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CONSUMPTION DISPARITIES, FOOD SURPLUSES AND
EFFECTIVE DEMAND FAILURES : REFLECTIONS
ON THE MACROECONOMICS OF DROUGHT
VULNERABILITY

B. Gopalakrishna Kumar



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Centre for Development Studies,
Ulloor, Trivandrum - 695011
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ABSTRACT

The paper begins with the issue of increasing vulnerability to drought in India, and attempts to inquire into the underlying reasons for this trend. The following crucial elements of an explanation are identified : (1) evidence of low consumption levels (2) signs of an accentuation of inter-regional inequalities and particularly disparities in agricultural incomes (3) increases in the overall savings rate, and changes in the composition of savings and asset holdings in rural areas. It is argued that the persistence of low consumption levels is both a cause and a consequence of the growing differentiation in the rural economy, and both these explain why - despite the fact that the system can mobilise an effective response to a weather-induced crisis like the drought - it cannot generate sufficient demand to mop up the large food surplus. It is in this sense that the demand constraint has become structurally embedded into the Indian economy. In this light, the rise in the savings rate is merely a reflection of growing disparities, and some of the savings may well have been brought about through a reduction in real consumption. This interlinked set of factors helps to explain why variations in weather cycles tend to cause larger swings in income and employment.

Consumption Disparities, Food Surpluses and Effective Demand Failures : Reflections on the Macroeconomics of Drought Vulnerability

The experience of harvest failures in many parts of the country in the past few years, culminating in one of the most severe droughts recorded in the post-Independence period, has sharply focused attention on the issue of increasing vulnerability to drought in India. Despite no secular changes in rainfall patterns, there is evidence that droughts have been causing successively larger variations in employment and rural incomes¹. At a certain level, this is obviously a reflection of the extent of environmental degradation which the rural economy has suffered over the years.² On the other hand, it seems important to enquire into other underlying reasons for this vulnerability, and attempt to assess what bearing they might have on longer term issues relating to the growth of the Indian economy. A starting point for such an enquiry might be a consideration of the following important aspects of recent Indian experience :

(i) There is continuing evidence of low consumption levels among large sections of the rural population.

(ii) There are signs of an accentuation of inter-regional inequalities, and particularly, evidence of growing disparities in agricultural incomes.

(iii) There has been a marked rise in the overall savings rate as well as an increase in the share of durable household assets in rural areas.

Are these propositions inter-linked ? If so, how and why ?

The purpose of this paper is to offer an explanation which establishes these links and to try and provide thereby some macro-economic underpinnings for the analysis of drought vulnerability in the Indian economy.

I

While this country has faced severe droughts on the scale of the current one before - the experience of Bihar in 1965-66 being perhaps the most severe - the relatively low loss of life entailed by these food crises has been noted by many observers. The smaller scale of famine mortality in India stands in contrast not only to the country's own past history where similar variations in output caused a large loss of life (see e.g. Bhatia 1967 Lardinois, 1985) but also in contrast to the current experience of sub-Saharan Africa - the most striking instance of which is probably the large excess mortality in the recent

famines in Ethiopia (Kumar,1987 Otten, 1986).

This contrast might suggest that India's greater success in famine prevention is connected with an increase in food availability per head of its population. However a consideration of the available evidence does not bear out this view. It is true that the availability situation improved in the post-Independence period when compared to the experience of the first five decades of the century, during which time food production and availability both unambiguously fell (Blyn,1966 Sivasubramoniam, 1960)

But whereas the post-Independence period as a whole has seen a three-fold increase in total foodgrains output, per capita availability of cereals during the quinquennium 1981-1985 was only 17.6 % higher than during 1951-55, while the availability of total foodgrains was 8.9 % more. (Table 1) Indeed, if one compares the period of the mid-sixties with the quinquennium 1951-55 one gets a picture of veritable stagnation. Particularly noticeable is the decline in the production and availability of pulses - which are an important constituent in the diet of the poor. The massive increases in food output (following the Green Revolution and the impact of the new technology in the mid-

sixties) have been almost completely offset by the increase in population, food stockbuilding and falling imports. Stockbuilding seems to have been particularly important in the decade 1976-85 when as Utsa Patnaik (1988) has pointed out, per capita cereals production registered a distinct increase compared to previous levels and per capita availability turned out to be lower than per capita production - the difference being largely accounted for by the increased addition to government stocks.

What is perhaps even more significant is that levels of availability in more recent times have been low not only in absolute terms but also in relation to African regions which as noted earlier have in the past decade experienced particularly severe food crises, viz. the Sahel and Ethiopia. Abstracting for the moment from the various problems of data comparability which inevitably have to be faced here, a look at Tables 2 and 3 is instructive. Table 2 reveals that 'net availability' -as defined there - has been consistently lower in India compared to the Sahel (and surprisingly, this turns out to be the case even for good agricultural years such as 1977 and 1978). As Jean Dreze (1988) observes, "If one compares Sahel countries or groups of countries with areas of similar (or greater) population size in India, it seems possible to find an area in India which has fared

no better than a corresponding area in the Sahel." (p. 43) Table 3 brings together similar evidence from India and Ethiopia, and subject once again to caveats about data, it can be seen that the average daily per capita availability of foodgrains was higher for Ethiopia in the years 1981-84 and only became lower in 1985 (by which time the critical impact of the famine had already been felt.)

The important point that emerges from all this is that India's relatively greater success in famine prevention occurred against a backdrop of food availability per head which has been (i) stagnant in the past thirty odd years (ii) low both in absolute terms, and in comparison with countries that have suffered serious famines in recent times.

To what factors then is India's relative success due ? This is admittedly a complex question but its essential aspects appear to be well understood. The ability to mobilise adequate infrastructural and other resources at critical times, the relatively efficient way in which relief in the course of food crises has been administered, and the effect of rural works in creating purchasing power amongst those most in danger of starvation are probably central to an explanation - certainly

these were important reasons for the success in averting disaster during the Maharashtra crisis in 1972-73³ and serious developments in other regions have also been moderated for essentially similar reasons. Indeed, it can be argued that public intervention of this kind has been especially important in the case of the recent drought where despite a fall in food production, distress has been much less than in the drought of 1965-67 (see e.g. Bhatia, 1987 Kumar, 1988 a)

The impact of organized relief schemes is an important clue to understanding India's effectiveness in famine relief. But there is on the other hand little doubt that public intervention of the kind witnessed hitherto cannot ultimately compensate for the lowness of normal consumption levels - it can only in extremis prevent a total collapse of consumption capabilities at the lowest end of the distribution (and the Indian experience, as argued above, shows that this function public works perform effectively.) Further untargeted relief carried out over a long period of time rapidly becomes financially unsustainable, and may even detract from other development objectives⁴. The question of assessing the level of normal consumption in India then clearly assumes some importance.

II

In this section, the available data on patterns of consumption based on the CSO's National Accounts Statistics (NAS) is examined (Table 4). Real per capita disposable income (RDYPC) has also been shown for the sake of comparability.⁵ The CSO's consumer expenditure data have been classified into four categories:⁶

(A) cereals and cereal substitutes (item 1.11 in NAS)

(B) all other food items, beverages and tobacco (item 1 excluding 1.11 in NAS)

(C) clothing, footwear, rent, taxes, power, furniture, household equipment etc (items 2, 3, 4 in NAS)

(D) medical and other expenditure, such as expenditure on education and transport, covering most other items of consumption (items 5-8 in NAS)

Total consumption expenditure (T) is also shown in Table 4.

Table 5 shows the growth of RDYPC and A,B,C,D and T. RDYPC has grown at just 0.6 per cent per annum (compound) over the last twenty-five years underlining the slow increase in incomes of the vast majority of the population over this period. A and B show very low rates of growth - stagnation being

especially noticeable in the first of these (for which in fact the growth rate shows no significant trend). C and D - the latter in particular - have shown much higher rates of growth (the large growth in the services sector has in fact been much commented on in recent writings of C. Sen, 1988). This picture is largely confirmed by Table 6, which reports the results of fitting linear time trends. It is evident that C and D show a very significant positive trend with time. On the other hand, though B gives a time coefficient that is significant (at a 5% level) the explanatory power of the regression is seen to be very weak, and this is even more obvious in the case of A, confirming the story of relative stagnation in the expenditure on the most basic of necessities.⁷

This low level of food expenditure ties in with much of the voluminous literature on poverty and nutritional adequacy. While it is not proposed to enter into a discussion of these matters here, it is worth pointing out that recent surveys by the National Nutritional Monitoring Bureau (NNMB)⁸ confirm the low nutritional levels of much of the rural population. Table 7 taken from a recent discussion highlights the fact that calorie intake levels in many states have recorded very little increases : as

the author points out (referring to a three-year moving average of calorie intake for rural India) : " these ... averages do not lend any support to the conclusion of increasing trends in caloric intake in any state, except possibly Gujarat in a small way....In any case, there is no evidence in these data of any increasing secular trend in the average caloric intake of the lowest income group." (Ramachandran, 1987 p. 282)⁹

The discussion so far has been based on CSO data. Serious questions can however be raised about the accuracy and representativeness of this source (Minhas et al 1986, Vaidyanathan, 1986 a) NSS data - which are based on consumer surveys are arguably much more representative. In Table 8, a comparison between these two sources is given in 1960-61 prices. It can be seen that NSS points to roughly the same sort of trend in foodgrains expenditure, despite the fact that the discrepancy between the two sources has been increasing over the years. Notice for instance that expenditure on 'foodgrains' which is essentially equivalent to our category A was virtually the same in 1973-74 compared to 1960-61. Further, a look at Table 9 shows that expenditure on cereals, gram cereal substitutes and pulses as a percentage of total expenditure has been declining.¹⁰ The stagnation in expenditure on cereals and cereal substitutes

in particular is a matter of some importance. Could it be that what we are observing is an Engel effect, and that what is happening in fact is that consumers are diversifying away from basic necessities to other commodities ? A clear answer to this question is difficult in the absence of much more disaggregated data. However, such a trend would seem unlikely to manifest itself given the absolutely low levels of expenditure which these figures reveal. However what may be more plausible is that the poor have been forced to cut down on essential expenditure not only because of their slowly growing money incomes, but because the price rises in essential commodities has given them no other choice.¹¹ A look back at Table 5 shows that P^A , the price of cereals has grown at a compound rate of 6.4 % over the last quarter century ; this is in fact more than the rate of inflation for category C.

The absolute level of the basic food price has often been seen as exerting a crucial influence in resource allocation, and particularly in forcing a large share of resources to be devoted to basic survival, thus impeding a diversification of expenditure, and inter alia restricting the market for industrial products (Krishnaji, 1984).

To probe into such factors, the following equation was estimated (t statistics in brackets):

$$\ln A = -0.1 + 0.89 \ln T - \ln 0.1 P^A$$

(3.87) (2.5)

N = 25
R² = 0.45
SEE = 0.05

A stands for cereals and cereal substitute expenditure in real terms, P^A is the implicit price deflator for category A as revealed through current and constant CSO series (and is therefore a measure of the influence of changes in cereal price). T, which is real total expenditure, is intended to function as a proxy for income.

It can be seen that both the coefficients are significant, and that the signs are in the expected direction, although the explanatory power of the equation as a whole is not high. The following elasticities can be derived :

$$d \ln A / d \ln T = 0.89$$

$$d \ln A / d \ln P^A = -0.1$$

It appears from the above that almost 90 per cent of an increase in income goes into cereal expenditure, and that a unit increase in the cereal price cuts cereal expenditure by one-

tenth. The implication seems to be that whereas income is the most important determinant of cereal expenditure, such expenditure is generally unresponsive to changes in prices, because it is such a necessity. However, fluctuations in the cereal price could clearly have a much greater influence on expenditures on other food items, by increasing the share of income devoted to essential consumption.

An elaborate analysis of such effects, using a modified version of the Linear Expenditure System has been provided in the work of Murty and Radhakrishna (1982) and some of their results are reproduced here as Table 10. (The authors divide the population into quintiles, ranging from the poorest 20 per cent to the richest 20 per cent and estimate ; on this basis, the quintile-specific price elasticities are estimated). These estimates relate to the NSS 25th round (1970-71) but the analysis remains relevant today. It can be seen that the level of the cereal price exerts an influence on consumption of other commodities across all population quintiles (as expected the relation is strongest in the lowest quintile).¹² In addition, using these results, the authors estimate the effects of a one per cent rise in the cereal price after taking into account income shifts, and show that the depressing effects of such a

price rise extend to quite a few commodity groups across quintiles, underlining the importance of cross-price effects.

III

Much of the above discussion then points to a picture of an economy showing relative stability at a low level of consumption. What needs to be clarified now is the manner in which this general picture is to be related (i) to the apparently paradoxical emergence of surplus stocks in such an economy (ii) to the question of whether a generalised demand deficiency exists.

Foodstocks reached a level of 23.6 million tonnes in January 1987, but have now declined to under 10 million tonnes. The emergence of large surplus stocks with the government is clearly related to the nature of agricultural growth in the country. It is well known that these surpluses are a result of large increases in output in certain well-endowed regions of the country, which have been producing increasing levels of marketed surpluses, and that they are not a consequence of overall increases in foodgrains output (Rao, 1977, 1988). Five states - Punjab, Haryana, Uttar Pradesh, Andhra Pradesh and Maharashtra -

with a share of 40.5 per cent of India's total cropped area have accounted for 68 per cent of the incremental output in foodgrains since the Green Revolution. In contrast, eastern and central states (excluding Uttar Pradesh) where poverty is concentrated, accounted for 17 per cent of incremental output. Barely three states, Punjab, Haryana and Uttar Pradesh, with a share of 21.3 per cent of total gross cropped area, account for as much as 86 per cent of public procurement of rice. It is clear also that the contribution of these states to total production of major food crops has also risen dramatically.¹³ A related aspect to note is that the composition of foodgrains output in the country has changed quite noticeably. While rice and wheat have as shown in Table 11 increased both in terms of area and production, coarse cereals and pulses have lost out; this is in fact particularly noticeable in the case of pulses as Nadkarni (1986) has shown. Yields of pulses have stagnated after 1960-61, so that they account for a dismal 8 per cent of overall production in 1984-85¹⁴

The process of regional differentiation discussed above seems to have particularly affected the eastern regions of the country. As Subbarao (1985) argues, "A combination of two factors

may be identified (a) a rise in the real price of foodgrains (at least until the mid-seventies) and (b) the eastern states' increasing dependence on foodgrains from other states owing to the slow growth of agricultural output in relation to the explosive rise in population-induced demand. Thus, the proportion of foodgrain import in total imports was less than 10 per cent in Bihar in 1961 but it rose to 50 per cent by 1975. During the same period, the real price of foodgrains rose substantially." (p. 538-39). In addition, there are strong indications that inter-regional variations in labour productivity in agriculture have increased, and that the poorer states have witnessed low or even negative rates of growth of labour productivity (Mahendra Dev 1986).

The effects of this squeeze on large sections of the agriculture-dependent population manifest themselves in several ways. From Table 12 we can see that the growth rates of real per capita NDP in agriculture were negative in eight states, indicating the progressive loss in agricultural incomes in certain already poor regions and the extent of the widening in inter-regional disparities that has occurred. This is, at one level, a reflection of a trend against the agrarian sector in general. Indeed, V.M. Dandekar (1986) has shown that, when

measured in constant prices, per capita NDP in agriculture has remained stagnant over the past thirty years. It is also worth pointing out that there is evidence of this trend in the NAS also : Table 13 shows that the share of agriculture in national income has declined since the early seventies, and within agriculture, interest, rent and profits have absorbed an increasing proportion of incomes, with the incomes of agricultural labourers and poorer peasants having to bear the brunt of the adjustment.

Taken together, these factors explain why increasing levels of marketed surplus from certain well endowed regions have resulted in stockpiling of food even after the normal operational requirements of the public distribution system have been met. Food surpluses originating in certain regions cannot be fully realized in the market because of the absence of sufficient demand pull (resulting -in Sen's 1986 terminology -in 'pull failure') - this last being a result of the loss in the incomes of those who need to consume the food. Prosperous farmers who produce the surplus cannot consume more than than a fraction of it since at their income levels, incremental consumption on food is minimal. ¹⁵ A general reduction in prices - which would make more of those stocks accessible - has to be ruled out because of

the support system in operation, incentive pricing being deemed essential to bring forth the surplus.¹⁶

In response to this, it could of course be argued that an increase in the overall food stocks available was important to achieve food self-sufficiency at current consumption levels to obviate the need for imports, as well as to reduce inflationary expectations. The role of food stocks in keeping a system of inter-state distribution of food at a time of stagnation in availability could also be emphasized. However, it is important to note in this context that levels of food consumption - particularly of the rural poor - show a very significant relation to per capita food output, region-wise, whereas they are relatively little influenced by income levels.¹⁷ This suggests that a more balanced regional policy, which would to an extent even out variations in inter-state per capita foodgrains production, would almost certainly have increased levels of food consumption amongst the rural poor, even though it might in the process have lowered levels of marketed surplus.

Prabhat Patnaik (1987, 1988) has recently argued that apart from the increase in regional differentiation, the unambiguous shift in the terms of trade against agriculture is an additional and equally important part of the explanation for the

surplus/underconsumption dichotomy. This is for the reason that those who gain from the favourable shifts in terms of trade - the urban upper middle classes - have a marked preference for items of consumption (such as durables and specific types of manufactures) which are less labour intensive and consequently restrict employment growth (and by implication, growth in demand for food) whereas those who lose (namely prosperous farmers and other agriculturists) now spend less on labour intensive commodities, and therefore restrain the growth of labour absorption. The fact that foodstocks cannot easily be transformed into other forms of wealth holding then makes it even more likely that in these circumstances they will accumulate. This is a plausible argument, but some doubts remain. There is some evidence to suggest that the 'losers' in this process were more labour intensive in their demand patterns than the 'gainers',¹⁸ but this need not necessarily be the case. Perhaps more importantly, it is difficult to estimate the impact of intersectoral price movements on rural/urban consumption from the existing terms of trade series, which are rather aggregative in nature.¹⁹

Evidence of growing regional differentiation is on the

other hand very strong, and this by itself would probably be enough to explain the surplus/underconsumption dichotomy. This is especially so in a situation where as a consequence of the falls in per capita NDP relative to the growth of population, employment opportunities within agriculture have shrunk relative to the growth of the workforce. As Vaidyanathan (1986 b) notes, "Data on the quantum of labour used in agriculture available from NSS suggest that for rural India as a whole, labour use in 1977-78 was only some 4 per cent higher than in 1972-73 while crop production was at least 20 per cent higher. At the state level, while total agricultural employment generally rose, the rise was well below the growth of output in all cases, except Assam and Kerala; in six states, though output rose, labour use in agriculture was less than in 1972-73." (p. H 137)

The spread of public investment in infrastructural support systems, irrigation etc have only accentuated this trend - since the requirement of the Green Revolution technology meant that certain well-endowed regions received the largest share of support. In addition, the growth rate of public investment in agriculture in real terms tended to decline after the mid-sixties, so that the scope for expanding it to weaker areas was

further reduced.²⁰ Additionally, given the institutional context of the Indian economy, private investment did not take up the slack left by the slowing down of public investment : it was unprofitable for it to do so in the poorer regions (because of the absence of complementary inputs) and in the more well-endowed ones, the profitability of additional private investment quickly tended to level off. Private irrigation investment in India has tended to be highly correlated with public irrigation investment (S.K. Rao, 1971, Chakravarty, 1987) and both are now growing at a slower rate than that required to sustain past rates of growth (U. Patnaik, 1986, Vaidyanathan, 1987)²¹

In sum, the persistence of low consumption levels is both a cause and a consequence of the growing differentiation within the rural economy, and both of these explain why - despite the fact that the system can mobilise an effective response to a weather induced crisis like the drought, it cannot generate sufficient demand to mop up the food surplus. The situation will remain unchanged unless there is either conscious massive rural demand creation in the form of public works on a much larger scale than has hitherto been witnessed - or else the huge food subsidy is effectively targeted away from the rich peasant and

the urban dweller to the landless labourer - a process which would require an alteration to the current approach to setting support prices, and would in all probability have unacceptable political costs.²²

IV

Against this background, a remarkable feature of the Indian economy is the large savings ratio which it has been able to generate. Over the seventies, the ratio of gross savings to GDP increased steadily reaching a peak of 24.7 per cent in 1978-79, and staying at 23.0 per cent in 1980-81 (or 21.2 per cent as measured in the revised NAS, 1988). The savings rates in both the public sector and private sector have registered increases over this period, but it is clearly the household sector that has saved the most, and as Table 14 shows, this trend has been most in evidence since 1973-74.²³ A widely noted feature is that households have opted for more investments in financial assets in recent years as against physical assets. This proportion increased from 36.4 % during 1951-56 to 56 % during 1961-66 and was 54.1 % during 1983-84. Also, the pattern of investments

suggests a preference among households for relatively liquid and risk-free investments (Reserve Bank of India, 1985).

Data on asset holdings based on the results of the All-India Debt and Investment Survey suggest that while there has been a real rate of growth of total assets of 4 per cent per annum between 1971 and 1981 in rural areas (cf RBI Bulletin, June 1986) the share of durable household assets in total assets has increased from 11.5 per cent in 1971 to 15.8 per cent in 1981. Among the states in the rural household sector, it was observed that the average value of total assets per household was highest in the two richest states, Haryana and Punjab (Rs 96631 and Rs 90956 respectively) while by contrast, a low average value of total assets was observed in respect of Orissa, Tamil Nadu, Assam and West Bengal, the lowest value being in respect of Orissa (Rs 17630).

Both the aggregative data on savings and the survey results on asset holdings are consistent with the story outlined in previous sections. Thus, analysing the pattern of changes in rural asset holdings, M.L. Dantwala (1987) notes that, " The only probable explanation for the sharp increase in the share of durable household assets in the midst of pervasive poverty seem to be an increase in inequality in income distribution " (p. 278)

It is also significant that the increases in the value of assets have turned out to be markedly skewed in favour of richer regions. As regards savings, econometric exercises have demonstrated the extent of the rise in incomes needed for a rural household to start saving²⁴ : it appears that roughly half the population - those either below the poverty line or close to it - simply cannot save.²⁵ Further we have one estimate that suggests that from 1973-74 to 1983-84 the savings rate was between 14 and 37 per cent higher than what could be expected on the basis of an unchanged income distribution and actual income growth since 1970-71.²⁶

The manner in which these savings and asset accretions have been financed is also a matter of interest, and may provide pointers to the questions being discussed here. It is clear that at one level, the package of inputs and high procurement prices associated with the Green Revolution technology could have pushed up rural savings rates, especially those of certain agrarian classes in well-endowed regions²⁷ ; various changes in banking infrastructure and interest rates could also have operated to augment non-agricultural savings.²⁸ However this is unlikely to be a sufficient explanation. In particular, there is evidence

that real incomes per worker in the unorganised sector have declined in agriculture as well as in industry (Abhijit Sen, 1988)²⁹ - and in agriculture as we have seen compensation of employees has remained absolutely stagnant, while the share of interest, rent and profit has increased (Table 12).

The additional factor must be as Chakravarty (1979) has argued the ability of at least part of the increase in savings to be financed through distributional changes leading to reductions in the consumption of the poor, particularly the group comprising agricultural labour, small farmers and ununionised labour. The available evidence does not allow us to judge the magnitude of this process ; it is clear, however, that interdependencies of this kind are important, and deserve to be further investigated.³⁰

v

It is now time to bring together the various threads of our discussion, and to ask what the underlying macro-economic processes are that link the various stages of the argument.

We have seen that, owing to a number of factors, the

growth of real per capita NDP in agriculture has shown wide inter-regional variations. These differential growth rates have accentuated rural income inequalities, and led to a lack of effective demand in regions in which the growth of income has been the slowest. On the other hand, given the need to procure large surpluses, and to pay a remunerative price to farmers, a

price support system, which prevents the price of food from falling, has had to be maintained. The result has been a continuing low effective demand for food, and this is indicated inter alia in the consumption expenditure figures analysed earlier.

Even given the current structure of inter-regional inequalities, greater efforts to increase investment and employment in agriculture could have formed a partial way out of the dilemma. It is well known that the state as an investor performs a dual role in both sustaining demand and in creating capacity. Now, it is apparent that in the Indian context, neither of these functions, and a fortiori the demand sustaining one, has been adequately performed. Indeed, there have been

difficulties in maintaining a high volume of public investment, and further, the process of generation of savings has been such that possibilities for substantial transfers of investible resources to the state have been limited. Owing to the dependence of private investment on public investment, the private sector has shied away from taking up the slack and not only has total investment not grown at the required rate, but much of the achieved increases have bypassed the poorer regions (where the lack of complementarities provided little incentives for the private investor.) In short a situation has resulted in which, " the propensity to save may increase without there being a corresponding increase in inducement to invest " (Chakravarty, 1979 p 1235) and the demand problem has become, so to speak, structurally embedded into the system.

A telling manifestation of the low level of the demand for food in India is to be found in the muted price response to the drought. Cereal prices increased by 7 per cent between 1986-87 and 1987-88 and rice and wheat by 7.4 per cent and 7.3 per cent respectively. Foodgrain prices as a whole increased by 9.4 per cent, and this has been virtually identical with the overall rate of inflation in the past year. This is a rate of increase that is small compared to what one might expect given the initial

fall in output. As a recent NCAER paper notes, "Compared with the average annual price rise of 6 per cent recorded by cereals over the last decade, the rise in 1987-88, though higher, has only been marginally so." (NCAER, 1988 p. 10)

Had effective demand been even more evenly distributed, region-wise and across class groups, the country might well have faced a sudden and unprecedented rate of price inflation once the large fall in output had occurred, which would in all probability not be contained even with good supply management. The work of Murty and Radhakrishna (1982) - referred to earlier - reveals just how rapid price increases would have been if sizeable increases in purchasing power had been transferred to the poor.³¹

It is important to see that the failure of consumption levels to rise markedly carries with it a number of dangers. First, low levels of normal consumption in and of themselves heighten the susceptibility to drought since they leave a large number of people on the edge of subsistence and vulnerable to sudden dips in consumption, which could potentially have catastrophic consequences. Second, they imply, ceteris paribus, that large food stocks must remain an integral aspect of

the system, and divert resources into procurement and stockholding. Third, low levels of food expenditure prevent a diversification of household budgets that could potentially expand the base for consumer goods. While recent experience seems to indicate that the absolute size of the consumer market for industrial goods is large enough to sustain a certain growth momentum despite the fact that the large majority of rural consumers do not participate in it, it is nonetheless true that the linkage effects of this type of industrialization - involving as it does consumer goods catering in the main to upper income groups - are limited, and involve the creation of shorter and shorter product cycles and an ever-increasing variety of consumer goods on the market.

VI

It has been suggested above that low consumption levels, increasing disparities in agricultural incomes and changes in savings behaviour, are not only interlinked, but are in some sense related to a general demand problem. Against the background of steady environmental degradation this explains the increasing

susceptibility to sudden variations in weather cycles. Where does this leave us now ?

In the short to medium term it seems clear that drought management and avoidance of distress caused by weather fluctuations will be overwhelmingly dependent on the working of the public distribution system, and on the creation of public works. These, as noted earlier, were largely responsible for moderating distress during previous crises. However, it remains a moot point as to whether the distribution system can handle this responsibility in future, given the inevitable constraints on administrative resources. This makes it imperative to institute more permanent arrangements to smoothen the effects of fluctuations in consumption. In this context, a prime requirement would seem to be the expansion of food for work programmes. This would have the merit of transferring food stocks to those who need them most through essentially non-inflationary means. The potential of cash for work projects as a means of injecting purchasing power and attempting to increase the effective demand for food also deserves to be more fully exploited ; such schemes have been successfully operated in India before (e.g in Maharashtra) and the possibility exists of making them a more integral part of policy. There is also the possibility, argued

for in recent years by S. Guhan (1986) amongst others, of instituting a form of social security in rural areas on the lines of unemployment compensation in western countries.

In the longer term, attention has also to be paid to much more basic issues which have a bearing on drought both in India and in Africa. Jodha (1986) has made the point that, "An important factor completely disregarded by development policies and programmes in India is the role of common property resources in the economy of rural people, particularly of the rural poor." (p. 1169) - and here the increasing evidence of the loss of common property resources, as well as the extent of denudation, loss of forest cover and soil wastage is obviously centrally related to the question of drought proneness, and has to be tackled in an integrated manner.

But this can only be ultimately successful if a major theme of this paper, the demand problem and its manifestation via growing inter-regional inequality, is more directly addressed. This would involve a much larger effective level of public investment in agriculture - with particular emphasis on the poorer rainfed regions. The attempt would be to increase labour absorption, and also through this to increase consumption

possibilities and redress the stagnation in basic consumption levels. Harnessing of productive capital formation in rural areas would also clearly figure here as an objective, as would the much-needed effort, referred to a moment ago, to regenerate the wasted environment of many poor regions through afforestation, soil conservation and related schemes. If any headway is made along these lines, it may turn out that the one salutary feature of the drought was to have pointed more clearly than at any other time to the underlying weaknesses of the Indian economy of the eighties.

Centre for Development Studies, Trivandrum

Notes

1. See the recent study by Rao, Ray and Subbarao (1988).
2. See Jodha (1980) and on the crucial related issue of common property resources, Jodha (1986).
3. On this point see Subramaniam (1975), Oughton (1982) Sen (1987) and Dreze (1988).
4. See for instance the analysis by Rao (1988).
5. Current disposable income figures provided in the NAS have been deflated by an index of wholesale prices ; this is not an entirely satisfactory procedure but will serve the present purpose.
6. This way of breaking up the data follows Krishnaji (1984).
7. The revised New Series on National Accounts Statistics 1980-81 to 1985-86 which has 1980-81 as a base year also largely confirms this picture.
8. On the other hand, preliminary results of the thirty-second round data of the NSS (relating to 1977-78) which assess the per capita per diem intake of nutrients suggest an increase in calorie intake for the country as a whole. This could be because of (i) differences in sampling methods between NSS and NNMB (on this see Kulkarni and Ashish Kumar, 1984) (ii) the sample period July 1977-June 1978 chosen by NSS relates to a good agricultural year which may have inflated the food intake figures in that round. In any case, this discrepancy between different estimates of calorie intake deserves to be further investigated.
9. While there have been recent attempts - influenced by the pioneering contribution of P.V. Sukhatme (see e.g. Sukhatme, 1978) to suggest that the extent of malnutrition in India is much smaller than previously believed, it is doubtful how seriously these new estimates can be taken. See for instance, Gopalan (1983), Rand and Scrimshaw (1984) and Kumar and Stewart (1988).

10. It is interesting to note that this ties in with the results of Bhattacharya, Chattopadhyay and Rudra (1987), who after resurveying villages in West Bengal sampled by the NSS in 1972-74, report a trend in consumption that can only be termed stagnant, to wit, " a total stagnation in the food part of total consumption and only a mild improvement in the non-food part of it. " (p. 1150)

11. Vaidyanathan (1984) discusses this possibility in the case of agricultural labour households, though as will be apparent below, it turns out that cereal expenditure is in general quite price inelastic.

12. Notice that in contrast to our own estimates, which can broadly be interpreted as showing that insofar as the demand for cereals is responsive to prices, it is so through income effects, the Murty-Radhakrishna estimates show much larger price effects and are therefore more in line with the predictions of standard consumer theory. These differences could, inter alia, be due to (i) different data sets, viz. NAS and NSS, used in our respective computations (ii) the more sophisticated LES-modified methodology used by Murty-Radhakrishna. It is possible that the aggregated nature of the NAS data used in our estimates exaggerate the income effects and/or underplay the price effects.

13. For a discussion see Utsa Patnaik (1988) pp 23-25

14. While technological constraints to improving the growth prospects of pulses and those of coarse cereals are undoubtedly severe, it is possible to argue that crop production is largely determined by the pattern of demand, and that production of pulses and coarse cereals has run into a demand constraint, whereas rice and wheat cultivation has responded to the increase in rural demand from the prosperous northern states. Referring to the disparity in growth rates between superior cereals like rice and wheat on the one hand, and coarse cereals like maize, jowar and ragi, on the other, Kurien remarks, " The fact is that the coarse cereals are, by and large, consumed by the poorer sections. Consequently, the demand for them has not increased as rapidly as demand for the superior cereals which form the diet of the more well-to-do sections" (1982 p. 65)

15. On the operation of this process and its implications see

Patnaik (1987).

16. For a recent discussion see Krishnaji (1988).

17. For a discussion of this important finding see Centre for Development Studies (1975).

18. See Ghosh (1987).

19. The role of terms of trade movements per se is difficult to judge in the context of the Indian economy ; for one interpretation see Kumar (1988 b)

20. See the interesting discussion in Chakravarty (1987).

21. In this context, it is not surprising that the aggregate growth of crop output has been affected. The period of the eighties has been notable for witnessing a decline in the rate of growth of most of the country's food crops (cf Sawant and Achuthan, 1988) and this may foreshadow further problems for the policy of food self-sufficiency in the aftermath of the recent drought.

22. See for instance Rakshit (1988, p. 323) who considers the possibility of rural development programmes reducing the cost of holding large food stocks.

23. These estimates are at a fairly high level of aggregation. The CSO data does not provide rural-urban breakdowns of savings ; further, all private producers outside the corporate sector are considered part of the household sector. Estimation of the actual increase in savings is further rendered difficult by the fact that in an accounting sense an increase in procurement by government involves a transfer of financial holdings from the government to the household sector as is clarified inter alia by the Raj Committee (see Reserve Bank of India, 1982). However this addition to savings has to be distinguished from savings which involve what one might call changes in time preference. For lucid discussion of these and related issues, see Rakshit (1982, 1983).

24. See Raj Krishna and Raychaudhuri (1982) who note, " The estimated intercept suggests that real income per capita should

rise at least 10 % above the poverty line before a typical household can afford to save. (p. 279)

25. An NCAER study has estimated that 50 per cent of the savings of the household sector are held by the top 5 per cent. Cf NCAER (1980).

26. Cf P. Sen (1984). It can also be hypothesized that the large proportion of savings that have been monetised is in conformity with the hypothesis of an inequality-induced augmentation in savings, since the holding of financial assets is a phenomenon associated largely with the top deciles of the population.

27. See the recent study by Krishnamurty, Krishnaswamy and Sharma (1987, esp. p. 340). In an earlier analysis, Mody (1983) argued that the shift to financial holdings on the part of big cultivators in the 1970s reflected constraints on increasing physical farm investment.

28. These issues have been examined in detail by the Chakravarty Committee. Cf Reserve Bank of India (1985).

29. In addition, in the case of industry, the share of labour income in the value added of the industrial sector has been declining. See Roy (1986).

30. That the savings of some groups may actually represent the forced savings i.e. cut in consumption of others was recognised by Keynes in A Treatise on Money, where he wrote, "The abstinence of individuals need not increase accumulated wealth ; it may serve instead to increase the current consumption of other individuals." (Volume 2, The Applied Theory of Money Ch. 30 p. 132)

31. As argued earlier what supply management seems to have done was to restore overall per capita availability to roughly its

pre-drought level (cf the figures in Table 2). On the other hand, as argued in the text, this could well have coexisted with chronic inflationary pressures in certain severely affected areas had the requisite "demand pull" in those regions existed.

References

- Bhatia, B.M (1967) Famines in India 1860-1965 (London : Asia Publishing House)
- Bhatia, B.M. (1987) 'Spectre of the Drought' The Statesman, 25 August
- Blyn, G. (1966) Agricultural Trends in India 1891-1947 (Philadelphia: University of Pennsylvania Press)
- Centre for Development Studies (1975) Poverty, Unemployment and Development Policy (New York : United Nations)
- Chakravarty, S. (1979) 'On the Question of Home Market and Prospects for Indian Growth' Economic and Political Weekly Special Number August
- Chakravarty, S. (1987) Development Planning : The Indian Experience (Oxford : Clarendon)
- Dandekar, V.M. (1986) 'Agriculture, Employment and Poverty' Economic and Political Weekly, Review of Agriculture, September 20-27
- Dantwala, M.L. (1987) 'Rural Assets Distribution and Composition of Labour Force' Indian Journal of Agricultural Economics vol. 42 July-Sept.
- Dreze, J. (1988) Famine Prevention in India LSE Development Economics Research Programme, Paper no 3, forthcoming in J. Dreze and A.K. Sen eds Hunger : Economics and Policy (Oxford : Clarendon Press)

Ghosh, J. (1987) 'Intersectoral Terms of Trade, Agricultural Growth and the Pattern of Demand' Paper presented to Social Scientist Conference, 1987

Gopalan, C. (1983) 'Measurement of Undernutrition : Biological Considerations' Economic and Political Weekly April 9

Guhan, S. (1986) 'Reaching Out to the Poor' Economic Times (Silver Jubilee Special) December 19

Jodha, N.S. (1980) 'The Process of Desertification and the Choice of Options' Economic and Political Weekly August 20

Jodha, N.S. (1986) 'Common Property Resources and Rural Poor in Dry Regions of India' Economic and Political Weekly July 5

Krishna, R. and G.S. Raychaudhuri (1982) 'Trends in Rural Savings and Capital Formation in India, 1950-1951 to 1973-1974' Economic Development and Cultural Change, vol 30

Krishnaji, N. (1984) 'The Demand Constraint : A Note on the Role of Foodgrain Prices and Income Inequality' Economic and Political Weekly Annual Number

Krishnaji, N. (1988) 'Foodgrain Stocks and Prices' in A.K. Bagchi (ed) Economy, Society and Polity (Delhi :oxford University Press)

Krishnamurty, K., K.S. Krishnaswamy and P.D. Sharma (1987) 'Determinants of Savings Rates in India' Journal of Quantitative Economics vol. 3 July

Kulkarni, G.A. and A. Kumar (1984) 'The Estimates of the Undernourished from Alternative Sources' Sarvekshana April

Kumar, S. G. (1987) 'Ethiopian Famines 1973-1985 : A Case Study' WIDER Working Paper No 26 Helsinki. Forthcoming in J. Dreze and A.K. Sen (eds) Hunger : Economics and Policy (Oxford : Clarendon Press)

Kumar, B. G. (1988 a) 'Impact of Drought on Agricultural Growth' The Hindu 20 May

Kumar, B.G. (1988 b) 'On Prices and Economic Power : Explaining Recent Changes in Intersectoral Relations in the Indian Economy' forthcoming Journal of Development Studies

Kumar, B.G. and F. Stewart (1988) 'Tackling Malnutrition : What Can Targeted Nutritional Interventions Achieve ? ' Centre for Development Studies, Trivandrum Working Paper no 225. Forthcoming in S. Guhan and R.H. Cassen (eds) Poverty in India

Kurien, C.T. (1982) 'Food for the Millions' Business India April 16-29

Lardinois, R. (1985) 'Famines, Epidemics and Mortality in South India' Economic and Political Weekly March 16

Mahendra Dev, S. (1986) 'Growth of Labour Productivity in Indian Agriculture : Regional Dimensions' Economic and Political Weekly June 21-28

Minhas, B.S. et al (1986) 'On the Reliability of Available Estimates of Private Consumption Expenditure in India' The Journal of Income and Wealth vol 9, July

Murty, K.N. and R. Radhakrishna (1982) 'Agricultural Prices, Income Distribution and Demand Patterns in a Low Income Country' in R.E. Kalman and J. Martinez (eds) Computer Applications in Food Production and Agricultural Engineering (Amsterdam : North Holland)

Mody, A. (1983) 'Rural Resources Generation and Mobilisation', Economic and Political Weekly Annual Number

Nadkarni, M.V. (1986) 'Backward Crops in Indian Agriculture : Economy of Coarse Cereals and Pulses' Economic and Political Weekly Review of Agriculture, September 20-27

NCAER (1980) Household Income and Its Disposition (New Delhi : NCAER)

NCAER (1988) 'Some Thoughts After the Drought' Annual Day Paper (April 30) New Delhi

Otten, M.W. (1986) 'Nutritional and Mortality Aspects of the 1985 Famine in North and Central Ethiopia' unpublished

Oughton, E. (1982) 'The Maharashtra Drought of 1970-73 : An Analysis of Scarcity' Oxford Bulletin of Economics and Statistics, 44

Patnaik, P. (1987) 'Recent Growth Experience of the Indian Economy : Some Comments' Economic and Political Weekly Annual Number, May

Patnaik, P. (1988) 'A Perspective on the Recent Phase of India's Economic Development' Social Scientist, 177, February

Patnaik, U. (1986) 'The Agrarian Question and Development of Capitalism in India' Economic and Political Weekly, May 3

Patnaik, U. (1988) 'Agrarian Sector in Independent India' Social Scientist, 177, February

Rakshit. M.K. (1982) 'Income, Saving and Capital Formation in India' Economic and Political Weekly Annual Number

Rakshit, M.K. (1983) 'On Assessment and Interpretation of Savings-Investment Estimates in India' Economic and Political Weekly Annual Number

Rakshit, M.K. (1988) 'Uses and Abuses of Instruments of Resource Mobilisation : The Indian Experience' in R.E.B. Lucas and G.F. Papanek (eds) The Indian Economy : Recent Development and Future Prospect (Westview Special Studies in South and Southeast Asia)

Ramachandran, K. (1987) 'Food Consumption in Rural Indian Households : Has it Increased in Recent Years ?' Nutrition Foundation of India Bulletin, January

Rand, W. and N. Scrimshaw (1984) 'Protein and Energy Requirements : Insights from Long Term Studies' Bulletin of Nutrition Foundation October

Rao, C.H. Hanumantha (1977) 'Agricultural Growth and Rural Poverty : Some Lessons from Past Experience' Economic and Political Weekly Special Number

Rao, C.H. Hanumantha (1988) 'Current Agrarian Scene: Policy Alternatives' Economic and Political Weekly Review of Agriculture March 26

Rao, C.H. Hanumantha, S.K. Ray and K. Subbarao (1988) Unstable Agriculture and Droughts ; Implications for Policy (New Delhi : Vikas)

Rao, S.K. (1971) 'Regional Disparities in Growth of Income and

Population in India, 1951-1965' PhD thesis University of Cambridge

Reserve Bank of India (1982) Capital Formation and Saving in India 1950-51 to 1979-80 : Report of the Working Group on Savings (Bombay : Reserve Bank of India)

Reserve Bank of India (1985) Report of the Committee to Review the Working of the Monetary System (Bombay : Reserve Bank of India)

Roy, T. (1986) 'Share of Industrial Wages in Value Added 1960 to 1980' Social Scientist vol 15 October

Sawant, S.D. and C.V. Achuthan (1988) 'Agriculture in the Seventh Plan' Economic Times July 15

Sen, A. (1988) 'A Note on Unemployment and Living Standards in the Unorganised Sector' Social Scientist, 177 February

Sen, A.K. (1986) 'Food, Economics and Entitlements' Lloyds Bank Review, April

Sen, A.K. (1987) 'Africa and India : What Do We Have to Learn From Each Other ? ' WIDER Working Paper no 19, April

Sen, C. (1988) 'The Tertiary Sector and Structural Change in the Indian Economy' Paper presented to Indian Economy Conference at Presidency College, Calcutta, March

Sen, P. (1984) 'Stabilization, Income Distribution and Poverty : India' ICRIER Discussion Paper No 2

Sivasubramoniam, S. (1960) 'Estimates of Gross Value of Output

of Agriculture for Undivided India, 1900-01 to 1946-47' in V.K.R.V. Rao et al (eds) Papers on National Income and Allied Topics (Bombay)

Subbarao, K. (1985) 'State Policies and Regional Disparities in Indian Agriculture' Development and Change vol 16

Subramaniam, V. (1975) Parched Earth : The Maharashtra Drought 1970-73 (Bombay : Orient Longman)

Vaidyanathan, A. (1984) 'Impact of Development on Rural Wage Labour in India' Paper presented to India Conference at St Antony's College, Oxford

Vaidyanathan, A. (1986 a) 'On the Validity of NSS Consumption Data' Economic and Political Weekly January 18

Vaidyanathan, A. (1986 b) 'Labour Use in Rural India : A Study of Spatial and Temporal Variations' Economic and Political Weekly Review of Agriculture, December 27

Vaidyanathan, A. (1987) 'Irrigation and Agricultural Growth' Presidential Address to 47th Annual Conference of the Indian Society of Agricultural Economics, North Bengal University, September 23

TABLE 1

ANNUAL PRODUCTION AND AVAILABILITY PER CAPITA OF FOODGRAINS
1951-55 (QUINQUENNIAL AVERAGE)

| Period | Average | Average Annual | | | Av annual |
|---------|------------|----------------|--------|--------|------------------|
| | Population | Availability | | | Cereals Produced |
| | M. | Cereals | Pulses | Total | Per Cap |
| | | Kg | Kg | Kg | Kg |
| 1951-55 | 376.44 | 129.13 | 23.59 | 152.72 | 122.74 |
| 1956-60 | 414.78 | 135.93 | 24.84 | 160.77 | 121.48 |
| 1961-65 | 452.24 | 146.32 | 22.12 | 168.44 | 135.02 |
| 1966-70 | 515.74 | 140.94 | 17.78 | 158.72 | 129.83 |
| 1971-75 | 597.10 | 140.54 | 15.47 | 156.01 | 135.48 |
| 1976-80 | 645.94 | 145.79 | 15.63 | 161.42 | 147.13 |
| 1981-85 | 720.42 | 151.95 | 14.34 | 166.29 | 153.39 |

SOURCE : Bulletin of Food Statistics and Utsa Patnaik 'Agrarian Sector in Independent India' Social Scientist February 1988

TABLE 2

'NET AVAILABILITY' OF CEREALS PER CAPITA : INDIA AND SAHEL
(182 kgs/cap/year = 100)

| Year | India | Sahel |
|------|-------|-------|
| 1961 | 80 | 115 |
| 1962 | 80 | 120 |
| 1963 | 77 | 114 |
| 1964 | 80 | 118 |
| 1965 | 84 | 113 |
| 1966 | 72 | 105 |
| 1967 | 73 | 115 |
| 1968 | 81 | 118 |
| 1969 | 80 | 111 |
| 1970 | 81 | 93 |
| 1971 | 84 | 101 |
| 1972 | 84 | 76 |
| 1973 | 76 | 85 |
| 1974 | 82 | 120 |
| 1975 | 73 | 92 |
| 1976 | 75 | 104 |
| 1977 | 77 | 94 |
| 1978 | 85 | 110 |
| 1979 | 87 | 101 |
| 1980 | 76 | 94 |
| 1981 | 84 | |
| 1982 | 83 | |
| 1983 | 80 | |
| 1984 | 84 | |
| 1985 | 83 | |
| 1986 | 87 | |
| 1987 | 86 | |

NOTE : Net Availability = (Net Production + Recorded Imports + Recorded Stock Depletion)/Population where Net Production allows 12.5 % of Gross Production for 'Feed Seed and Wastage'. For further details see Dreze p.41 b

SOURCE : Jean Dreze 'Famine Prevention in India' Development Economics Research Programme Paper 3 January 1988 p. 41b (some changes have been made to bring the Table up-to-date)

TABLE 3
 AVAILABILITY OF FOODGRAINS : INDIA AND ETHIOPIA (gms/per
 cap/day)

| | India | Ethiopia |
|------|-------|----------|
| 1981 | 454 | 512 |
| 1982 | 454 | 521 |
| 1983 | 437 | 608 |
| 1984 | 478 | 496 |
| 1985 | 463 | 317 |

SOURCE :

India : Bulletin on Food Statistics 1985 p. 176

Ethiopia : Relief and Rehabilitation Commission (RRC)
Food Situation in Ethiopia - Trend Analysis
Report - Early Warning and Planning Services
 October 1985 (country total calculated by taking a weighted
 average of estimates of per capita per day grain production
 available for food in fourteen administrative districts)

T A B L E: 4

a: PRIVATE FINAL CONSUMPTION EXPENDITURE AND PERSONAL DISPOSABLE INCOME
1960-61 to 1984-85 (Rs. Per Capita, 1970-71 Prices)

| Y e a r | RPCDY | A | B | C | D | Total |
|-----------|-------|-------|-------|-------|-------|-------|
| 1960 - 61 | 528 | 146.7 | 206.8 | 76.5 | 58.5 | 488.5 |
| 1961 - 62 | 525 | 145.3 | 204.3 | 76.8 | 60.0 | 486.4 |
| 1962 - 63 | 520 | 138.1 | 207.5 | 78.1 | 61.6 | 485.4 |
| 1963 - 64 | 524 | 140.8 | 199.5 | 82.3 | 64.5 | 487.2 |
| 1964 - 65 | 566 | 153.4 | 211.3 | 86.7 | 67.0 | 518.4 |
| 1965 - 66 | 512 | 130.6 | 206.9 | 84.6 | 69.4 | 491.5 |
| 1966 - 67 | 508 | 132.2 | 200.9 | 88.8 | 70.5 | 492.6 |
| 1967 - 68 | 595 | 152.0 | 204.9 | 89.1 | 73.1 | 519.2 |
| 1968 - 69 | 582 | 156.1 | 200.2 | 91.3 | 74.7 | 522.3 |
| 1969 - 70 | 590 | 156.4 | 207.8 | 89.0 | 77.6 | 530.9 |
| 1970 - 71 | 582 | 159.0 | 218.0 | 94.8 | 79.7 | 551.5 |
| 1971 - 72 | 563 | 152.5 | 216.3 | 101.5 | 83.9 | 554.2 |
| 1972 - 73 | 526 | 142.7 | 204.2 | 100.9 | 83.5 | 531.3 |
| 1973 - 74 | 501 | 147.7 | 198.8 | 100.7 | 86.1 | 533.3 |
| 1974 - 75 | 550 | 141.0 | 202.8 | 100.4 | 82.8 | 527.0 |
| 1975 - 76 | 575 | 156.0 | 207.7 | 103.7 | 84.8 | 552.3 |
| 1976 - 77 | 558 | 134.0 | 201.5 | 110.9 | 89.0 | 535.4 |
| 1977 - 78 | 626 | 159.4 | 209.5 | 115.5 | 92.6 | 577.1 |
| 1978 - 79 | 590 | 157.7 | 213.8 | 120.7 | 96.8 | 589.1 |
| 1979 - 80 | 526 | 135.0 | 203.5 | 116.8 | 99.3 | 554.6 |
| 1980- 81 | 560 | 158.4 | 206.8 | 117.4 | 103.7 | 586.4 |
| 1981 - 82 | 601 | 182.8 | 232.7 | 123.0 | 103.1 | 611.7 |
| 1982 - 83 | 603 | 145.0 | 230.0 | 135.8 | 109.3 | 620.0 |
| 1983 - 84 | 643 | 164.0 | 240.0 | 137.1 | 114.7 | 655.8 |
| 1984 - 85 | 664 | 151.4 | 243.1 | 137.6 | 122.4 | 654.5 |

Table 4

b: PRICE INDICES BY COMMODITY GROUP 1960 - 61 TO 1984 - 85.
(1970 - 71 = 100)

| Year | P ^A | P ^B | P ^C | P ^D |
|-----------|----------------|----------------|----------------|----------------|
| 1960 - 61 | 52.7 | 51.5 | 71.1 | 64.1 |
| 1961 - 62 | 52.9 | 52.8 | 75.3 | 67.5 |
| 1962 - 63 | 53.2 | 55.2 | 76.1 | 69.6 |
| 1963 - 64 | 59.8 | 60.7 | 79.2 | 72.9 |
| 1964 - 65 | 68.5 | 66.2 | 84.0 | 77.8 |
| 1965 - 66 | 80.2 | 70.6 | 89.4 | 80.1 |
| 1966 - 67 | 93.6 | 85.0 | 94.7 | 86.5 |
| 1967 - 68 | 106.6 | 98.2 | 98.1 | 93.0 |
| 1968 - 69 | 100.0 | 93.2 | 102.1 | 94.5 |
| 1969 - 70 | 104.6 | 99.1 | 105.5 | 97.3 |
| 1970 - 71 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1971 - 72 | 104.0 | 103.2 | 107.3 | 104.9 |
| 1972 - 73 | 118.1 | 119.7 | 113.7 | 111.4 |
| 1973 - 74 | 139.1 | 150.5 | 129.6 | 123.6 |
| 1974 - 75 | 193.9 | 164.2 | 149.5 | 156.5 |
| 1975 - 76 | 159.8 | 156.1 | 156.8 | 164.1 |
| 1976 - 77 | 158.6 | 163.9 | 162.7 | 170.8 |
| 1977 - 78 | 153.4 | 180.2 | 176.7 | 177.3 |
| 1978 - 79 | 155.8 | 185.4 | 191.1 | 184.6 |
| 1979 - 80 | 175.7 | 207.8 | 217.2 | 205.2 |
| 1980 - 81 | 186.7 | 244.7 | 233.5 | 236.6 |
| 1981 - 82 | 203.6 | 250.3 | 254.2 | 276.0 |
| 1982 - 83 | 226.1 | 256.0 | 269.6 | 295.0 |
| 1983 - 84 | 252.6 | 319.5 | 310.9 | 332.7 |
| 1984 - 85 | 240.2 | 319.5 | 310.9 | 332.7 |

TABLE 5
COMPOUND RATES OF GROWTH 1960-61-1984-85

| | |
|----------------|--------|
| RDYPC | 0.60 * |
| A | 0.29 |
| B | 0.47 * |
| C | 2.40 * |
| D | 2.80 * |
| T | 1.14 * |
| P ^A | 6.46 * |
| P ^B | 7.65 * |
| P ^C | 6.23 * |
| P ^D | 7.00 * |

N.B. (i) Growth rates have been computed through fitting semi-log trend functions.

(ii) * indicates significance at 5% level.

TABLE 6 LINEAR TIME TRENDS 1960-61 - 1984-85 (t ratio in brackets)

| Term | Constant | Time | R ² |
|------|----------|-----------------|----------------|
| A | 142.6 | 0.4 (1.73) | 0.1 |
| B | 197.7 | 1.0 (3.7) | 0.4 |
| C | 69.7 | 2.5 (22.7) | 0.95 |
| D | 54.0 | 2.33 (24.8) | 0.96 |
| T | 464.0 | 6.32 (11.49) | 0.85 |

Table 7: Three-Year Moving Average of Calories (Kcal)
Intake in Rural Areas

| States | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|----------------|------|------|------|------|------|------|
| Kerala | 1900 | 1860 | 1849 | 1994 | - | - |
| Tamil Nadu | - | 2379 | 2475 | 2381 | 2350 | 2169 |
| Karnataka | 2852 | 2885 | 2782 | 2917 | 1872 | 2859 |
| Andhra Pradesh | 2543 | 2587 | 2597 | 2506 | 2410 | 2230 |
| Maharashtra | 2310 | 2339 | 2328 | - | - | - |
| Gujarat | 2175 | 2151 | 2212 | 2264 | 2274 | 2267 |
| West Bengal | 2333 | 2479 | 2381 | 2447 | 2411 | 2494 |
| Uttar Pradesh | 2213 | 2104 | 2077 | 2018 | 2097 | - |

Source:

K. Ramachandran 'Food Consumption in Rural Indian Households:
Has it Increased in Recent Years?' NTI Bulletin January 1987

TABLE 8

PER CAPITA CONSUMPTION EXPENDITURE : A COMPARISON OF CSO AND NSS
MAJOR COMMODITY GROUPS, 1960-61 - 1983 (1960-61 prices)

| | TOTAL | | FOODGRAINS | | FOOD* | | NON-FOOD | |
|---------|-------|-----|------------|-----|-------|-----|----------|-----|
| | CSO | NSS | CSO | NSS | CSO | NSS | CSO | NSS |
| 1960-61 | 276 | 279 | 78 | 110 | 88 | 74 | 110 | 94 |
| 1961-62 | 270 | 273 | 77 | 113 | 87 | 71 | 106 | 90 |
| 1963-64 | 273 | 254 | 75 | 104 | 86 | 67 | 112 | 84 |
| 1964-65 | 291 | 270 | 82 | 103 | 91 | 80 | 119 | 85 |
| 1965-66 | 278 | 265 | 69 | 106 | 88 | 69 | 120 | 83 |
| 1966-67 | 282 | 257 | 72 | 105 | 85 | 65 | 125 | 79 |
| 1967-68 | 294 | 246 | 81 | 98 | 87 | 61 | 126 | 78 |
| 1968-69 | 298 | 257 | 83 | 97 | 85 | 65 | 131 | 83 |
| 1969-70 | 303 | 256 | 83 | 96 | 91 | 70 | 129 | 87 |
| 1970-71 | 314 | 263 | 88 | 98 | 96 | 75 | 126 | 86 |
| 1972-73 | 302 | 272 | 78 | 101 | 92 | 68 | 132 | 97 |
| 1973-74 | 313 | 286 | 81 | 111 | 97 | 73 | 134 | 94 |
| 1977-78 | 326 | 296 | 87 | 108 | 96 | 65 | 140 | 131 |
| 1983 | 361 | 331 | 90 | 116 | 106 | 82 | 176 | 196 |

* Excludes foodgrains

NB : The CSO implicit deflator for each category has been used to reprice NSS data in 1960-61 terms ; the deflation is done for total consumption and for each of the categories separately. For this among other reasons the sum of deflated expenditure in component categories does not add up to the figure under 'total'.

SOURCE : NSS Consumption Expenditure Surveys
National Accounts Statistics
Adapted from A. Vaidyanathan 'On the Validity of NSS
Consumption Data Economic and Political Weekly January
18, 1986 Table 1

TABLE 9
 CONSUMER EXPENDITURE AS PERCENTAGE TO TOTAL CONSUMER EXPENDITURE
 BY BROAD GROUPS OF ITEMS AND BY ROUNDS (RURAL ONLY)

| | Rounds | | | |
|-----------------------------------|-------------|-------------|-------------|----------|
| | 22 67-68 | 27 72-73 | 32 77-78 | 38 83 |
| total cereals | 45.39 | 40.58 | 32.78 | 32.30 |
| gram | 0.84 | 0.57 | 0.42 | 0.26 |
| cereal subs | 0.84 | 0.54 | 0.33 | 0.19 |
| pulses | 4.40 | 4.28 | 3.82 | 3.52 |
| milk and milk prod | 7.40 | 7.30 | 7.68 | 7.52 |
| edible oils | 2.90 | 3.51 | 3.57 | 4.03 |
| meat, eggs, fish | 2.40 | 2.47 | 2.67 | 3.02 |
| vegetables | 3.26 | 3.60 | 3.77 | 4.71 |
| fruits, sugar spices beverages | 9.19 | 10.07 | 9.30 | 10.03 |
| food total | 77.34 | 77.92 | 64.34 | 65.58 |
| non-food total | 22.66 | 27.08 | 35.66 | 34.42 |
| total expenditure | 100.00 | 100.00 | 100.00 | 100.00 |

SOURCE : Sarvekshana April 1986

T A B L E : 10

Estimated Cereal Cross Price Elasticities

| | R U R A L C L A S S E S | | | | |
|----|---------------------------|--------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 |
| CL | -0.920 | -0.784 | -0.545 | -0.205 | -0.327 |
| MM | 0.517 | -0.882 | -1.068 | -0.722 | -0.025 |
| EO | -0.523 | -0.479 | -0.527 | -0.379 | 0.417 |
| ME | -0.761 | -0.517 | -0.592 | -0.409 | 0.146 |
| SG | -0.343 | -0.511 | -0.674 | -0.589 | -0.012 |
| OF | -0.106 | -0.263 | -0.279 | -0.099 | -0.199 |
| CT | -0.033 | -0.047 | -0.199 | -0.554 | -0.232 |
| FL | -0.026 | -0.033 | -0.120 | -0.234 | -0.119 |
| ON | -0.042 | -0.049 | -0.209 | -0.576 | -0.415 |

CL : Cereals; MM : Milk and Milk Products; EO : Edible Oil;

ME : Meat, Fish and Eggs; SG : Sugar and Gur; OF : Other Food;

CT : Clothing; FL : Fuel and Light; ON : Other Non food.

K.N. Murthy and R. Radhakrishna: 'Agriculture Prices, Income Distribution and Demand Patterns in a Low Income Economy' in Kalman and Martinez (eds).

Computer Applications in Food Production and Agricultural Engineering (Amsterdam, North Holland 1982.)

T A B L E : 11

Area and Production of Foodgrains and Their Components

| | <u>Triennial Averages Centred Around</u> | | | | 1984 - 85 |
|-----------------------------------|--|-------------|-------------|-------------|---------------|
| | 1950-51 | 1960-61 | 1970-71 | 1980-81 | (Provisional) |
| Area (in million hectares) under- | | | | | |
| Coarse cereals | 38.4 (39) | 44.4 (38) | 45.6 (37) | 41.9 (33) | 39.2 (31) |
| Pulses | 19.3 (20) | 24.2 (21) | 22.2 (18) | 23.0 (18) | 22.7 (18) |
| Rice | 30.4 (31) | 34.2 (29) | 37.7 (30) | 40.1 (32) | 41.2 (33) |
| Wheat | 9.7 (10) | 13.3 (11) | 18.0 (15) | 22.2 (17) | 23.6 (19) |
| All foodgrains | 97.9 (100) | 116.2 (100) | 123.5 (100) | 127.4 (100) | 126.7 (100) |
| Production (in million tonnes) of | | | | | |
| Coarse cereals | 16.1 (31) | 23.3 (29) | 27.4 (26) | 29.0 (23) | 31.2 (21) |
| Pulses | 8.3 (16) | 12.1 (15) | 11.5 (11) | 10.2 (8) | 12.2 (8) |
| Rice | 21.8 (41) | 34.0 (42) | 41.9 (40) | 49.7 (40) | 58.6 (40) |
| Wheat | 6.3 (12) | 11.1 (14) | 23.4 (22) | 35.2 (28) | 44.2 (30) |
| All foodgrains | 52.6 (100) | 80.5 (100) | 104.3 (100) | 124.2 (100) | 146.2 (100) |

Note: Figures in brackets are percentages to all foodgrains.

Source: Derived from Statistics in 'Area and Production of Principal Crops - 1981 - 84; 1984, Government of India; and "Economic Survey 1985-86", 1986, Government of India.

From M.V. Nadkarni: 'Backward Crops in India'
Agriculture : Economy of coarse Cereals and Pulses'
Economic and Political Weekly. September 20 - 27, 1986.

TABLE 12 COMPOUND GROWTH RATES OF NET DOMESTIC PRODUCT PER CAPITA 1970-71 - 1980-81

| | Real Per Capita NDP | Real Per Cap NDP in Agriculture |
|-------------------|------------------------|------------------------------------|
| Andhra Pradesh | 1.1 | - 0.2 |
| Bihar | 1.0 | - 0.3 |
| Gujarat | - 0.4 | -0.8 |
| Haryana | 2.5 | 0.2 |
| Jammu and Kashmir | 2.0 | 0.9 |
| Karnataka | -0.7 | - 0.5 |
| Kerala | 0.4 | -1.1 |
| Madhya Pradesh | 0.2 | - 0.7 |
| Maharashtra | 2.3 | 2.6 |
| Orissa | 1.0 | 1.2 |
| Punjab | 3.3 | 1.5 |
| Rajasthan | - 1.4 | - 3.5 |
| Tamil Nadu | - 0.6 | - 2.6 |
| Uttar Pradesh | 0.6 | 0.2 |
| West Bengal | 0.5 | 1.1 |

NOTE Real NDP originating in agriculture in each state has been divided by the rural population of that state ; in this sense, the rural population functions as a proxy for the agriculturally dependent population

SOURCE : Estimates of State Domestic Product 1970-71 - 1985-86
(CSO) June 1987 and Bulletin on Food Statistics
1985

TABLE 13

AGRICULTURAL INCOME SHARES

| Are hec Coa | | Overall Share Agri/NDP | Compensation of employees/ Agri | Interest, Rent Profit/Agri |
|-------------------|---------|---------------------------|---------------------------------------|-------------------------------|
| Pul | 1970-71 | 47.4 | 21.5 | 5.7 |
| Ric | 1971-72 | 45.9 | 21.5 | 6.1 |
| Whe | 1972-73 | 46.0 | 20.5 | 6.2 |
| All | 1973-74 | 49.8 | 17.2 | 4.6 |
| Pro mil Coa | 1974-75 | 46.0 | 16.8 | 5.1 |
| Pul | 1975-76 | 41.8 | 20.4 | 6.5 |
| Ric | 1976-77 | 39.8 | 21.3 | 7.3 |
| Whe | 1977-78 | 40.4 | 19.8 | 7.7 |
| All | 1978-79 | 38.0 | 25.0 | 6.7 |
| Not | 1979-80 | 35.7 | 26.9 | 7.2 |
| Sou | 1980-81 | 37.2 | 22.3 | 6.7 |
| | 1981-82 | 35.0 | 22.8 | 7.2 |
| | 1982-83 | 33.0 | 22.7 | 7.4 |
| | 1983-84 | 35.4 | 20.7 | 6.6 |
| | 1984-85 | 32.7 | 21.4 | 7.2 |

SOURCE : National Accounts Statistics

Table 14: Sectoral Composition of Gross Domestic Saving
at current prices

| Year | (Rupees Crores) | | | Total |
|------------|----------------------------|----------------------------|----------------------------|--------|
| | Public Sector | Private Corporate | Household Sector | |
| | % of Gross Domestic Saving | % of Gross Domestic Saving | % of Gross Domestic Saving | |
| 1950 - 51 | 17.2 (1.8) | 9.1 (0.9) | 73.7 (7.5) | (10.2) |
| 1955 - 56* | 12.0 (1.7) | 9.1 (1.2) | 78.9 (11.0) | (13.9) |
| 1960 - 61* | 20.6 (2.8) | 13.4 (1.8) | 66.0 (9.1) | (13.7) |
| 1965 - 66* | 21.3 (3.4) | 10.5 (1.6) | 68.2 (10.7) | (15.7) |
| 1968 - 69* | 18.3 (2.6) | 9.1 (1.3) | 72.6 (10.2) | (14.1) |
| 1973 - 74* | 15.9 (3.1) | 9.3 (1.8) | 74.8 (14.4) | (19.3) |
| 1978 - 79* | 19.8 (4.9) | 6.7 (1.7) | 73.5 (18.1) | (24.7) |
| 1979 - 80 | 20.0 (4.6) | 9.0 (2.1) | 71.0 (16.5) | (23.2) |
| 1980 - 81 | 15.9 (3.6) | 8.7 (2.0) | 75.4 (17.3) | (22.3) |
| 1981 - 82 | 22.3 (4.9) | 8.5 (1.9) | 69.2 (15.8) | (22.1) |
| 1982 - 83 | 22.0 (5.0) | 8.5 (1.9) | 69.5 (15.9) | (22.8) |
| 1983 - 84 | 18.0 (4.1) | 7.7 (1.7) | 74.3 (16.8) | (22.6) |

* Final year of plan period

Note: Figures in brackets are percentages of gross domestic product at market prices.
Source: Report of the Committee to Review the Working of the Monetary System (RBI, 1985)

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