

Agriculture and Economic Reforms

Growth and Welfare

This paper provides an overview of the principal developments in the agricultural sector since 1991, i e, since the economic reforms, and of their likely consequence for the standard of living. The paper has been conceived more with a view to raising essential questions than providing complete solutions.

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I Growth

An examination of the principal developments in agriculture since 1991 raises issues that have a bearing on the Indian standard of living and welfare. Some have argued that the economic reforms since 1991 have not targeted the agricultural sector directly, and hence not much may be expected of it under the new policy regime. One might say "not much" because even the purveyors of such a view would recognise that trade liberalisation, when it does materialise in full, could affect agricultural prices even if it might not immediately affect production. However, while I find myself in agreement with the view that not a great deal may be expected to emerge in the agricultural sector post reforms, I am aware that it would be wrong to ignore that the managers of the reforms had based their actions upon a model of how these would affect, nay encourage, agricultural production.

Evidence of such a conviction is to be found in the address to the Indian Society for Agricultural Economics on the occasion of its annual conference in 1994 by Manmohan Singh (1995). The argument is not due to him, having its origins in the work of Little, Scitovsky and Scott (1970), but it is expounded with great clarity by Singh. It is that in economies where policy-makers follow import-substituting industrialisation, and India is seen along with Brazil and Mexico as the prime example of this type of strategy, agriculture is discriminated against, having been 'disprotected' as it were. I quote, albeit selectively, from Singh's address: "The

policy of excessive protection for industry hurt Indian agriculture in several ways. It raised the price of industrial products relative to agricultural products which hurt the rural sector of our economy as consumers of industrial production. It also greatly increased the profitability of industrial production compared to agricultural production which led to a progressive shift in investible resources away from agriculture. This shift takes place in various ways. Low returns in agricultural activity reduce the ability of agriculture to pay economic prices for many inputs such as power, water and credit...Instead of relying on expansion of subsidised supplies of the very inputs, it would be much better to progressively reduce the protectionist bias against agriculture by lowering protectionist barriers favouring industry and altering relative prices in favour of agriculture. This would create a potentially more profitable agriculture, which would be able to bear the economic costs of technological modernisation and expansion" [Singh 1995:1-2].

While there could only have been very few finance ministers in the international history of the portfolio who are able to expound economic theory with such effortless ease, the central suggestion here is one at which one might cavil. For while the returns in agriculture relative to that in industry might well have been lowered by protection to the latter, their relation to the cost of the inputs mentioned is immune to the effects of protection. Power, water and credit – though rightly chosen for their importance – remain generically untraded.

At the theoretical level the argument that 'disprotection' invariably hurts agriculture is much less general than it is made out

to be. For a start, it assumes a much greater inter-sectoral flow of resources than it is perhaps wise to do. In particular, it is an argument regarding resource allocation, a one-shot activity, and of dubious worth when it comes to analysing the causes for the slow growth of agriculture, a dynamic process. Its explanatory power meets its match in the green revolution that was. That an expansion of agricultural production occurred during the 1960s even as import substitution was in its full flood indicates that the incentive structure need not remain static even as trade might remain intensely regulated, with industry remaining protected.

Apart from this, there are problems to be encountered in any welfare analysis based on the market price. First, it ought not to be overlooked that agriculture itself receives protection, albeit often as a lower rate than industry (which might appear to breathe some life into the argument that agriculture has been discriminated against during industrialisation). Moreover, in a mixed economy with heavy government intervention the observed market price must be corrected for taxes and subsidies. Viewed from this angle Indian agriculture appears twice blessed. Not only do agricultural producers receive subsidies – visible in the case of fertilisers, invisible in the case of water and electricity – but also they do not pay direct taxes as do industrial firms. To top it all, grain producers in the Indian economy have till date been favoured by a scheme of support operations that must be the envy of industrial producers the world over, not just the Indian. Except in the case of rice in certain states, the procurement policy does not entail any compulsion, offering instead unlimited

offtake at an avowedly remunerative price. Under the reforms since 1991 the relative profitability of agriculture could only have increased, for industrial tariffs have been lowered very substantially while all the other interventions favourable to agriculture remain intact.

Naturally then, there is some interest in how agriculture has responded to the changes in the economic policy regime. Here I shall concentrate on output alone. In Table 1 are presented growth rates of foodgrains and non-food crops for selected periods. Since, in this discussion, I have no use for a figure for the agricultural sector as a whole, the rate of growth of an all-crop index was not computed. As is always the case when viewing data partitioned into sub-periods, the trends that would emerge are related to the division adopted. Interestingly now, were we to start with the 1970s, we would find that in the 1990s there is a reversal of a rising trend of foodgrain production in the 1980s (see estimates in Table 1).

This so-called rising trend is partly a function of starting the analysis from the 1970s. If we are to extend the analysis further back into the 1950s and also adopt a different partitioning of the time period, the performance of the 1980s tends to get obscured. One feature remains unchanged though, which is that either way, during the period associated with the economic reforms the picture of agricultural growth that emerges is as lacklustre as it is widely acknowledged to be, though not widely enough. Nevertheless a slight nuance might be provided. This is that viewed from a longer term perspective, starting in the 1950s, the economic reforms instituted since 1991 appear to have had no success in reversing the trend in Indian agricultural production which have been downward, except for one phase in the case of the wheat crop;¹ on the other hand, viewed from a shorter perspective, starting in the 1970s, for the period of the reforms we witness a reversal of the buoyancy of the 1980s. The at-least-temporary upturn of the 1980s has got less attention than is necessary for an appreciation of what drives the growth process in agriculture. I shall return to this, but presently about the 1990s.

The decline in the rate of growth in the 1990s must be viewed against the background of a significant development in the agricultural sector vis-a-vis the rest of the economy which draws our attention from two directions. On the one hand, being aware of this development alerts us to the

likely success of the reforms in a certain sphere. On the other hand, viewed as part of a larger picture, it helps us evaluate the explanation of slow agricultural growth that is based on price disincentives. The development I refer to is the quite dramatic shift in the relative price in favour of agriculture in recent years. If slow growth is due to the disincentive to agriculture allegedly endemic to import-substituting industrialisation then the reforms since 1991 appear to have succeeded in rectifying the so-called 'price distortion'.

Evidence on movements in the relative price and in the average import tariff are presented in Table 2. An economywide tariff rate has been chosen since both agriculture and manufacturing have been protected in India, as I have already stated, a feature often overlooked when the expression 'import-substituting industrialisation' is used. The data point to a likely improvement in the profitability of agriculture relative to industrial production co-terminus with the decline in the level of protection. It must, however, be borne in mind that this observation is based on the behaviour of the relative price and not on that of the terms-of-trade which are clearly the more accurate indicators of relative profitability. Nevertheless, there is no getting away from the fact that the movement in the relative price is in consonance with the implicit prediction of the consequence of dismantling the protection of industry in the work of Little, Scitovsky and Scott. However, it would remain to be established that this has come about as envisaged in that formulation. Before moving on to this question though it needs be noted that the relative price shift has not had the predicted effect on the rate of growth of agricultural production.

In the world of neo-classical macroeconomics, where prices are perfectly flexible, any required shift in the relative price of agriculture, required for incentival reasons, can be brought about by a decline in industrial prices. A decline in the industrial price would be consistent with the perfect competition assumption underlying flexible prices. Above all, it would have been predicted from the perspective that trade and industrial policy reforms which lower barriers to entry have the effect of increasing competition in the industrial sector. Alas, a decline in the industrial price is not the route whereby the shift in the relative price observed since the onset of reforms has been brought about. Actually, this shift has been accom-

panied by generalised inflation in the economy, as part of which industrial prices have risen too (*Economic Survey 1998-99*).

So how has the relative price of agriculture shifted in its favour? The role of market forces on the shift, it may be deduced, could not have been overwhelmingly in any one direction. For even though agricultural output has grown slower during the 1990s, making for a rise in the relative price, industrial growth has slowed down too, making for a decline in the relative price. In the context of a shift significantly so great, as far as relative price changes may be expected to go, it is of some interest what might have driven this.

From existing studies² of the impact of price intervention in the agricultural economy, the role of rising procurement

Table 1: Growth, Before and After 1991

Period	Foodgrains	Non-Food Crops
1949-50 to 1964-65	2.93	3.54
1967-68 to 1989-90	2.74	2.72
1970-71 to 1979-80	2.08	1.66
1980-81 to 1989-90	3.54	4.84
1990-91 to 1997-98	1.66	2.36

Note: Annual compound growth rate, except for non-food in the 1990s where it is the average of the year-to-year change.

Source: Rows 1-2 from 'Area and Production of Principal Crops in India 1989-90', Directorate of Economics and Statistics, GoI; the rest from *Economic Survey 1998-99*, and author's estimates.

Table 2: Protection and Relative Prices

Year	Tariff Rate	Price
1990-91	87.0	108.5
1991-92	*	116.4
1992-93	64.0	113.2
1993-94	47.0	111.6
1994-95	33.0	114.4
1995-96	27.2	112.8
1996-97	24.6	117.5
1997-98	25.4	116.7
1998-99	29.7	126.1

Notes: 'Price' is the ratio of the index of agricultural prices to the ratio of index of manufacturing prices, base 1981-82=100; the tariff rate is the import-weighted average percentage rate for the economy as a whole; the tariff rate for 1991-92 was not computed in the source.

Source: *Economic Survey 1998-99* and The World Bank: 'India 1998: Macroeconomic Update'.

Table 3: Intervention Price
(Rs/quintal on a crop-year basis)

Commodity	1980-81	1990-91	1994-95	1998-99
Paddy	105	205	340	440
Wheat	117	225	360	550
Cotton	304	620	1000	1440
Jute	160	320	470	650

Source: *Economic Survey 1998-99*.

prices in bringing about the rise in market prices may be expected to have been substantial. In Table 3 are presented procurement prices for the major food and non-food crops. In every case we find that the increase in procurement prices thus far into the 1990s has already exceeded that in the preceding decade. Thus, it cannot be ruled out that the quite dramatic shift in the agricultural relative price has come about also as much as a result of intervention,³ rather than purely due to the trade and industrial policy reforms. It is indeed odd from a policy point of view that even as the reforms have had as their stated objective the creation of an economy where the relative price would be allowed to adjust to its true level the state appears to have redoubled its interventionist zeal as far as agricultural pricing is concerned.

As the picture of agricultural production trends in India since 1991 is only just beginning to form into any kind of discernible pattern it is understandable that the decline in the rate of growth in the 1990s has not received any great attention. However, I am of the view that some of the early explanations of this feature, even in the instances when it is observed, are off the audit trail. Among the most recent is the one by Thamarajakshi (1999), for long an observer of the Indian agricultural scene. As far as I know, it is Thamarajakshi who has to be credited with having highlighted the fact of the 1980s having been a period of record performance. She had singled out for our attention the production of foodgrains. In fact, we see from Table 1 that the 1980s was a period of very high growth in the rest of agriculture also. However, the factors proposed for the slowing down of agricultural production in the period since 1991 are perhaps less than handy for the task.

Dating her analysis from the mid-1980s Thamarajakshi is able to show us, principally, that public investment in agriculture is lower into the 1990s. Why this cannot go far as an argument for the slowdown in the 1990s becomes apparent from the data in Table 4. Here are presented data on the progress of selected agricultural development programmes, to borrow the phrase used by the government of India in its annual *Economic Surveys*. Interestingly, bearing in mind also the data in Table 1, we see that while the 1980s showed a rise in the rate of growth of output, the expansions in the area under high-yielding varieties, irrigated area and public investment have all slowed relative to their pace

of expansion in the 1970s. Only the rate of growth of the consumption of fertiliser has increased. Very likely, there are factors driving agricultural growth that we do not understand fully. There are possibly severe non-linearities at work in the case of public investment and of irrigation which imply that once a certain level of expansion has been attained the marginal returns start increasing. There is also 'learning', which is a function of accumulated output.

Finally, before moving on to looking at the relation between agricultural performance and welfare, I discuss another development within the agricultural sector itself. This may be seen as a source of success for the reform process even though both its emergence and its contribution is a puzzle yet. I refer to the behaviour of private investment in agriculture since 1991, the data having been entered in Table 5. These show a very significant increase in its volume and rate. If the early sign of the ultimate success of a policy aimed at shifting incentives is an increase in investment in the targetted sphere, then the reforms may be seen to have very largely succeeded. However, the puzzle I have referred to remains. Even as we would expect a lag between an increase in investment and the expansion of output for any productive activity, the lag appears to be overly long in this case. We are after all looking at agriculture, an ongoing on-farm activity unlike, for instance, an industrial start-up with a long gestation period. Of course, in a certain sense, so long as there is a future the verdict on projects, whether in agriculture or in industry, can never really be in. Nevertheless, we might remark that the reforms appear, oddly enough, to have turned in, thus far at any rate, an increase in the incremental capital output ratio. This is not exactly a sign of increased efficiency of resource use.

II Welfare

We have so far been discussing production. However, production is of itself a

poor measure of welfare which is really what we are ultimately interested in. For India's non-agricultural population agricultural production is only an indirect determinant of their money income. Above all, both for this group and for agricultural labourers, given their money income, an assumption reasonable for the short run, the proximate determinant of their welfare is the price of foodgrain. This we may surmise from a presumed hierarchy of needs from within which the biological one for food is the first to be taken care of. For this reason, the price of foodgrain assumes a very special role in determining welfare in an economy with high poverty, defined either in terms of levels of money income below the poverty line or with a calorie intake lower than some norm. By international standards, India is an economy with high levels of poverty even after 50 years of state-sponsored development. Now the once and for all eradication of poverty surely has the first claim on the design of economic policy. It should be non-controversial, I assume, to insist that the rapidity of poverty reduction be the first criterion by which the economic reforms in India should be judged, once the very limited objective of macroeconomic stability has been achieved.

There is a substantial section in India which holds to the view that at least some of the government intervention in the agricultural sector acts as an instrument of poverty alleviation. I understand that what is being referred to is the public distribution system (PDS). While the PDS cannot reasonably be seen in isolation from the other interventions in the agricultural economy, notably procurement, even taking

Table 5: Gross Private Capital Formation

GCF	1970-71	1980-81	1990-91	1996-97
Volume	1969	2840	3440	5867
Rate	5.5	6.7	5.6	8.1

Notes: 'Volume' is in rupees crore at 1980-81 prices, 'rate' is volume as percentage of sectoral GDP.

Source: *Economic Survey 1998-99*; and 'National Accounts Statistics', CSO.

Table 4: Progress of Selected Agricultural Development Programmes

Programme	1970-71	1980-81	1990-91	1996-97
Area under HYV	15.4	43.1	65.0	76.4
Irrigated area	38.0	54.1	70.8	80.7
Fertiliser consumption	2.2	5.5	12.5	14.3
Public investment	2.1	4.0	2.0	1.8

Notes: Area is in million hectares, fertiliser consumption is in million tonnes and public investment is as a share of sectoral GDP.

Source: *Economic Survey 1998-99* and 'National Accounts Statistics', Summary Tables.

the PDS on its own we are able to see that only from a narrow perspective and on a static count it is at all an instrument of poverty alleviation. The perspective is narrow in that while given consumer income the PDS can fix consumption possibilities by determining the real purchasing power, the PDS cannot ensure adequate nominal purchasing power to start with.

To focus on the PDS exclusively constitutes a somewhat static approach because in the absence of an autonomously engineered decline in the PDS price this intervention cannot contribute to a continuing improvement in the level of individual welfare. It is a supply-side measure. On occasion this has been referred to as a 'safety net' [Balakrishnan 1999]. In the light of the discussion here, it now appears to me that even that is only partially correct, for the PDS has no scheme of income generation associated with it. Even were it a safety net, it would be far from wise to mistake its existence as evidence of a dynamic economy, one which generates opportunities for the improvement in levels of living. In my view this error of ascription is constantly being made in the case of the state of Kerala – which has received a great deal of attention ever since Amartya Sen had spotted its uniqueness in combining high social indicators with low levels of income – where very high PDS offtake is registered by comparison with the other states in the Indian Union.

On the whole, a somewhat cockeyed view of the PDS may have led to an exaggeration of its contribution to poverty alleviation and the viewing of it in isolation failed to recognise its near irrelevance from the point of view of the attainment of the same objective. In what remains of this paper, using data for the period since 1991, I provide some evidence for this position. The question that we must bear in mind constantly is: 'What have the economic reforms achieved within agriculture that helps poverty alleviation?'

On the question of the extent of the PDS it is of paramount interest how well the poor are covered. Surveys provide one approach to this question. Some exist and, in the context, they do not reflect favourably upon the present arrangements. I here present a slightly different type of data which reveals that there may be a sort of geo-politics to the PDS. I use 'geopolitics' in a deliberate way to imply that the political culture of various regions might explain, at least in part, the distribution of the

PDS across the country. In Table 6 are presented rankings of some Indian states with respect to two variables of interest, the per capita distribution of foodgrains through the PDS and the proportion of the population below the poverty line. While these cover the majority of states, the north-east remains unrepresented for want of comparable data. The ranking is based on Mooij (1999).

A glance at this data is sufficient to grasp that there is little correlation between the amount of grain distributed per capita and the need for it premised on the corresponding distribution of poverty across the states. Actually, the poorest states – including most of 'BIMARU' and Orissa – are relatively less well-served by the PDS. It is of interest to determine the degree of association between the rankings. When the Spearman rank correlation coefficient was computed for this sample it was found to be 0.04. For the magnitude of the coefficient, the null hypothesis that the variables representing the two rankings are independent cannot be rejected. There appears to be little direct relationship between the ranking of states according to the two variables. To correct for the 'bias' that may be introduced due to the near perfect positive rank correlation in the cases of Punjab and Haryana – these low poverty states, naturally, record low figures for grain distributed – the correlation coefficient was re-computed after having excluded the data for these two states from the sample. The rank correlation coefficient now turns out to be -0.52. Now the null hypothesis of independence between the rankings must be rejected in favour of the alternative that they are actually – given the negative sign – inversely related. This switch is striking. An interpretation of this finding would be that the coverage of the public distribution system is, somewhat counterintuitively, less in the poorer states. While the data is for the 1980s, it is difficult to imagine that the situation has altered substantially since then.

I end the discussion of the relative performance of the states with two caveats concerning the data base I have relied on. First, coverage is here taken to be sufficiently well captured by the average quantity distributed. We can say nothing about the possibility of poorly targeted distribution from this data or about possible urban bias. Secondly, and more crucially, the PDS ranking of states is based on quantities divided by the aggregate population for each state.⁴ Strictly, we require the

average quantity distributed per beneficiary of the PDS, but the number of beneficiaries is not known. It is not entirely obvious though that this would weaken the finding of an inverse relation, for this is based on the ranking of the levels of (per capita) PDS and not the absolute levels themselves. For instance large, in terms of population, states with only small numbers of poor (read 'low poverty') well covered by the PDS, will show a low PDS-ranking even though the per capita quantities distributed to the beneficiaries is actually high. However – and this is the reason why it does not matter much in the present context – in that case we would find a positive rank correlation while the estimated one is negative. All in all, the picture is striking in that while we may well have an expected shortfall of distribution in relation to need this actually points to a more substantial mismatch, pointing, at least tentatively, to the poor record of the PDS in even addressing poverty alleviation in the states with the highest incidence of poverty.

If we are correctly interpreting the data presented here as signalling poor supply-side management it needs to be asked what role the panchayats could possibly have in rectifying this. The question assumes relevance in the context of the central government envisaging a more active role for panchayats in enhancing food security. The answer to the question, however, appears to be "not much". Ultimately, the extent of grain supplied to the states from the central pool is related to the demands made by the respective state governments. Thus the very low level of distribution in UP, among the poorest states in the union, might reflect at least partly the relatively

Table 6: PDS and Poverty: Statewise Ranking

	PDS	Poverty
Andhra Pradesh	5	12
Bihar	11	2
Gujarat	4	10
Haryana	12	13
Karnataka	7	8
Kerala	1	11
Madhya Pradesh	9	5
Maharashtra	6	7
Orissa	10	1
Punjab	13	14
Rajasthan	8	9
Tamil Nadu	3	3
Uttar Pradesh	14	6
West Bengal	2	4

Source: The estimates, pertaining to the years 1986-87 and 1987-88, by Shikha Jha and the Planning Commission, respectively, are as reproduced in Mooij (1999).

low priority that is given to individual food security in the political discourse there. It is not entirely clear that this would be very different under panchayati raj if we are still stuck in the mould of party politics, albeit at a lower rung. There is some reason though to believe that the extent, not to mention other aspects of implementation, of PDS in a state is related to the prevalent political culture.

Political culture does not of course refer to ideology. Note that for three of the four southern states and West Bengal their ranking in terms of the PDS is higher than that in terms of poverty and for Tamil Nadu these are identical. While there may be some convergence of the ideological predilections of the major political parties in Kerala and West Bengal the same cannot be said of the ideologies of the successive governments in the three other southern states. For historical reasons the political culture of states gets formed, it seems, at levels a little higher than that of panchayats. Thus the move towards social audit by the latter cannot, with any great degree of confidence, be expected to alter the current scenario whereby some states are better served than others.

Finally, while still on the question of spread and coverage, it seems entirely unlikely that we shall get to a stage when the central civil supplies ministry will start dealing with panchayats directly, for it is infeasible given the transactions costs involved. This is likely to leave the levers of distribution more or less firmly in the hands of the civil supplies authorities of the respective state governments.

I have spent so much time discussing the supply-side of things because it is implicitly this that usually gets emphasised by those who argue for the extension of the PDS and by governments that constantly point to their own achievements in having done the extending. However, it would be wise to enquire whether what we are observing, as summarised in Table 6, is high poverty due to the low availability of PDS networks, as some may interpret this data, or whether low offtake from the PDS is due to high poverty. The latter interpretation would be consistent with the characterisation of the PDS as essentially a supply-side measure with a limited role in poverty alleviation.

I have already stated that a crucial aspect is missed when the PDS is viewed in isolation from the complete matrix of government interventions undertaken in the name of food policy and now turn to

this issue. It has a bearing on the dynamic aspect of welfare. I refer to the fact that, on a regular basis, the PDS in India is supplied through domestic procurement rather than through imports. Under such a regime, the price at which government procures grain determines, barring a rising per unit subsidy, the price at which consumers receive grain through the PDS. From the outset, the government has made it clear, through pronouncement and practice, that remunerative prices are to be a central feature of its policy towards agriculture. While the necessity of ensuring a profitable environment for producers is inescapable it is possible that the manner in which the state has dealt with this imperative has been detrimental to consumer welfare, especially of the poorest.

Procurement prices have been raised almost on an annual basis. Fiscal considerations at the centre have meant that the issue price, being the price at which the Food Corporation of India is permitted to release the grain, has been raised too, albeit perhaps with a lag. This implication for the PDS of the implementation of the government's producer-price policy is missed when it is studied in isolation and not seen as part of the larger system of intervention in agriculture. The link has implications for welfare; it is that except in situations of full indexation of incomes this aspect of government intervention in the Indian economy may have contributed to increasing poverty. Harking back to the discussion of the issues related to the role of PDS earlier on in this article, we are able to see now that the role of the PDS in enhancing welfare could not have been great.

It is odd to find a championing, beyond a point, of the PDS as a major factor in ensuring individual food security. It must

be seen for what it is, at best a supply-side arrangement providing, for those with access (in terms of supply and demand), at a fixed price quantities up to a maximum. While in the short run, so long as stocks last and individuals possess the necessary purchasing power, the PDS can prevent the 'failure of exchange entitlements' and thus starvation that might arise from price increases, as visualised by Sen (1981), it is not an instrument that can raise the consumption level of those currently with access to it. This can only be achieved through a rise in incomes, for which task a supply-oriented rationing system is not equipped.

Thus an evaluation of the PDS in relation to the overall requirement for food security would reveal that its role is quite limited constitutionally even, quite independently of coverage. Even a widespread coverage of the PDS cannot take away from the fact that the prevention of inflation is, after all, a second-best policy. From the point of view of individual food security in a context of widespread poverty the first best is the one that raises income. Taking into account the set of state interventions constituting food policy, it is not clear that the PDS is even a safety net. How can it ever be if it is maintained by a procurement policy which is based on raising offer prices to the surplus farmers, a policy that is inherently inflationary, and has been shown to be so [Balakrishnan 1991]? Indeed, even were the interventions of the government successfully anti-inflationary, by championing the PDS we would be mistaking fire fighting for house building. This means that the PDS is very likely achieving less than is being claimed for it.

I have not here dwelt on the likely ill-effects on those among the poor who are

Table 7: Foodgrain Price, Inflation and Stocks

Year	Procurement Price (Index)	Market Price (Index)	General Price Level	Stocks (Mn Tonnes)
1980-81	100	100	100	16.7
1990-91	193	179	185	11.3
1991-92	225	216	218	17.9
1992-93	261	242	235	13.9
1993-94	296	261	251	11.8
1994-95	314	293	283	22.0
1995-96	333	313	304	30.3
1996-97	375	354	328	28.5
1997-98	406	363	340	20.0
1998-99	455	384	379	18.2

Notes: (1) The procurement price index is based on a weighted average of the price of rice and wheat, the weights being the quantities procured.

(2) Stocks, of rice and wheat, are as on January 1; the prescribed norm for the buffer stock is 15.4 million tonnes.

Source: *Economic Survey*, Gol, various issues.

excluded – possibly the majority – from a system based on political considerations for its provisioning (through procurement) and mostly shoddy delivery. These effects have been substantially analysed, and argued to exist, by Balakrishnan and Ramaswami (1997).

In Table 7 are presented data believed to summarise the principal developments in the foodgrains economy since 1991. First, notice that procurement prices have risen faster in the 1990s than was the case during the preceding decade. Secondly, exactly as over the period of the 1980s, in the 1990s too, procurement prices have led the market price of foodgrains. Not only is this contrary to the view, held in some influential circles in the 1970s, that the procurement price has only followed the market price [Raj Krishna and Raychaudhuri 1979], but when it is combined with the additional information evident from the data, that the procurement price has led the general price level, it leaves us in a position to evaluate how government intervention has affected India's surplus farmers.

Third, and here unlike in the 1980s, in the 1990s the change in the price of foodgrains appears to have led the change in the general price level (the inflation rate). This last is a somewhat surprising development, for a rising real price of agriculture is usually identified as the attribute of an economy actually setting out on the path of economic development not as the sign of an economy emerging as a major industrial power internationally, which status many in India appear to believe the economic reforms are set to achieve. More crucially, the very feature gives us reason to believe that the inflation of the 1990s is largely due to the hiking of procurement prices.

Finally, the average level of stock holding appears to have increased in the 1990s, which throws light on the role of government intervention in the foodgrain economy. Close to a decade ago, while reviewing developments in the 15 years since the launching of the green revolution in the mid-1960s it was observed that in a market with government intervention the market indicator which forms the natural alternative to the price level is the level of stocks carried [Balakrishnan 1991]. If the support range is unrealistically high, it was pointed out, the buffer will tend to accumulate stocks supplying the evidence that procurement has acted as a market-support force and thus influenced the price

of foodgrains. Viewing the data in Table 7 we note that two decades later little appears to have altered as far as the role of economic policy towards the foodgrains economy is concerned. By implication, welfare considerations cannot possibly have been very high on the agenda of the Indian agricultural policy-maker, with or without the economic reforms since 1991.⁵

Unusual as it may sound, even at this late stage of planning for development India's policy-makers have much to learn from the experience of the rest of the world with regard to the production of food and the contingent implications for welfare. I wish to point to two features of the more recent development of the world food economy. First, the period since the second world war has shown a continuous decline in the real price of food in the international markets [Sen 1999:207]. Secondly, this period has actually seen the highest rates of increase in agricultural yield (output per unit of land) in recorded history in Europe. Both these have a bearing on the issues confronting us in India. One, that in India in the 1990s, where the world's largest concentration of the poor live, the real price of food has increased, very likely due to policy intervention, is a source of concern. Two, the fact of rising yields in the presence of a declining real price of output, observed in Europe [Bairoch 1997], has profound implications for strategy in India.

Of course it does not imply that incentives do not matter. Indeed such stunning increases in yields cannot come about in the absence of a vigorously investor-friendly environment rich in incentives for productivity improvement. However, it does effectively signal that non-price factors are very likely to be important determinants of profitability in agriculture. It is easy to identify these which extend from water, power, infrastructure, research and development to the agricultural extension services essential to the spread to new technology, long identified as an area where market failure is likely. We now have reason to believe that agricultural policy in India has failed to address the conditions for agricultural growth due to an excessively price-based focus. [EW]

Notes

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- 1 Though not documented here it is perhaps widely known that during 1967-80 the Indian wheat crop grew not only faster than before but also very fast by international comparison. For an estimate of the rate of growth see Balakrishnan (1991).
- 2 See Balakrishnan (1991) for the theory and evidence of how and when the raising of procurement prices can act as an inflationary mechanism. Also see Balakrishnan and Ramaswami (2000).
- 3 Though the explanation of how procurement prices affect the market price, and evidence of the same, is perhaps a little better developed for the case of foodgrains than the other crops of the Indian economy.
- 4 Clarified in correspondence by Shikha Jha.
- 5 The most recent set of poverty estimates would actually confirm this scepticism [see Datt 1999].

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