weight (2)	1989-90 (3)	1994-95 (4)	Changes in 1994-95 over 1989-90	
				Absolute (5)	Per cent (6)
Index of terms of trade		86.5	98.7	12.2	14.1
I. Prices received	100.00	393.5	724.2	330.7	84.0
(A) For items of final consumption	59.70	384.3	700.5	316.2	82.3
Wheat	10.28	277.0	527.9	250.9	90.6
Paddy/Rice	19.81	348.1	614.5	266.4	76.5
Jowar	1.91	279.0	706.9	427.9	153.4
Milk and milk products	10.60	403.6	617.5	213.9	53.0
Meat and meat products	3.44	605.0	1,121.2	516.2	85.3
Fruits and vegetables	6.14	349.7	593.0	243.3	69.7
Gur	1.04	469.0	1,027.9	558.9	119.2
Gram	3.93	732.1	1,490.5	758.4	103.6
(B) For items of intermediate consumption	40.30	407.2	759.4	352.2	86.5
Groundnut	10.66	504.9	936.4	431.5	85.5
Rapeseed and mustard	4.14	433.3	738.9	305.6	70.5
Cotton	8.76	366.2	938.4	572.2	156.3
Sugarcane	7.53	340.2	596.7	256.5	75.4
II. Prices paid for the items of	100.00	455.1	733.6	278.5	61.2
(A) Final consumption	72.55	440.2	692.3	252.1	57.3
(B) Intermediate consumption	18.67	401.4	759.5	358.1	89.2
Fertilisers	7.36	290.5	573.3	272.8	93.9
Electricity	1.21	702.1	1,318.9	616.8	87.8
Insecticides	0.83	570.2	1,217.0	646.8	113.4
Diesel oil	4.26	442.2	866.6	424.4	96.0
Oilcakes	1.76	407.6	738.6	431.0	105.7
(C) Capital formation	8.78	692.5	1,019.4	326.9	47.2

Source: Commission for Agricultural Costs and Prices.

TABLE 13. CHANGES IN AREA UNDER DIFFERENT CROPS

(million ha)

Particulars (1)	TE 1984-85 (2)	TE 1994-95 (3)	Change (4)
Cereals	104.61	100.56	-4.05
Rice	40.22	42.19	1.97
Wheat	23.94	25.13	1.19
Coarse cereals	40.45	33.24	-7.21
Maize	5.79	6.02	0.23
Jowar <i>Kharif</i>	9.82	6.90	-2.92
<i>Rabi</i>	6.43	5.60	-0.83
Bajra	11.13	10.09	-1.04
Others	7.28	4.63	-2.65
Pulses	23.04	22.59	-0.45
<i>Kharif</i>	10.64	10.96	0.32
<i>Rabi</i>	12.40	11.63	-0.77
Oilseeds (Nine)	18.46	25.80	7.34
Other non-foodgrains			
Cotton	7.66	7.60	-0.06
Sugarcane	3.14	3.60	0.46
Jute and mesta	0.78	0.74	-0.04
Potato	0.79	1.06	0.27
Onion	0.26	0.36	0.10
Other fruits and vegetables	3.95*	5.40**	1.45
Tobacco	0.46	0.40	-0.06
Coconut	1.17	1.62	0.45
Condiments and spices	2.12*	2.46**	0.34
Others	9.77	13.30	3.53
All crops (GCA)	176.21	185.49***	9.28
Net sown area	141.32	142.08	0.76

Source: Government of India (1996), * : TE 1982-83, ** : TE 1992-93, *** : Assumed the same as that for 1992-93.

TABLE 14. COMPOUND GROWTH RATES OF FOODGRAINS AND NON-FOODGRAINS
(per cent per annum)

Crop group (1)	1974-75 to 1984-85			1984-85 to 1994-95		
	Area (2)	Yield (3)	Production (4)	Area (5)	Yield (6)	Production (7)
Foodgrain	0.31	2.77	3.10	-0.32	3.33	3.00
Non-foodgrain*	1.08	1.54	2.71	2.58	2.21	5.02
All crops*	0.51	2.07	2.89	0.37	2.51	3.80

* : Based on index numbers constructed by Government of India (1996).

TABLE 15. PROCUREMENT INCIDENTALS AND DISTRIBUTION COSTS
INCURRED ON WHEAT BY FCI

Particulars (1)	(Rs./quintal)					
	1988-89 Rs. (2)	Per cent (3)	1994-95 Rs. (4)	Per cent (5)	Change in 1994-95 over 1988-89 (Rs.) (6)	
(A) Procurement incidentals						
(a) Obligatory charges						
Mandi charges	5.26	15.8	17.78	23.5		12.52
Purchase/Sales tax	6.86	20.6	13.84	18.3		6.98
Gunny cost	8.66	26.1	19.35	25.5		10.69
Sub-total (a)	20.78	62.5	50.97	67.3		30.19
(b) Handling charges						
Mandi labour	1.74	5.2	3.06	4.0		1.32
Internal movement	2.98	9.0	6.96	9.2		3.98
Forwarding charges	0.74	2.2	1.03	1.4		0.29
Sub-total (b)	5.46	16.4	11.05	14.6		5.59
(c) Storage and interest						
Storage charges	1.26	3.8	1.28	1.7		0.02
Interest charges	3.86	11.6	4.89	6.4		1.03
Sub-total (c)	5.12	15.4	6.17	8.1		1.05
(d) Others						
Establishment charges	1.88	5.7	5.78	7.6		3.90
Miscellaneous			1.81	2.4		1.81
Sub-total (d)	1.88	5.7	7.59	10.0		5.71
Total (A)	33.24	100.0	75.78	100.0		42.54
(B) Distribution cost						
Handling expenses	6.79	9.4	11.64	11.0		4.85
Storage charges	13.60	18.8	7.94	7.5		-5.66
Interest charges	10.74	14.8	25.23	23.9		14.49
Freight charges	26.09	36.0	47.43	45.0		21.34
Adm. overheads	9.54	13.2	9.21	8.7		-0.33
Storage shortage	1.46	2.0	-0.37	-0.3		-1.83
Transit shortage	4.16	5.8	4.43	4.2		0.27
Total (B)	72.38	100.0	105.51	100.0		33.13
TOTAL (A+B)	105.62		181.29			75.67

Source: Tyagi (1990) for 1988-89 and FCI for 1994-95.

TABLE 16. COST OF CARRYING FOODGRAINS BY FCI

(Rs./quintal)

Particulars (1)	1993-94 (2)	1994-95 (3)	Average (4)
(a) Minimum support price	330.00	350.00	340.00
(b) Procurement incidentals	63.95	75.78	69.86
Economic cost in godown (a+b)	393.95	425.78	409.86
(c) Carrying cost			
Handling expenses	8.02	8.73	8.37
Storage charges	24.32	23.83	24.08
Interest charges	62.97	72.06	67.52
Freight	6.99	7.66	7.32
Adm. overheads	8.21	6.91	7.56
Transit shortages	1.13	1.31	1.22
Storage shortages	5.52	4.96	5.24
Total (c)	117.16 (29.7)	125.46 (29.5)	121.31 (29.6)

Source: Food Corporation of India.

Note: Figures in parentheses are percentages of economic cost in godown.

TABLE 17. CHANGES IN AREA UNDER DIFFERENT OILSEEDS

(million hectares)

Crops (1)	TE 1984-85 (2)	TE 1994-95 (3)	Change (4)
Groundnut			
Kharif	6.18	6.82	0.64
Rabi	1.13	1.32	0.19
Total	7.31	8.14	0.83
Soyabean	0.95	4.05	3.10
Sunflower	0.66	2.24	1.58
Rapeseed/mustard	3.90	6.24	2.34
Others	5.64	5.13	-0.51
All Kharif	10.90	15.29	4.39
All Rabi	7.56	10.51	2.95
Total	18.46	25.80	7.34

TABLE 18. CHANGES IN AREA UNDER OILSEEDS AND OTHER IMPORTANT CROPS IN MAJOR STATES BETWEEN TE 1984-85 AND TE 1994-95

(area in lakh hectares)

States (1)	Soya-bean (2)	Rape-seed/ mustard (3)	Kharif ground- nut (4)	Rabi ground- nut (5)	Sun- flower (6)	Coarse cereals (7)	Kharif pulses (8)	Rabi pulses (9)	Rice (10)	Wheat (11)	Cotton (12)	Sugar- cane (13)	Gross cropped area* (14)
Madhya Pradesh	24.0	3.5	-0.5	-	-	-11.4	-3.4	2.3	2.2	3.3	-0.7	-	11.8
Rajasthan	3.2	15.3	0.5	-	-	-2.3	2.0	-2.8	0.0	2.2	1.1	-	10.3
Uttar Pradesh	-1.5	-2.7	-1.1	-	-	-7.7	0.7	-0.8	1.1	5.8	-	1.5	5.2
Haryana	-	3.6	-	-	-	-3.0	0.3	-2.1	2.2	2.4	1.8	-0.2	2.8
Gujarat	-	2.1	-0.6	-0.5	-	-7.7	1.6	-0.3	0.7	-0.7	-2.7	0.4	-1.0
West Bengal	-	1.8	-	-	-	-0.3	0.2	-1.4	6.4	-0.1	-	-	10.6
Andhra Pradesh	-	-	6.0	0.8	3.3	-17.6	-1.1	2.6	-2.2	-	3.0	0.3	2.6
Karnataka	-	-	3.6	1.1	8.1	-4.3	-1.6	1.7	1.7	-0.9	-2.7	1.1	7.6
Maharashtra	-	-	-1.2	0.1	2.5	-6.0	5.3	1.4	0.3	-3.3	-1.0	1.2	5.5
Punjab	-	-0.3	-0.5	-	0.8	-1.7	-0.1	-0.9	6.9	2.2	0.0	0.0	5.6
Tamil Nadu	-	-	1.1	1.2	-	-4.7	-1.6	3.3	0.3	-	0.5	0.9	2.0
Orissa	-	-0.7	-1.0	-0.8	-	-3.7	2.0	-9.4	2.4	-	-	-	7.2
Others	5.3	0.8	0.1	0.0	1.0	-1.6	-1.1	-1.3	-2.3	0.9	0.1	-0.6	5.4
All-India	31.0	23.4	6.4	1.9	15.8	-72.0	3.2	-7.7	19.7	11.8	-0.6	4.6	75.6

*: Pertain to TE 1992-93 as data for later years are not available.

TABLE 19. COST OF PRODUCTION OF SOME VEGETABLE OILS IN INDIA

Particulars	Rapeseed/ mustard oil (Rajasthan)	Sunflower-seed oil (Maharashtra)		Soyabean oil (Madhya Pradesh)	
		1993-94	1993-94	1994-95	1993-94
(1)	(2)	(3)	(4)	(5)	(6)
Farm cost of production of seed (other than land and labour) [Rs./qtl]	302.36	380.86	477.23	323.82	307.20
Cost of processing one quintal of seed (Rs.)	76.02	76.81	85.07	76.24	83.07
Ratio of value of oil to cakes	0.83	0.91	0.91	0.70	0.70
Ratio of oil to seed	0.33	0.40	0.40	0.18	0.18
Cost per quintal of oil (Rs.)	951.67 (1,340.03)	1,041.20 (1,383.38)	1,279.23 (1,600.28)	1,555.79 (2,057.77)	1,518.88 (1,984.57)

Source: Data on farm cost of production of seeds taken from the Reports of CACP for the preceding crop season.

Note: Figures in parentheses are costs inclusive of farm labour input evaluated at market wage.

TABLE 20. AREA, PRODUCTION AND YIELD OF OILSEEDS IN INDIA

Crop	TE 1974-75			TE 1984-85			TE 1994-95			Percentage contribution to incremental production					
										TE 1984-85 over TE 1974-75			TE 1994-95 over TE 1984-85		
	Area (lakh ha)	Yield (lakh tonnes)	Pro- duc- tion (kg/ ha)	Area (lakh ha)	Yield (lakh tonnes)	Pro- duc- tion (kg/ ha)	Area (lakh ha)	Yield (lakh tonnes)	Pro- duc- tion (kg/ ha)	Area	Yield	Inter- action	Area	Yield	Inter- action
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Nine oilseeds	166.7	513	85.6	184.6	644	118.8	258.0	814	210.1	27.6	65.7	6.7	51.8	34.4	13.8
Groundnut	70.2	718	50.4	73.1	858	62.7	81.4	1010	82.2	16.5	80.5	3.0	36.5	57.0	6.5
Rapeseed/ Mustard	32.7	551	19.2	39.0	675	26.3	62.4	856	53.4	31.9	57.2	10.9	58.3	26.0	15.7
Soyabean	0.5	792	0.4	9.5	723	6.9	40.5	971	39.3	110.2	-0.5	-9.7	69.1	7.3	23.6
Sunflower	2.3	682	1.6	6.6	486	3.2	22.4	555	12.4	177.7	-27.1	-50.6	83.1	5.0	11.9

Figure 1 : MINIMUM SUPPORT PRICES

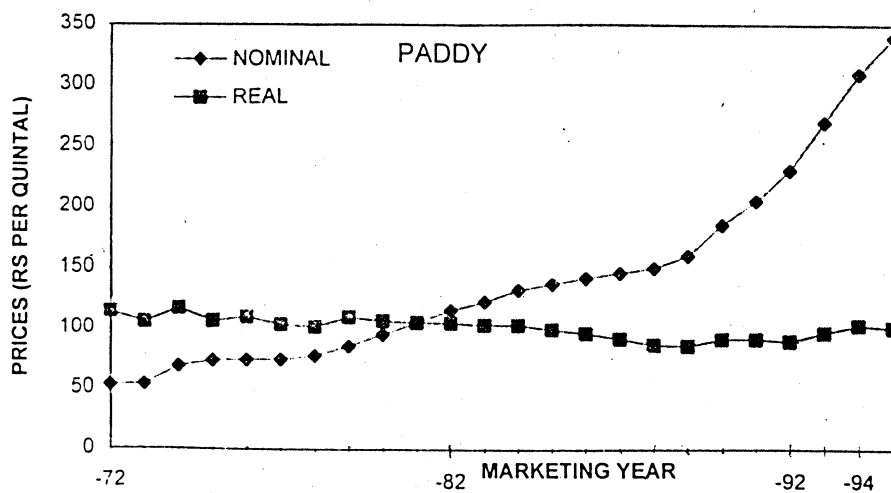
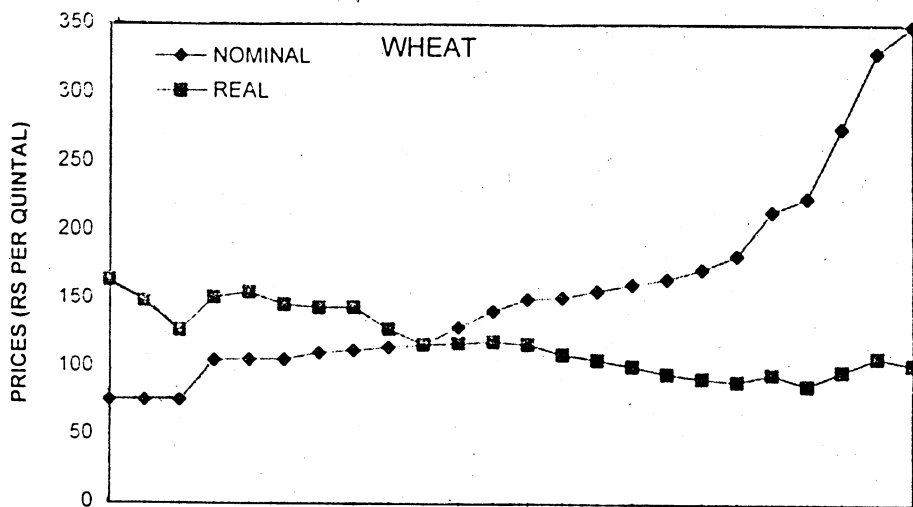


Figure 2 : PER CAPITA INCOME & WHOLESALE PRICES OF WHEAT AND RICE

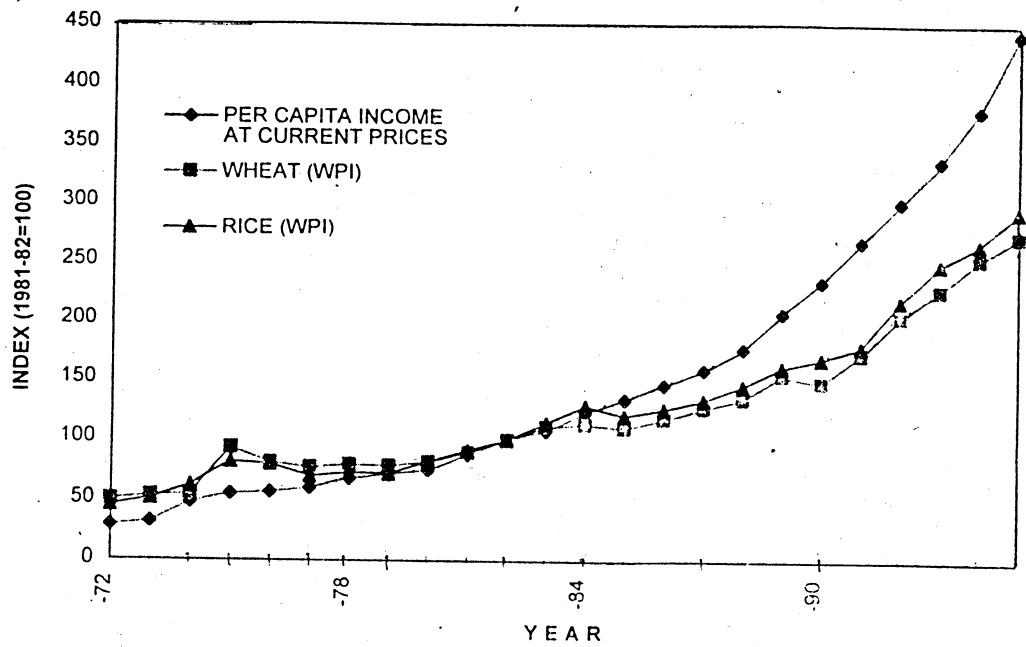


Figure 3 : WHOLESALE PRICES OF WHEAT AND RICE

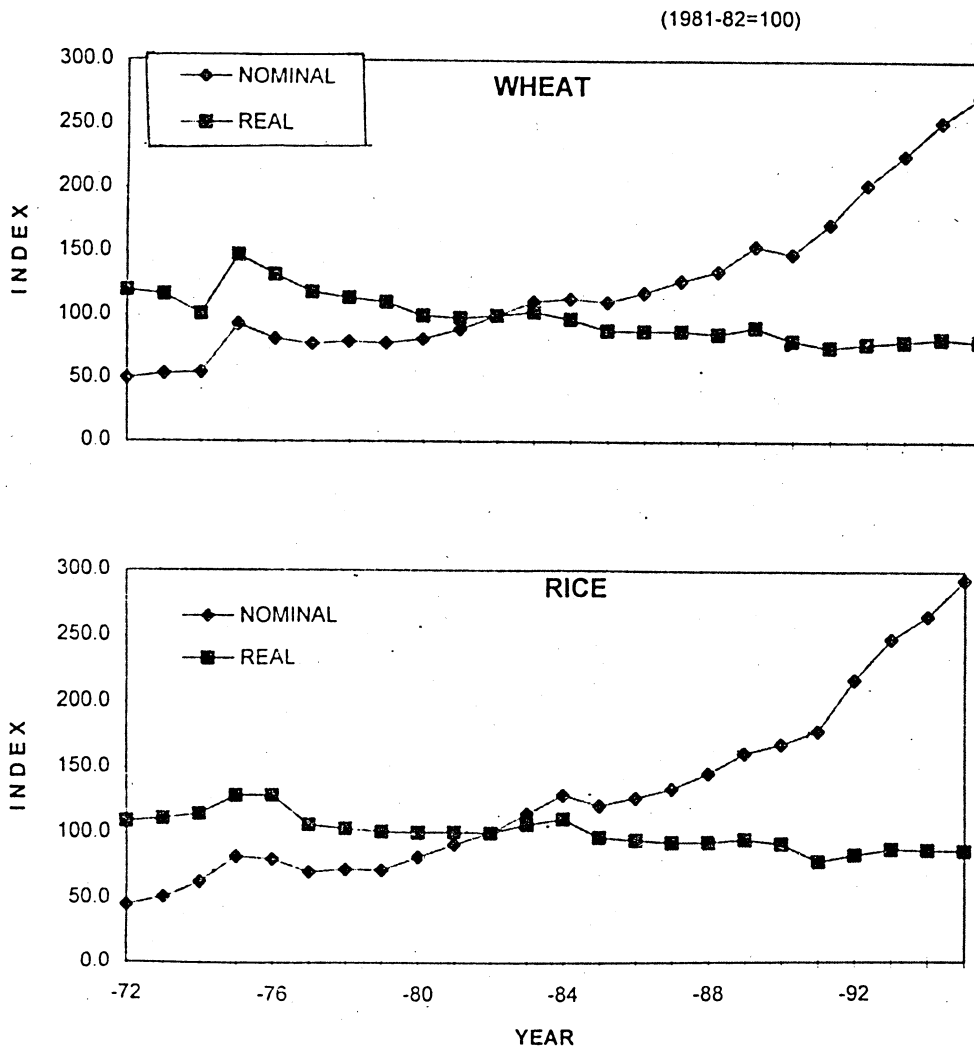


Figure 4 : FARM HARVEST PRICES

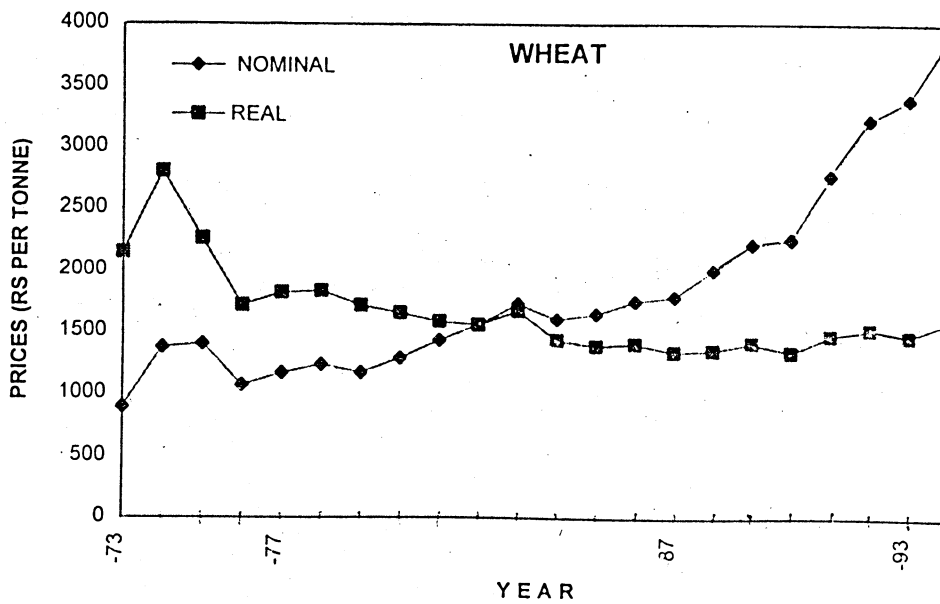
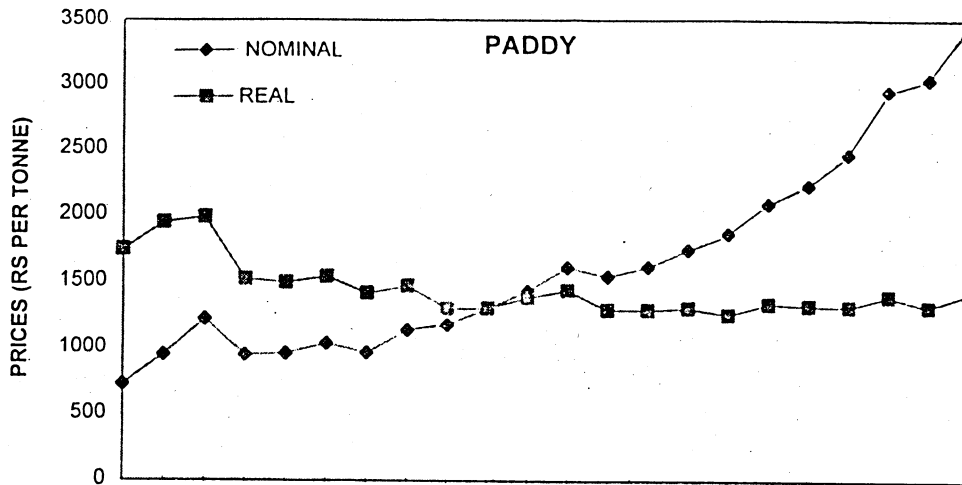


Figure 5 : NET RETURN PER HECTARE (REAL)

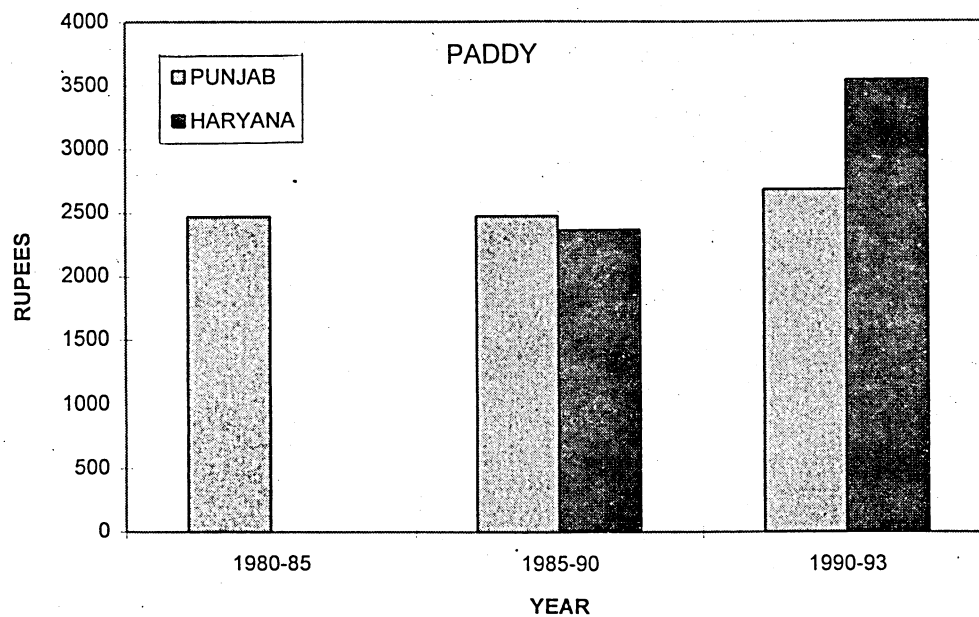
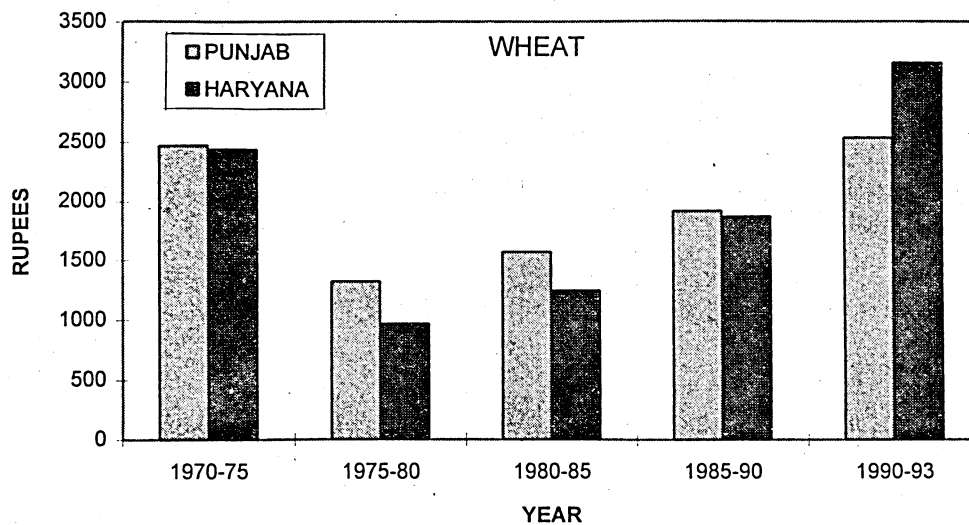
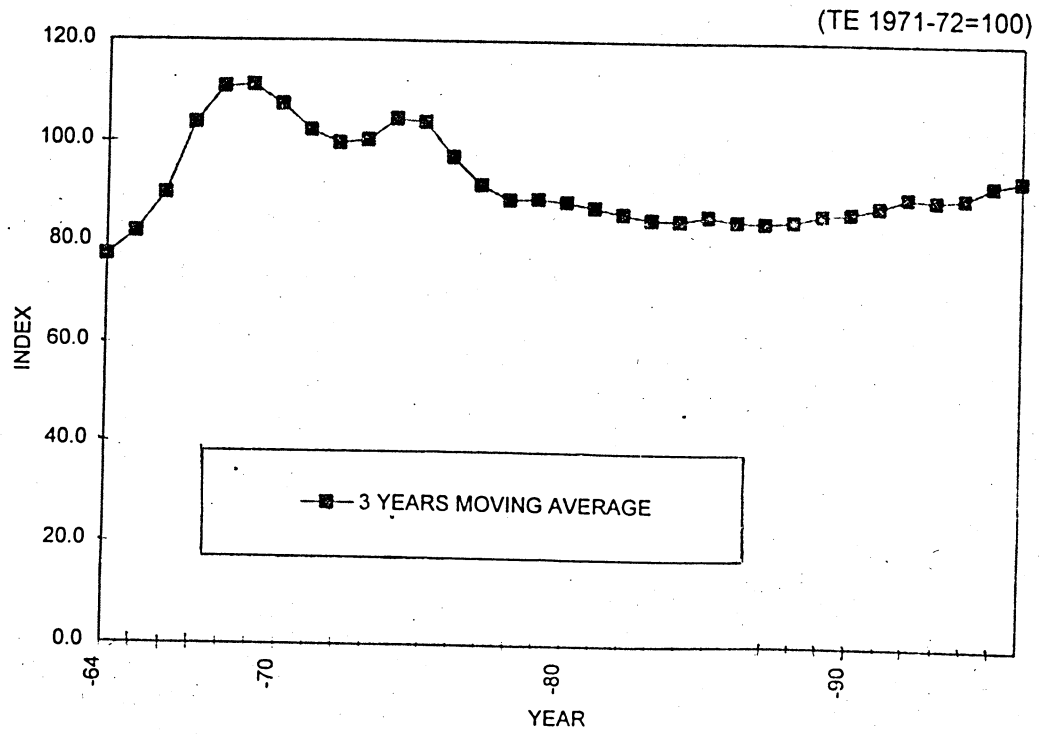


Figure 6 : BARTER TERMS OF TRADE FOR AGRICULTURAL SECTOR



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