Accelerating Commercialisation of Agriculture

Dynamic Agriculture and Stagnating Peasants?

M V Nadkarni
Assisted by **K H Vedini**

There is considerable evidence of accelerated commercialisation of agriculture since the 1980s. The process may have further accelerated since early 1990s and has induced growth, making agriculture much more dynamic than ever in the past. Yet, do we face the paradox of a dynamic agriculture along with stagnating peasants?

THERE was a surge of studies on commercialisation of agriculture in India during the 1970s and early 1980s. A memorable seminar at Trivandrum in 1981 gave a forum for presenting many of the historically-oriented studies, some of which were brought out in a volume in 1985 [Raj et al 1985]. In a perceptive essay at the end of this volume, Krishna Bharadwaj presented an economic-analytic sketch of the process of commercialisation. Her essay as well as K N Raj's introduction to the volume posed the question of why in spite of a long history of commercialisation of Indian agriculture, the productivity was still low and backwardness still persisted. Bharadwaj ventured an answer herself:

> The retrogressive working of exchange relations – with the underdevelopment or muted formation of capitalist relations in one market reinforcing similar tendencies in others, and the operation of interlinkages diverting surpluses into unproductive channels affecting the growth and reinvestment of surplus arises from a preponderance of the categories of 'very small operators' and 'small operators' among the differentiated peasantry. These are chronically deficient households which have to cling to agriculture as the only source of livelihood and whose survival derives from a chronic and cumulative indebtedness.
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> ...It is also the low level of investment in agriculture and the weak pull-force operating from industry that perpetuates the state of backwardness. In order to push the agricultural economy out of the rut, a critical minimum level and pace of accumulation would be needed. In certain pockets where this has been achieved, 'commercialisation' has paved the way for capitalist accumulation. [Bharadwaj 1985:339].

She also drew a distinction between compulsive or forced commercialisation on the one hand and genuine commercialisation paving the way for capitalist development of agriculture on the other. She was afraid that much of the commercialisation in India was of the former kind [see also Bharadwaj 1974].

It is now over 10 years since Bharadwaj wrote this piece. Even at that time when the green revolution had already made an impact on Indian agriculture, such a dark characterisation would have raised many eyebrows. Has anything happened in Indian agriculture to warrant a more optimistic characterisation of it? How do we view it today? This essay is an attempt in this direction.

Bharadwaj listed a number of features of growing commercialisation taking cue from Marx: "commutation of rent in terms of money, the displacement of crop sharing tenancy by cash rents, a larger degree of monetisation of outputs and inputs (i e, of the proportion of inputs and outputs purchased and sold), increased area under cash crops or a larger proportion in output of cash crops, the rapid increase in the number of landless labourers, etc" [ibid:332-3]. Commercialisation thus covered not only agricultural output, but also land, labour and credit markets.

Whether commercialisation acts as an engine of growth or not would depend essentially on how these markets function. If the markets simply siphon off surplus into unproductive channels, reduce the rate of return to productive agents such as farmers and labourers, stifle incentives for production and investment, and do not provide necessary mobility to achieve higher rates of return, or make returns too risky and unstable, they may not act as growth promoting. In such a case, even commercialisation cannot be expected to be self-sustained and go far enough, but gets stunted and confined to forced commercialisation, let alone achieve sustained growth. It appears reasonable to observe that while a certain amount of commercialisation of the forced nature can co-exist with stagnation in agriculture, sustained growth cannot be expected without genuine commercialisation. We may clarify here that while forced commercialisation, characterised by distress sales, is for meeting compulsive needs like repaying loans and paying taxes and for sheer survival, genuine commercialisation is meant for realising a surplus. The generation of surplus can provide growth not only in agriculture but also in other sectors.

Growth and Diversification of Indian Agriculture

With this perspective in mind, it would be useful to review growth performance of Indian agriculture and its nature. This paper is confined to agriculture proper, i e, crop cultivation. A tremendous growth has taken place in the livestock sector and even aquaculture in recent years, showing that the rural economy is getting both commercialised and diversified at a fast rate. But the following analysis would show that this has not been at the cost of agriculture proper or its commercialisation .

Taking the index numbers of agricultural production, its compound rate of growth per annum during the entire period 1949-50 to 1993-94 as a whole, worked out to be 2.63 per cent for all crops, 2.49 per cent for foodgrains and 2.89 per cent for non-foodgrains. These growth rates were higher than that of population during the period, which was about 2.2 per cent per annum. It is remarkable that the growth of non-foodgrains part of agricultural production recorded a higher rate than for foodgrains. In a process of accelerating economic growth and commercialisation of agriculture, it is expected that the non-foodgrain part would grow at a higher rate resulting in a growing diversification of agriculture. This can happen because of two factors. First, as the commercialised sector grows relative to subsistence sector, the importance given by farmers to food crops as a source of subsistence declines. Secondly, with economic growth, the demand from the larger economy for non-foodgrain commodities increases due to a higher income elasticity of demand for them.

Foodgrains as a group is not homogeneous in this regard, since the two superior cereals, rice and wheat, have a higher income elasticity of demand and are more commercialised. They provide a contrast to coarse cereals which are much less commercialised. Between 1949-50 and 1993-94, while the production of rice increased by 2.66 and wheat by 5.64 per cent per annum, the production of coarse cereals increased by only 1.17 per cent per annum. It may be argued that these differences are technology-driven, owing to HYVs being evolved mainly in the case of wheat and rice but much less in the case of coarse cereals. But the technological forces would not have received the same thrust in the case of superior cereals had it not been for a higher demand for them.

Though technology did not play a strong enough role in the case of the non-foodgrain part of agricultural production, it recorded a higher rate of growth than in the case of each of foodgrains except wheat, and also higher than in the case of foodgrains as a whole.

If relative rates of growth of superior cereals and non-foodgrains are an indication of commercialisation, an acceleration in them could be indicative of acceleration of commercialisation. We can see this from Table 1, which presents growth rates in area, production and yield per hectare for principal crops, for three periods separately from 1949-50 to 1964-65 (the pre-green revolution period), from 1967-68 to 1980-81 (the first phase of the green revolution), and from 1980-81 to 1993-94 the recent period. We shall call them as the first, second and the third period respectively. A few points stand out from Table 1. First, while the growth rates are somewhat less in the second period than in the first, they have accelerated in the third period, on the whole being higher than in the first. Interestingly, it was in the first and third periods that terms of trade moved in favour of agriculture, while they moved against agriculture during the second period [cf Nadkarni 1987:169-170; and Nadkarni 1993:6]. It cannot be a coincidence that rates of growth moved up when terms of trade were favourable and moved down when they were declining. In any case, there is no doubt about the upsurge in production and productivity in recent years, which cannot be attributed to just the weather, as concluded by Sawant and Achutan (1995). Secondly, growth rates in the production of the non-foodgrain part are higher in all periods than that of foodgrains in spite of the technological advance being more in favour of foodgrains. Thirdly, because of this biased technological advance, the rate of growth in the yield per hectare of foodgrains has been higher in all the three periods than in non-foodgrains. Fourthly, because of this differential in yield growth, there has been a conspicuous attempt to make up for this by increasing the area under non-foodgrains. There is a deceleration of growth in the area under both, but this deceleration is well marked in the case of foodgrains; its area has even declined during the third period, while giving way to non-foodgrains. The rate of growth of area in non-foodgrains has always been higher than that of foodgrains, so much so that non-foodgrain production has grown faster than foodgrains production in spite of low rates of growth in yields.

We get a clear indication of accelerating commercialisation of Indian agriculture after 1980-81 from Table 2 which presents a picture of changing crop pattern and growing diversification. The proportion of area under foodgrains declined during 30 years from 1950-51 to 1980-81 by only 2.8 percentage points (from 76.7 per cent to 73.9 per cent), but within the following decade by 5 per cent points (to 68.9 per cent). There was a corresponding increase in the proportion of area under non-foodgrains. This trend continued during 1991-92 also. Among foodgrains, however, this decline is only in the case of coarse cereals and pulses. The proportion of area under rice has almost been constant during the whole period, but the proportion of area under wheat increased sharply up to 1970-71, tapered off up to 1980-81 and then stabilised between 1980-81 and 1991-92. If we look at the composition of non-foodgrains, an increased diversification is visible. There is a significant rise in the area under fruit, vegetables and oil seeds. A full picture of diversification cannot be had from Table 2 as figures for area under such new entrants as mulberry and floriculture were not available. The traditional commercial crop – sugarcane – has maintained an upward trend, almost doubling its share in total cropped area during the 40 years. In spite of these significant changes in cropping pattern, it is remarkable that foodgrains still account for over two-thirds of the total cropped area and their share is not likely to decline below 50 per cent at least during the next 10 to 20 years. The huge size of our population which is yet to stabilise is a guarantee for a continued demand for foodgrains, particularly rice, wheat and

TABLE 1: COMPOUND GROWTH RATES OF AREA (A), PRODUCTION (P), AND YIELD (Y) OF PRINCIPAL CROPS, ALL INDIA

(per cent per annum)

Crops	1949-50 to 1964-65			1967-68 to 1980-81			1980-81 to 1993-94		
	A	P	Y	A	P	Y	A	P	Y
Rice	1.21	3.50	2.25	0.77	2.22	1.45	0.49	3.47	2.97
Wheat	2.69	3.98	1.27	2.94	5.65	2.62	0.55	3.53	2.97
Coarse cereals	0.90	2.25	1.23	–1.03	0.67	1.64	–1.83	0.67	2.36
All cereals	1.25	3.21	1.77	0.37	2.61	1.70	–0.36	3.02	2.89
Pulses	1.72	1.41	–0.18	0.44	–0.40	–0.67	–0.13	1.20	1.25
Total foodgrains	1.35	2.82	1.36	0.38	2.15	1.33	–0.32	2.79	2.69
Sugarcane	3.28	4.26	0.95	1.78	2.60	0.80	1.78	3.15	1.36
Groundnut	4.01	4.34	0.31	–0.31	0.64	0.96	1.68	3.06	1.34
Total oilseeds	2.67	3.2	0.30	0.26	0.98	0.68	2.43	5.97	2.43
Cotton	2.47	4.55	2.04	0.07	2.61	2.54	–0.44	3.65	4.10
Jute	3.00	3.50	0.49	1.23	2.06	0.81	–1.36	1.48	2.88
Total fibres	2.71	4.56	1.58	0.19	2.53	2.31	–0.69	3.27	3.94
Potato	4.38	4.28	-0.11	4.29	7.78	3.35	3.05	4.69	1.58
Tobacco	1.66	2.79	1.10	–0.08	2.22	2.30	–1.14	1.17	2.34
Non-foodgrains	2.44	3.74	0.89	0.94	2.26	1.19	1.90	4.31	2.26
All crops	1.58	3.15	1.21	0.51	2.19	1.28	0.25	3.36	2.49

Note: Based on Index nos with triennium ending 1981-82 = 100
Source: Growth rates are as given in *Agricultural Statistics at a Glance*, March 1995.

TABLE 2: CHANGES IN CROPPING PATTERN, ALL INDIA
(As percentage to total gross cropped area)

Crops	1950-51	1960-61	1970-71	1980-81	1990-91	1991-92
Rice	23.6	22.3	22.6	23.3	23.0	23.3
Wheat	7.6	8.5	11.0	12.8	12.9	12.8
Coarse cereals	30.0	29.4	27.8	24.6	19.5	18.6
Total cereals	61.1	60.2	61.4	60.7	55.4	54.7
Total pulses	15.6	15.5	14.0	13.2	13.5	12.5
Total foodgrains	76.7	75.7	75.4	73.9	68.9	67.2
Sugarcane	1.3	1.6	1.6	1.6	2.0	2.2
Condiments and spices	0.9	1.0	1.1	1.2	1.3	1.3
Fruits	0.6	0.7	0.9	1.1	1.4	1.5
Potatoes	0.1	0.2	0.3	0.4	0.5	0.6
Onions	0.1	0.1	0.1	0.1	0.2	0.2
Total vegetable	1.2	1.0	1.3	1.7	4.5	4.7
Total oilseeds	8.3	8.3	8.9	9.2	13.5	14.9
Cotton	4.3	5.0	4.7	4.5	4.1	4.2
Jute	0.4	0.4	0.4	0.5	0.4	0.5
Total fibres	5.1	5.7	5.5	5.4	4.7	4.8
Tobacco	0.3	0.3	0.2	0.3	0.2	0.3
Other crops	5.6	5.7	5.1	5.6	5.8	5.5
Total non-foodgrains	23.3	24.3	24.6	26.1	31.1	32.8
Total gross	100	100	100	100	100	100
Cropped area in min ha	131.9	152.8	165.8	173.1	185.9	182.7

Source: *Indian Agriculture in Brief*, various editions, and *Agricultural Statistics at a Glance*, March 1995.

at a lower rate than for other foods like milk, meat, poultry products, fruit and vegetables.

Extent of Marketed Surplus

In the process, foodgrains themselves are getting more and more commercialised. This is reflected in the growth of marketed part of output. The data published in the *Bulletin on Food Statistics* show that the proportion of market arrivals as percentage of output increased in the case of rice from 23.4 per cent in 1969-70 to 32.8 per cent in 1982-83. If procurement of rice by FCI is added to it, the proportion would be seen to have increased even more. Since procurement is not included, the same proportion in the case of wheat is almost constant between these years – being 28.8 per cent in 1969-70 and 28.0 per cent in 1982-83. Gram also reflects a significant increase in this proportion, from 27.2 per cent to 33.0 per cent during the same years. Jowar, however, shows no such increase. This proportion which was already as low as 10.5 per cent in 1969-70 increased only to 12.4 per cent by 1982-83. Data for more recent years when these proportions would have increased much more and data for other foodgrains are unfortunately not available.

It seems, however, that the figures for market arrivals underestimate the extent of marketed output. Apart from procurement, this is because foodgrains – especially coarse cereals – are sold also in smaller markets including weekly markets which is not reflected in the market arrivals statistics. Based on the data for the comprehensive scheme on cost of cultivation for the period 1972-83 for India, Kumar and Mruthyunjaya (1989) estimated the proportion of marketed surplus in the output of wheat at 58.9 per cent and a similar proportion for paddy at 41.7 per cent. These figures are much higher than that indicated above from market arrivals. In a similar study for a more recent period of 1982-83 to 1986-87 for Karnataka, Reddy et al estimated the proportion of marketed surplus of Jowar at 56.5 per cent and of ragi at 55.3 per cent [Reddy et al 1995]. It is interesting that even coarse cereals are commercialised, if these figures are a guide. The declining trend in the proportion of their area seems to be mainly due to lower demand for those compared to superior cereals.

In spite of a fairly significant proportion of marketed surplus for the two millets, demand at source from growers themselves continues to play an important role in their case. Reddy et al found that elasticity of marketed surplus with respect to price was negative for ragi (viz, –0.87), but it was positive though less than one for jowar (viz, 0.393). This can be contrasted with similar elasticities estimated by Kumar and for paddy, which indicate their better market responsiveness and a more commercialised character. The supply response of subsistence crops cannot be price-elastic. As agriculture becomes more commercialised, its supply function tends to become more elastic. This is true not only of marketed surplus but of output as well. It may be recalled that Krishnan (1965) had estimated the elasticity of marketed surplus of foodgrains as negative during the 1960s. This is not true any more for at least rice and wheat, as the study by Kumar and Mruthyunjaya referred above showed. They also showed that the elasticity of output supply of wheat to its price was 1.13 and the same for rice was 1.39. On the contrary, the study by Reddy et al showed a very low but positive elasticity of output of jowar (viz, 0.028) and a negative elasticity of output of ragi (–0.51).

Accelerating Monetisation of Inputs

The process of commercialisation of agriculture has covered inputs too, which are experiencing accelerating monetisation. Even a traditional input like farmyard manure is highly commercialised now. It has a good market and fetches a good price. The dependence on purchased inputs is growing. The increase in the consumption of chemical fertiliser has been phenomenal, as can be seen from Table 3. While this consumption per hectare of gross cropped area increased by only 18.34 kg from 13.61 kg in 1970-71 to 31.95 kg in 1980-81, it increased by as much as 35.54 kg during the following decade to 67.49 kg in 1990-91. Due to a significant government intervention, viz removal of subsidies on phosphatic and potassic fertilisers, their consumption declined after 1990-91. However, the total consumption of all fertilisers continued to increase to 73.99 kg in 1994-95. India has already surpassed a few developing countries in this regard. During 1993-94, while India's consumption of fertiliser per hectare of agricultural area was 68.2 kg, it was only 50.6 kg in China, 53.3 kg in Philippines, 52.1 kg in Thailand, and 25.4 kg in the world as a whole [cf *Fertiliser Statistics, 1993-94*, p IV-67].

Since inputs are bought often through institutional credit (from co-operatives and commercial banks), trends in it are a good again, as we can see from Table 4, there has been acceleration after 1980-81. Table 4 presents data for credit flow – both total and on per hectare basis, in monetary terms as well as adjusted for inflation using the index numbers of wholesale prices. The increase in the flow can be seen to be significant in real terms too, particularly after 1980-81.

Investment in private irrigation also has grown considerably, indicating reduced dependence on government created irrigation. Net irrigated area as per cent of net sown area increased in India from 17.6 in 1950-51 to only 18.5 per cent in 1960-61, and then accelerating to 22.2 in 1970-71, 27.7 per cent in 1980-81, 33.6 in 1990-91 and 34.5 per cent in 1991-92. It is most likely to taper off as it approaches exploitable potential of irrigation. Irrigation from sources other than by government canals and tanks can be said to be mainly from private sources. Though there are a few public tube wells, well irrigation is dominantly private. Table 5 below presents the relevant picture. Net area irrigated by tube wells, other wells, private canals and 'other sources' (other than government canals and tanks) increased from 10.1 million hectares in 1950-51 to only 11.0 million hectares in 1960-61, and thereafter to 15.1 million hectares in 1970-71, 21.1 million hectares in 1980-81, 28.0 million hectares in 1990-91 and 28.7 million hectares in 1991-92. In the process, their proportion in total net irrigated area increased from 48.4 per cent to 44.4 per cent, 48.4 per cent, 54.4 per cent, 58.5 per cent and then to 58.7 per cent during respective years. On the contrary, there was only a slow increase in area

Table 4: Flow of Institutional Credit to Agriculture, All India

	Institutional Credit: Total Rs Crore	Institutional Credit Per Hectare of Gross Cropped Area (Rs)	
		At current Prices	At 1981-82 Prices
1970-71	885.16	53.39	147.89
1980-81	3389.16	196.36	200.98
1990-91	8982.66	483.20	264.48
1991-92	11506.61	629.81	303.08

Table 3: Consumption of Chemical Fertilisers : All India

	Consumption in '000 Tonnes				Consumption Per Hectare of Gross Cropped Area in Kgs
	N	P_2O_5	K_2O	Total	
1950-51	55	9	6	70	0.55 (1951-52)
1960-61	212	53	29	294	1.93
1970-71	1479	541	236	2256	13.61
1980-81	3678	1214	624	5516	31.95
1990-91	7997	3221	1328	12546	67.49
1994-95	9511	2945	1064	13520	73.99

Source: Fertiliser Statistics 1994-95, pp I-83 and 110.

irrigated by government canals and tanks together, and their proportion declined significantly, particularly so under tank irrigation.

Capital Formation in Agriculture

The declining importance of public irrigation is reflected also in the total gross capital formation in agriculture (GCFA) on government account. In fact, the latter showed an absolute decline in real terms after 1980-81, whereas GCFA on private account increased in real terms up to 1990-91 (Table 6). However, there has been a decline in absolute terms in GCF on private account too after 1990-91 as on public account. The share of GCF on private account steeply increased between 1980-81 and 1990-91, and has remained at a slightly lower level during the last two years. To some extent, private GCFA depends on public GCFA. When the latter declined, it is remarkable that the former did not decline in absolute terms at least between 1980-81 and 1990-91. A continuously declining GCFA on government account would have affected GCFA on private account. In any case, the proportion of private GCFA to total has increased from 67 per cent in 1960-61 to 77 per cent in 1992-93. There was a decline in this proportion between 1970-71 and 1980-81 due to massive increase in GCPA on public account. Will the decline in GCF on private account after 1990-91 be a momentary phenomenon? Hopefully so, because after 1991-92, it has risen again though it has not regained the 1990-91 level.

What can be quite worrisome here is the continuously declining proportion of total GCF to GDP from agriculture after 1980-81. The increase in total GCF in 1993-94 has not been enough to regain earlier levels. An acceleration in growth rates after 1980-81 does not apparently tally with this phenomenon. If this trend continues, it could well lead to growth rates tapering off. Apart from a decline in GCF on government account, could this decline in the rate of GCF be a cumulative effect of a continuosly declining trend in the proportion of area under medium and large holdings, as we have noted in a section below on structural trends? This decline was particularly sharp during the decade after 1980-81 (from 52.6 per cent of total operated area to 44.6 per cent). If larger holdings are the major source of capital accumulation, a decline in the rate of GCF in agriculture may not be surprising under these circumstances. Had it not been for this, an increase in GCF on private account would have been signficant enough to offset the decline in GCF on government account. But how did the acceleration in growth take place in spite of the decline in the rate of GCF? The corresponding increase in the proportion of area under smaller holdings would have increased the requirement of labour per hectare and reduced relatively the need for fixed capital. Both in the case of food crops and non-food crops, the importance of working capital required for the purchase of current market inputs like fertilisers seems to have sharply increased as we have noted elsewhere. There has been no corresponding increase in the need for fixed capital. It is interesting to note in this connection that the ratio of net fixed capital formation to NDP (both at 1980-81 prices), which increased from 1.23 in 1960-61 and 1.22 in 1970-71 to as high as 1.57 in 1979-80, began to fall thereafter, in spite of fluctuations around a declining trend. It was 1.43 in 1980-81, and fell to 1.26 in 1990-91 and further to 1.25 in 1993-94 [cf EPW-RF 1995:3252]. The declining share of operated area under medium and larger holdings may not be the only factor behind falling capital-output ratios. The spread of literacy and general education among the rural people including farmers would have increased their skills and productivity. Could it be that formation of human capital has more than compensated for the falling rate of GCF, making possible acceleration in growth rates? This needs further probe. In any case, it is the fall in capital- output ratios which made higher growth rates possible in spite of a decline in the rate of GCF. But we cannot always count on declining capital-output ratios, and a stepping up of GCF may be necesary to keep up agricultural growth rate in future.

Possible Causal Factors

Before going into the implications of the accelerated commercialisation since the 1980s, we may explore the factors behind this phenomenon. An improvement in the overall economic growth and the rise of the middle class in the Indian economy must have played an important role in stepping up the demand for superior cereals and non-foodgrain agricultural commodities. These commodities enjoyed a higher income elasticity of demand. The procurement of foodgrains and building up buffer stocks of foodgrains also gave an assured market for superior cereals, and protected farmers from

Table 5: Irrigated Area by Source, All India

(in million hectares)

	Government Canals	Tanks	(1)+ (2)	Tubewells	Other Wells	Private Canals	Other sources	(4)+ (5)+ (6)+ (7)	Total Net Irrg Area
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1950-51	7.2	3.6	10.8	-	6.0	1.1	3.0	10.1	20.9
	(34.4)	(17.2)	(51.6)	-	(28.7)	(5.3)	(14.4)	(48.4)	(100)
1960-61	9.2	4.6	13.8	0.2	7.2	1.2	2.4	11.0	24.8
	(37.1)	(18.5)	(55.6)	(0.8)	(29.0)	(4.8)	(9.7)	(44.4)	(100)
1970-71	12.0	4.1	16.1	4.5	7.4	0.9	2.3	15.1	31.2
	(38.5)	(13.1)	(51.6)	(14.4)	(23.7)	(2.9)	(7.4)	(48.4)	(100)
1980-81	14.5	3.2	17.7	9.5	8.2	0.8	2.6	21.1	38.8
	(37.4)	(8.2)	(45.6)	(24.5)	(21.1)	(2.1)	(6.7)	(54.4)	(100)
1990-91	16.5	3.3	19.8	14.3	10.1	0.5	3.1	28.0	47.8
	(34.5)	(7.0)	(41.5)	(29.8)	(21.1)	(1.1)	(6.5)	(58.5)	(100)
1991-92	16.8	3.3	20.1	14.8	10.2	0.5	3.2	28.7	48.8
	(34.4)	(6.9)	(41.3)	(30.3)	(20.9)	(1.1)	(6.5)	(58.7)	(100)

Note: Figures in brackets are percentages to total net irrigated area.

Source: For years 1950-51 to 1980-81 – *Agricultural Statistical Compendium*, Vol I Foodgrains Part I, compiled by P C Bansal, Techno-Economic Research Institute, New Delhi 1990; For years 1990-91 and 1991-92 *Fertiliser Statistics* 1994-95, P III-11.

Table 6: Gross Capital Formation in Indian Agriculture at 1980-81 Prices

(Rs crore)

	Total	Public	Private	Total GCF in Agriculture as Per Cent of GDP from Agriculture
1960-61	1773	585 (33.0)	1188 (67.0)	5.4
1970-71	2884	789 (27.4)	2095 (72.6)	7.0
1980-81	4864	1892 (38.9)	2972 (61.1)	10.0
1990-91	5874	1313 (22.4)	4561 (77.6)	8.4
1991-92	4988	1135 (22.8)	3853 (77.2)	7.3
1992-93	5128	1185 (23.1)	3943 (76.9)	7.1
1993-94	5228	na	na	7.0

Note: Figures in brackets are percentages to Total GCF case

Source: National Accounts Statistics.

the risk of any sharp fall in prices even in the years of bumper harvests. The prices themselves have been made more remunerative through the announcement of progressively increasing procurement and minimum support prices. Terms of trade have once again turned favourable to agriculture.

As Acharya (1994) has observed, there were also other significant improvements in the performance of domestic markets. Owing to buffer stock operations in rice and wheat, there has been a decrease in the intra-year price rise from peak to lean seasons. In the case of oilseeds also, the spread between post harvest and lean season prices is reported to have come down [ibid:156]. Even in the case of commodities like fruits and vegetables, there has been an improvement in the form of a rise of co-operative marketing institutions which have evolved a network for purchase from farmers and for sale to consumers as in Karnataka. A wide network of regulated markets and warehouses also has helped in the process. According to Acharya, physical losses during handling, storage and transportation have reduced. The process of price discovery is more open, and market charges are rationalised. The backward and forward linkages of wholesale markets have been strengthened.

Interlinkages of credit with factor and product markets have been a bane of forced commercialisation in India as Bharadwaj had pointed out [Bharadwaj 1974:4]. These things have evidently been changing, as brought out by a recent study in Andhra Pradesh. A comparison between a backward and a developed village showed that while interlinked credit transactions were highly prevalent in the former, they were much less in the latter [Reddy 1992]. Moreover, the study distinguishes between interlinkages of a voluntary type where both parties benefit, and of a coercive type where the dominant party exploits the weaker party. The interlinkages that remained in the developed village were mainly of a voluntary type. This indicates that overall economic development, including improvements in marketing and other infrastructure, tends to reduce coercive types of transactions and gives a spur to genuine commercialisation and further growth.

This does not mean, however, marketing problems are solved and coercive transactions have disappeared. Commercialisation makes farmers more vulnerable to market forces and market risks. Marketing efficiency has not developed as yet equally well in other commodities as in rice and wheat, particularly wheat. Monopolistic elements are known to be colluding in price fixation in the case of many commodities like fruit and vegetables in big markets. Yet, farmers prefer to bring their produce here because of assured sales. Particularly notable is the fact that there is today hardly a credible institutional mechanism to actually provide for support operations in a majority of crops apart from exceptions like rice and wheat. Perishable crops like fruit and vegetables are specially vulnerable. Not all farmers are equally well poised to undertake market risks.

There have been some developments in recent years however, which have tended to contribute towards reducing market risks of even relatively smaller farmers. Several processing companies are making direct contracts with farmers for purchase of farm produce such as tomatoes, papain (from papaya), marigold seeds (used as poultry feed to brighten the colour of egg yolk) and umpteen such items. The companies provide technical know-how, seed, sometimes even credit, and of course assured purchase. It may look like a monopolistic arrangement, but farmers have gained in absolute terms by entering into such contracts and have improved their financial position compared to their earlier status. This has led to a tremendous diversification, the full richness of which is yet to be documented.

Commercialisation requires new skills on the part of farmers. Though total literacy is yet to be achieved in rural India, it has advanced considerably, and so has the general educational level. It is common to find several matriculates and even a few graduates in Indian villages today. They are sensitive to market information given by the media. Their better educational and information levels would certainly have aided commercialisation and growth, and enabled farmers to deal with traders and processing companies on a little stronger footing than before.

TABLE 8: TOTAL COST AND NET INCOME FROM PRINCIPAL CROPS IN KARNATAKA: 1990-91
(IN DESCENDING ORDER OF TOTAL COSTS)
(Rs per hectare)

Crop	Gross Income	Total Cost	Net Income
More Commercialised Crops			
Sugarcane (first crop)	38005	28218	9787
Sugarcane (ratoon)	39272	22954	16318
Tobacco	22597	14825	7772
Cotton	17519	10971	6548
HYV paddy	12127	8862	3265
HYV maize	7479	5394	2095
Ground nut	4130	3515	615
Soyabean	5047	2774	2300
Sunflower	3004	2011	993
Red gram	3049	1909	1140
Other crops			
HYV ragi	2671	4006	-1335
HYV jowar	2050	1936	114
Horse gram	2182	1843	339
HYV bajra	1242	1219	23
Green gram	1138	1193	-55

Source: Report on Regionwise Cost of Cultivation for 1990-91, Farm Management Division, Directorate of Agriculture, Government of Karnataka, June 1992.

TABLE 7: AVERAGE NET INCOME FROM SELECTED CROPS DURING 1972-83 ACROSS STATES.

State	Superior Cereals		Other Foodgrains		Cash Crops	
	Crops	Rs Per Hectare	Crops	Rs Per Hectare	Crops	Rs Per Hectare
Andhra Pradesh	Paddy	474	Jowar	67	Sugarcane	3204
					Cotton	535
Bihar	Paddy	85	Maize	2318	Sugarcane	2595
	Wheat	528				
Punjab	Paddy	2272	...		Cotton	856
	Wheat	422				
UP	Paddy	251	...		Sugarcane	3479
	Wheat	692				
Karnataka	Paddy	2009	Jowar	147	Cotton	916
Tamil Nadu	Paddy	975	Jowar	–128	Sugarcane	2075
					Groundnut	172
					Cotton	70[illegible]
Gujarat	...		Bajra	279	Groundnut	564
					Cotton	1221
Maharashtra	...		Jowar	115	Sugarcane	6116
					Cotton	404
Haryana	Paddy	626	Bajra	150		
	Wheat	251	Gram	56		
MP	Paddy	675				
	Wheat	367				
Assam	Paddy	316	...		Jute	397
Orissa	Paddy	611	...			
West Bengal	Paddy	628	...		Jute	592
HP	...		Maize	-187		
Rajasthan	...		Maize	297		
			Bajra	59		
			Gram	366		

Source: Mruthyunjaya and Kumar (1989) based on Comprehensive Scheme on Cost of Cultivation of Principal Crops, Directorate of Economics and Statistics, Government of India.

Under a commercialised setting, farmers tend to grow more of those crops which fetch them more net income per hectare, after meeting their costs. Relative economics of competing crops becomes, therefore, more important. Based on data from the Comprehensive Scheme on Cost of Cultivation of Principal Crops sponsored by the directorate of economics and statistics, Mruthyunjaya and Kumar have estimated average net income per hectare during the period 1972-83 for principal crops across various states in India. These figures are reproduced in Table 7. An all-inclusive concept of cost is used here. There is some variation across the states in net income, but what matters from the point of view of choice are relative differences within a state or region. Sugarcane tops over all the crops in net income per hectare, but we cannot generalise that all non-foodgrain crops fetch more net income than foodgrains. Paddy and wheat, particularly paddy, also fetch high net incomes, though not as high as sugarcane. Cotton is also quite attractive in states like Gujarat. Foodgrains other than the two superior cereals generally fetch low net incomes, but maize can be quite attractive as in Bihar. However, net income from maize varies from Rs 2,318 in Bihar to a loss of Rs 187 in HP. Evidently, agro-climatic features of regions have a role to play in determining relative economics. On the whole, the foodgrains other than rice and wheat face the threat of continuous decline and – hopefully not – even an extinction, if this picture of relative crop economics continues in future. Pulses no doubt have a good demand and fetch high prices, but their yields should considerably improve for making them economically more viable to grow.

One of the problems of cultivating more remunerative crops is that it also calls for more investment per hectare, including working capital, and also more supervision. This has a significant equity implication in that those farmers who cannot afford this are likely to be small and marginal and may not able to fully reap the benefits of commercialisation. Equity apart, it is necessary to arrange timely and adequate credit to all farmers so that they can grow the crops they want. Table 8 below presents figures on gross income, total cost and net income per hectare from principal crops in Karnataka during 1990-91. This is based on a separate scheme for the collection of farm management data, which is the state government's own. The concept of cost used in the state scheme is also all inclusive, and is even more comprehensive than what is used in the GOI scheme. The concept used in the former includes risk costs (10 per cent of total variable cost in irrigated crops and 15 per cent on dry land crops), and managerial costs as well (Rs 400 per hectare for annual crop and Rs 240 per hectare for seasonal crops of six months or less). The table shows a generally positive association between the level of total costs and net income, but HYV ragi is a significant exception involving high cost but giving a net loss. The more commercialised crops have not only a higher net income, but also require higher expenditure. It is necessary to recall here that the crops which are shown as making net loss or very low net income do so on the basis of a very comprehensive concept of cost, and that they may well be recovering their paid out costs. Secondly, net incomes are subject to fluctuations on account of weather and pests.

Since both gross and net incomes per hectare of non-foodgrain crops are considerably higher than those from foodgrains, their share in GDP generated from agriculture must be much higher than what is indicated by their share in total gross cropped area. We had noted above that the share of non-foodgrain in area is about one-third now. If

TABLE 9: CROPPING PATTERN ACROSS SIZE-CLASSES OF AGRICULTURAL HOLDINGS IN INDIA, 1970-71 AND 1980-81
(Percentages to Total Cropped Area)

Crops	Year	Marginal (less than 1 hec)	Small (1-2 hec)	Semi Medium (2-4 hec)	Medium (4-10 hec)	Large (10 hec and more)	All
Rice	70-71	38.8	34.4	27.8	19.0	11.4	22.9
	80-81	39.8	34.5	27.2	18.9	11.3	24.5
Wheat	70-71	13.2	12.0	12.2	11.7	10.1	11.6
	80-81	14.8	12.9	13.0	12.5	11.3	12.8
Other	70-71	20.7	24.0	27.2	30.9	34.2	29.0
Cereals	80-81	17.3	22.0	25.5	28.9	32.3	26.1
Total	70-71	72.7	70.4	67.2	61.6	55.7	63.5
Cereals	80-81	71.9	69.4	65.7	60.3	54.9	63.4
Pulses	70-71	10.4	11.1	12.3	13.8	16.0	15.1
	80-81	9.5	10.1	11.0	12.9	15.1	12.0
Total	70-71	83.1	81.5	79.5	75.4	71.7	78.6
foodgrains	80-81	81.4	79.5	76.7	73.2	70.0	75.4
Sugarcane	70-71	1.9	1.8	1.8	1.5	0.9	1.5
	80-81	1.9	2.0	2.0	1.5	0.9	1.6
Groundnut	70-71	2.4	4.0	4.4	5.5	5.0	4.6
	80-81	2.3	3.5	4.3	5.1	3.7	4.0
Oilseeds	70-71	6.1	6.9	7.5	9.2	9.0	8.2
	80-81	6.1	7.2	8.6	10.2	9.2	8.7
Cotton	70-71	1.0	2.2	3.6	6.2	7.4	4.9
	80-81	1.0	2.7	4.2	6.3	6.6	4.6
Jute	70-71	1.0	1.1	0.7	0.3	0.2	0.5
	80-81	1.0	1.0	0.6	0.2	0.1	0.5
Non-food-	70-71	16.9	18.5	20.5	24.6	28.3	21.4
grains	80-81	18.6	20.5	23.3	26.8	30.0	24.6

Source: Census of Agricultural Holdings – All India for 1970-71 and 1980-81.

TABLE 10: CROPPING PATTERN ACROSS SIZE-CLASSES OF AGRICULTURAL HOLDINGS IN KARNATAKA, 1985-86 AND 1990-91
(Percentages to Total Gross Cropped Area)

	Year	Marginal	Small	Semi-medium	Medium	Large	All
Rice	1985-86	24.6	14.0	10.9	7.2	4.5	10.1
	1990-91	23.4	12.9	10.5	7.3	5.1	10.4
Other cereals	1985-86	38.5	42.9	43.3	44.0	43.5	43.1
	1990-91	37.4	40.6	39.6	40.0	36.8	39.3
Total cereals	1985-86	63.1	56.9	54.2	51.2	48.0	53.2
	1990-91	60.8	53.5	50.1	47.2	41.9	49.7
Pulses	1985-86	10.6	13.3	13.3	13.8	14.1	13.4
	1990-91	8.0	12.1	12.9	13.2	14.1	12.6
Total food-	1985-86	73.7	70.2	67.5	65.0	62.1	66.6
grains	1990-91	68.8	65.6	63.0	60.4	56.0	62.3
Other food-	1985-86	7.2	6.1	5.8	4.8	4.0	5.3
grains	1990-91	8.0	7.0	6.5	6.1	5.6	6.5
Oilseeds	1985-86	12.1	15.6	17.5	19.6	20.0	17.9
	1990-91	14.3	18.1	21.3	24.2	26.6	21.7
Fibres	1985-86	2.2	4.5	5.8	7.4	8.0	5.4
	1990-91	3.4	5.6	5.7	5.8	5.0	6.3
Other non-	1985-86	4.8	3.6	3.3	3.2	5.8	3.9
food crops	1990-91	5.5	3.8	3.5	3.4	6.9	4.2
All non-	1985-86	26.3	29.8	32.5	35.0	37.9	33.4
foodgrains	1990-91	31.2	34.4	37.0	39.6	44.0	39.7

Source: Census of Agricultural Holdings, Karnataka, 1985-86 and 1990-91.

Tables 7 and 8 are an indication, their share in GDP from agriculture must be at least twice as high. Though foodgrains dominate in terms of area, non-foodgrains dominate in terms of value added.

Reach of Commercialisation

We observed above that, generally, higher levels of net income per hectare also go with higher levels of expenditure incurred, which tends to favour better endowed farmers. We can examine now how far commercialisation reaches different size-classes of farmers. The reports on the *Census of Agricultural Holdings* contain information on cropping pattern in different size-classes. We follow the census classification of holdings into (i) marginal (less than one hectare), (ii) small (1 to 2 hectares), (iii) semi-medium (2 to 4 hectares), (iv) medium (4 to 10 hectares), and (v) large (10 hectares and above). Admittedly, there is some arbitrariness here because differences in irrigation endowment, rainfall and soil mean that a given hectare does not have the same productivity in all regions. Nevertheless, the information from the Census can be used though with caution.

Table 9 presents the cropping pattern in terms of area under principal crops as percentages to total gross cropped area in respective size-classes of holdings in the country as a whole for 1970-71 and 1980-81. It is interesting to see that though foodgrains are cultivated more by smaller size-classes than by larger ones, it is mainly because both superior cereals are grown more by the smaller size-classes. There is a tendency for the proportion of area under both superior cereals to decline as the size of holding increases, which is particularly conspicuous in the case of rice. On the contrary, the proportion of area under other cereals – which have a less commercialised character–increases with the size of holdings. This of course does not mean that the extent of commercialisation decreases with increasing size-class, particularly since the proportion of area under non-foodgrains – which are highly commercialised – increases with the size of holding. The proportion of area under pulses – which are more commercialised than coarse cereals – also increases with the increasing size of holdings. Though the proportion under more commercialised crops tends to increase with the size of holdings, there is also another influencing factor, namely, irrigation. Since small and marginal holdings are more irrigated, they opt for superior cereals, which explains why a higher proportion of these crops are under smaller holdings. The proportion of dry crops increases with size of holdings because the proportion of dry or rainfed area also increases with size, and this characteristic is shared by both coarse cereals as well as relatively dry cash crops. A similar pattern is seen in Karnataka also for more recent years, as can be observed from Table 10. Because of higher irrigation, smaller holdings are also commercialised. If we isolate the effect of irrigation or standardise holdings, we may perhaps find a positive association between commercialisation and size of holding. But irrigation after all is a very important factor in the commercialisation of agriculture.

Because of the importance of irrigation, we give more attention to it through Table 11 which shows how net sown area and net irrigated area were distributed in India during 1970-71 and 1980-81 and also the share of the latter in the former in respective size-classes. The table clearly shows that the proportion of irrigated area declines as the size of holding increases in both the years. However, as between 1970-71 and 1980-81, marginal holdings improved their irrigation endowment only marginally from 33.8 to 34 per cent, while in all other size-classes it grew much more noticeably. The highest increase in the irrigation proportion has taken place in the small and semi-medium holdings. Unfortunately, 1990-91 figures for India as a whole were not available to us at the time of writing. We may, therefore, study Karnataka data for 1985-86 and 1990-91, a period when commercialisation accelerated there. These figures are also presented in the lower part of Table 11. We find here that it is the large holdings which increased their irrigation proportion the most, and marginal holdings even suffered a small decline. Since irrigation development has been mainly on private account as we observed earlier, it is not surprising to find here that marginal holdings are disadvantaged in this regard and the large and medium holdings have reaped most of the increase in irrigated area. It should be noted, however, that in absolute terms the marginal holdings have also increased their area under irrigation to some extent.

It is interesting to find that the consumption of fertilisers per hectare also follows a similar pattern as irrigation across different size-classes of holdings. NSS 26th Round for 1971-72 for South Zone (Report No 265/4, March 1976) has shown that application rates of both nitrogen and phosphorus

Table 11: Distribution of Net Sown Area (NSA) and Net Irrigated Area (NIA) across Size-Classes of Holdings

Year	Marginal	Small	Semi-Medium	Medium	Large	All
India						
NSA in million hectares:						
1970-71	13.0	17.0	26.2	40.9	38.6	135.8
1980-81	17.1	20.2	29.7	40.7	28.9	136.6
NIA in million hectares:						
1970-71	4.4	4.7	6.6	8.3	5.0	29.1
1980-81	6.9	6.6	8.7	9.94.7	36.8	
NIA as per cent of NSA						
1970-71	33.8	27.9	25.2	20.4	13.0	21.4
1980-81	34.0	32.9	29.3	24.2	16.0	26.9
Karnataka						
NSA in 000 hectares:						
1985-86	785	1721	2600	3431	1986	10523
1990-91	965	2104	2891	3314	1589	10863
NIA in 000 hectares:						
1985-86	209	286	387	411	164	1457
1990-91	251	393	516	579	237	1976
NIA as per cent of NSA						
1985-86	26.6	16.6	14.9	12.0	8.3	13.8
1990-91	26.0	18.7	17.8	17.5	14.9	18.2

Source: Respective Reports on Census of Agricultural Holdings.

Table 12 : Average Size and Distribution of Operational Holdings

	Marginal (less than 1 hect)	Small (1 to < 2 ha)	Semi-Medium (2 to < 4 ha)	Medium (4 to < 10 ha)	Large (10 ha and above)	All
Number of holdings in million						
1970-71	36.2	13.4	10.7	7.9	2.8	71.0
1980-81	50.1	16.1	12.4	8.1	2.2	88.9
1990-91	62.1	20.0	13.9	7.6	1.7	105.3
Operated area in million hectares						
1970-71	14.6	19.3	30.0	48.2	50.1	162.1
1980-81	19.7	23.2	24.6	48.5	37.7	163.8
1990-91	24.6	28.7	38.3	45.0	28.9	165.6
Average size of operational holdings (hectare)						
1970-71	0.40	1.44	2.81	6.08	18.1	2.28
1980-81	0.39	1.44	1.98	6.02	17.4	1.84
1990-91	0.40	1.44	2.76	5.90	17.3	1.57
Distribution of the number of holdings in size categories (per cent)						
1970-71	51.0	15.9	15.0	11.2	3.9	100
1980-81	56.4	18.1	14.0	9.1	2.4	100
1990-91	59.0	19.0	13.2	7.2	1.6	100
Distribution of operated area in size categories (per cent)						
1970-71	9.0	11.9	18.5	29.7	30.9	100
1980-81	12.1	14.1	21.2	29.6	23.0	100
1990-91	14.9	17.3	23.2	27.2	17.4	100

Note : 1990-91 figures are provisional.

Source: *All India Reports on Agricultural Census and Agricultural Statistics at a Glance*, March 1995, p 104 (the latter for 1990-91).

nutrients per acre of gross irrigated area was highest among smaller holdings and declined as the size of operational holding increased. It is notable this is so within the irrigated area. In any case application rates are lower in dry or rainfed areas which dominate larger holdings.

What about the spread of commercialisation across different regions in India? It is heartening that as indicated from agricultural growth, the process has been spreading fast almost all over the country. Sawant-Achutan study (1995) showed that not only did the compound annual rate of growth per annum in GDP from agriculture increase from 2.16 per cent during the period 1968-69 to 1981-82 to 3.28 per cent during the period 1981-82 to 1990-91, even states like Kerala, Tamil Nadu, and MP which registered insignificant growth in SDP from agriculture during the first period, experienced higher and significant growth during the second period. Except for AP, Gujarat and Maharashtra, all other states had much higher rates of growth in SDP from agriculture than during the first. The eastern region which was con-sidered to be lagging behind in agricultural development experienced high growth rates, during the second period, for example, West Bengal having 6.88 per cent and Orissa 3.4 per cent. The spread of irrigation in the eastern region was a major contributory factor in this. What is remarkable from the findings of this study is that those states from northwest, central and eastern regions which did exceedingly well in foodgrain growth, did equally well in non-foodgrain growth. And what is more, in the southern region, which suffered a decline in foodgrain growth, the significant growth in the non-foodgrains output more than compensated for the poor growth in foodgrains, and recent overall rates were still higher than in the earlier period.

The consumption of chemical fertilisers per hectare of gross cropped area is a fairly good indicator of the degree of commercialisation of agriculture, as we noted above. It would be interesting to see to what extent its spread has accelerated in different states in India. The eastern region, which on average, has the lowest consumption of fertilisers among the four zones even now, has considerably narrowed the difference relative to all-India figure. In 1970-71, the consumption per hectare was 7.32 kg as against all-India's 13.67 kg; the corresponding figures in 1980-81 were 18.1 and 31.9 kg, and in 1994-95 they were 50.9 and 74 kg respectively. The coefficient of variation (CV) in fertiliser consumption per hectare taking all the states and UTs (except Andaman and Nicobar) – the major and small, declined continuously from 140 per cent in 1970-71, to 125 per cent in 1980-81, 124 per cent in 1990-91 and 115 per cent in 1994-95. This does not indicate a steep decline and the CV also appears rather high, mainly because of extreme observations. On the one hand we have such high consumers as Pondicherry and Delhi (consuming respectively 490 and 250 kg per hectare in 1994-95), and on the other such low takers like Nagaland (consuming only 1.2 kg in 1994-95). The extremity of values has continued. Taking only the 17 large or major states, however, the CV in the consumption of fertilisers increased from 74 per cent in 1970-71, to 81 per cent in 1980-81, but thereafter declined to 58 per cent in 1990-91 and 57 per cent in 1994-95. If the consumption of fertilisers is an indication, there are still significant variations in the extent of commercialisation, but the variation has declined significantly after 1980-81. This was the finding from a study of growth rates across regions too.

Structural Trends

It may seem paradoxical but true that even the accelerated commerecialisation and growth has not brought about any polarisation in Indian agriculture. This is in spite of the fact noticed above that commercial crops need more expenses to be incurred though they are more remunerative. We find that not only the proportion of marginal and small holdings has gone up, even their proportion of total operated area has gone up correspondingly, with the result that the average size of marginal and small holdings has remained practically the same during the three agricultural census years; 1970-71, 1980-81, and 1990-91. On the other hand, the average size of medium and large holdings has declined so much that the overall average also has declined. (This can be seen from Table 12). This was inevitable because the number of operational holdings has proportionately increased more than the total operated area. A break-up has occurred mainly in the large and medium holdings and not at the lower end, suggesting that farmers do not break-up small and marginal holdings to the point of nonviability as far as they can, and seek alternative jobs for their offspring and even try to limit the size of their family. The large and medium holdings which together accounted for 15.1 per cent of total holdings in 1970-71 and 8.8 per cent in 1990-91 had as much as 60.6 per cent of total operated land in 1970-71 but only 44.6 per cent of it in 1990-91. The semi-medium holdings (of 2 to 4 hectares) seem to share the characteristic of trends shown by the marginal and small farmers. Interestingly, in the average size of their holdings declined up to 1980-81 but reversed thereafter almost regaining the one prevailing in 1970-71. It would appear that this size-class is the most dynamic in the post 1980-81 phase of accelerated commercialisation. Between 1980-81 and 1990-91, this is the only class which improved its average size noticeably enough. It would seem that the process of fast commercialisation has been led by this group, as it is economically viable and can generate a surplus and capital accumulation. The larger classes are also economically viable and no less commercialised but tend to break up due to demographic pressure.

A lack of any tendency of polarisation can also be seen from the figures of Population Census. We do not get a picture of a small proportion of landlords employing a large army of landless labour. Though there is inequality in the distribution of holdings particularly if landless labour are included, it is striking that cultivators have always outnumbered agricultural labour. The number of cultivators increased from 78.3 million in 1971 to 92.5 million in 1981 and 110.6 million in 1991. On the other hand, the number of agricultural labour increased during these years from 47.5 million, 55.5 million and 74.6 million respectively. Both these categories of workers are as defined in terms of their main activity. However, there is some increase in the proportion of agricultural labour to all agricultural workers between 1981 and 1991. This proportion fell slightly from 37.8 per cent in 1971 to 37.5 per cent in 1981, but increased to 40.3 per cent in 1991. The accelerated commercialisation did increase proletarianisation to some extent, but has not yet gone to such an extent as to outnumber the main cultivators.

It is obvious that both forces are operating – demographic forces increasing the number of both cultivators and agricultural labourers, and commercialisation which tends to promote hired labour. The former is tending to disguise the latter. Many marginal cultivators cling on to agriculture as they have nowhere to go, and even agriculture has limited capacity to absorb labour, especially in a situation where small holdings dominate. Due to demographic forces and also certainly due to inadequate growth of job opportunities offered by the non-agricultural sector, the proportion of agricultural workers (cultivators and agricultural labour) to total workforce has declined only slightly over the years while the proportion of GDP from agriculture fell drastically. This point was vividly brought out by V K R V Rao (1983), but the disparity has continued to affect Indian agriculture even thereafter. Thus, in spite of an upsurge in agricultural growth, the proportion of GDP from agriculture to total GDP (both at constant prices) fell from 34.7 per cent in 1980-81 to 29.5 per cent in 1990-91, while the share of agricultural workforce fell from 66.5 per cent in 1981 to only 64.9 per cent in 1991. As a result, in spite of an absolute increase in per worker income in agriculture at constant prices, the ratio of per worker income in

agriculture to non-agricultural sector declined from 0.27 to 0.23 during this decade [Nadkarni 1993:4].

India will probably have to live with this phenomenon of the proportion of GDP from agriculture being lower than the proportion of agricultural workforce. This is something which characterises many other countries too, both developed and underdeveloped. But Indian agriculture can certainly hope for absolutely if not relatively increasing incomes, significant enough to make an impact in terms of removal of rural poverty. This will depend not only on fast commercialisation and high growth rates, but also on who will be the agents of this whole process and its beneficiaries. A paradoxical situation of a dynamic prospering agriculture and stagnating peasants including labourers would hardly be promising. What has been the evidence so far?

Poverty and Equity Issues

Commercialisation of agriculture is known to reduce poverty significantly, particularly if it is accompanied by wider rural development including the development of the non-agricultural sector. This is borne out from several studies, both cross-section and time series. An advantage with cross-section studies is that one can select regions or villages known *a priori* to be at significantly different levels of commercialisation and rural development, and examine the differences in the extent of poverty. The magnitude of difference in development levels involved in the cross-section comparison may not be simply available in observations over a period of a decade or two. We may briefly see what evidence we have from both types of studies, keeping in mind the above caution in interpreting the results.

In a cross-section study of 15 villages in three southern states in the districts of Anantpur (A P), Bijapur (Karnataka) and Coimbatore (TN) with a reference period of 1978-79, Nadkarni (1985) found that poverty significantly declined with increasing levels of commercialisation and rural development, but inequality increased. The decline in rural poverty was so significant that even the poorest in the more developed villages were better off than small cultivators in the less commercialised villages. In fact

> under a commercialised setting it was more remunerative for very small cultivators to be non-cultivating labourers. Commercialisation has, therefore, been a proletarianising force, making the agrarian structure more inequitous. While commercialisation may tend to weed out non-viable holdings from cultivation, they need not at the same time increase the share of large holdings. Small holdings above some line of viability may very well thrive under commercialisation without having to depend much on wage labour as a source of livelihood (p 161).

Though small farmers were also involved in the market particularly in the more commercialised villages, it was not under duress or bondage. It was rather to take advantage of the market, to increase their purchasing power by selling output where they had advantage and purchasing goods which they needed. It was in more commercialised villages that even the small and marginal farmers obtained better prices for their farm produce. It (commercialisation) increased the incomes of not only marginal cultivators but even of agricultural labour and artisans. The agricultural labourers got more employment as well as a little higher wage in more commercialised and developed villages (p 228).

These findings are confirmed by a more recent cross section study of Indian villages by Chadha (1994). He observes in conclusion:

> As one moves from a backward agricultural economy to an agriculturally developed economy, not only do total mandays of employment generally increase but even the net yearly earnings and, therefore, per day earnings improve considerably. The gains of agricultural development thus percolate down to the weaker sections in terms of higher annual earnings. The trickle down effect, however, becomes far more pervasive where the economy expands beyond agricultural development (p 251). Further, it is thus abundantly clear that a highly developed agriculture does have a decisive impact on rural poverty; the percolation mechanism is unassailably at work (p 256).

Punjab, considered the cradle of green revolution and having the most commercialised agriculture in the country, offers a telling illustration of the potential of agricultural growth to reduce rural poverty over time. Shergill and Singh (1995) have shown that the proportion of total rural poor declined from 33.64 per cent in 1967-68 to 10.40 in 1977-78, further to 8.48 per cent in 1987-88 and then to a mere 3.45 per cent in 1990-91. This happened in the case of the ultra-poor also in rural areas. Their proportion during the same years respectively declined from 17.21 per cent to 4.28 per cent, further to 3.42 per cent and then to only 0.49 per cent. Though there were some fluctuations around the long-term declining trend, the regression results showed the trends to be statistically significant.

The experience of Punjab is not unique. Though not as dramatic, the extent of rural poverty has declined significantly in the country as a whole between 1970-71 and 1990-91, though there are differences between studies on the exact magnitudes involved. The most rosy picture is given by the Planning Commission based on CSO method, according to which the percentage of rural poor declined from 51.2 in 1977-78 to 40.4 in 1983, to 33.4 in 1987-88 and, further, steeply down to 20.6 in 1990-91. However, even according to the Planning Commission estimates, rural poverty increased to 22.4 per cent in 1992 [as quoted in Gupta 1996:150]. Other estimates of rural poverty by Minhas et al and Tendulkar are higher and do not show such a steep decline. Based on these estimates, the extent of rural poverty which was 57.3 per cent in 1970-71 fell to 49 per cent in 1983, to 39.1 per cent in 1987-88 and then to 35 per cent in 1990-91. According to these alternative estimates also, the extent of rural poverty increased in 1992 to 41.7 per cent [cf Gupta 1986:151]. Since the new economic policies of liberalisation and contraction of fiscal deficit started in 1991, there has been a worry whether the increase in rural poverty in 1992 is going to be a reversal of the long-term declining trend due to the adverse impact of economic reforms. According to Tendulkar and Jain, there was a constellation of several factors which may at least be an approximate cause for the 1992 increase in poverty: a dip of 4.2 per cent in agricultural production in 1991-92, a steep hike in procurement and open market prices of wheat and rice, and a decrease in employment generation under Jawahar Rojgar Yojana, the latter being a part of the squeeze on anti-poverty programme [Tendulkar and Jain 1995:1375-77]. The squeeze on anti-poverty programmes seems to have been loosened subsequently and agricultural growth also has resumed. Agricultural production on the whole and also foograins production are reported to have grown by 4 per cent per annum after 1991-92. Whether poverty will continue to decline will depend not only on the continuation of this growth but also the nature of commercialisation during the 1990s. We will revert to this point soon. In the meanwhile, we may note the impact of commercialisation and agricultural growth on employment.

If commercialisation and growth of agriculture tend to reduce poverty as the above evidence suggests, it could be mainly through increased employment generation and real wages, resulting in increased average daily earnings. Increased employment is brought about both by crop diversification and growth in production. There is evidence that commercialised crops like sugarcane, groundnut, cotton and jute generate much more labour days of employment per hectare than less commercialised crops like jawar and bajra, with wheat and maize falling in between [Mruthyanjaya and Kumar 1989: A-160-61]. In states like Bihar, where maize is quite commercialised, it offered more employment per hectare than even sugarcane.

Vaidyanathan's study of the employment situation has shown that both employment and average earnings per day have improved in rural areas between 1972-73 and 1987-88, based on NSS Reports [Vaidyanathan 1994].

Estimated person days of employment of all rural workers increased during a decade between 1972-73 and 1983 by 12.7 per cent, and within half a decade between 1983 and 1987-88 by 13.3 per cent. The increase in the same for rural workers agricultural labour alone between 1972-73 and 1983 was 21.8 per cent [cf ibid, Table 2, p 3148]. The figures about subsequent increase were not available for this category. Though rural wage rates for agricultural labour declined in real terms between 1964-65 and 1974-75, they increased progressively in practically all the states thereafter. As a combined result of increased employment and wages, the average daily earnings in terms of 1960-61 prices increased from Rs 1.21 to Rs 2.24 per regular adult male worker and from Rs 1.22 to Rs 1.64 for regular adult female workers in agriculture. In the case of adult casual labour in agriculture, they increased from during 1977-78 to 1987-88 from Rs 1.18 to Rs 1.78 for men and from Rs 0.82 to Rs 1.14 for women [ibid, Tables 6 and 7, p 3150]. However, these wages look paltry particularly at 1960-61 prices. Even in terms of current prices, average wages per day were only Rs 14.58 on average for all-India in 1987-88 for regular adult male labour in agriculture and Rs 11.24 for casual labour during the same year. The average daily earnings for non-agricultural rural labour were more than twice as high as compared to agricultural labour. Though there has been some increase even in real terms, the wage rates in agriculture are not high enough to eliminate rural poverty. The rate of increase in employment has also been much less than the rate of increase in agricultural output. This is expected if the average earnings per day per person have to improve. However, there is no doubt about the positive impact of agricultural growth and commercialisation on earnings per person in absolute terms, though one may consider it inadequate.

In spite of the evidence of a positive impact of commercialisation so far, there is a cause for serious worry on the equity and poverty front. This is, first, because the dependence of the mass of the workforce on agriculture is still continuing, as we observed above. This has resulted in the preponderance of small and marginal holdings. Nearly 59 per cent of the holdings continue to be under the 'marginal' category, and their proportion is relentlessly increasing over time. This category has maintained its average size of holding but has not been able to increase it in spite of addition to operated area, and breakup of larger holdings. Their productivity may of course have gone up, but majority of them may not be able to rise above the poverty line unless their economy is significantly diversified offering them a lot of non-farm employment and income.

Secondly, the acceleration of commercialisation of agriculture during the 1990s under the liberalised setting is taking place with a considerable entry of persons from outside agriculture. Had their role been limited to trading and processing, it would have been a different matter. But it is being progressively extended to cultivation. Several states, including Karnataka recently, have opened up agricultural lands for purchase by persons other than farmers. This may certainly have its own justification. A scarce resource like land, it can be argued, should be in the hands of persons who would increase its productivity. This may have an educative influence on other farmers too. It even adds to employment generation. This will make agriculture more prosperous. But what about farmers? Those who tend to sell agricultural land are generally owners of dry or unirrigated holdings who are unable to invest on their own to develop their lands. This includes both small and nominally large holders. The new purchasers develop irrigation facilities, undertake soil conservation works and convert them into orchards or otherwise commercial farms. Not only has the corporate sector made an entry into agriculture, individuals also have. The new purchasers are motivated by the prospects of making tax-free profits, and also adding a bit of greenery to their urban lifestyle. A weekend resort in the form of a farmhouse, away from their busy polluted urban setting, adds more prestige to them and gives opportunities of offering hospitality and patronage. Very often, the new purchasers and commercialisers are persons with a farm family background settled in cities, who add to their inherited holdings by the new purchases. Among the new entrants, there are also persons with no farm background, but who have taken to agriculture as a profession as they did not like to work under somebody in a non-farm job and did not have the capital and confidence to take up a non-farm business. The new entrants are generally well educated, mostly graduates, and quite aware of opportunities offered by commercialisation of agriculture. They can bargain on an equal footing with companies who enter into contracts for purchase of farm produce. All this, however, need not benefit farmers who have sold lands to them, except perhaps through a remunerative price for land which they would not have received from the other traditional farmers.

This is not to suggest that all commercialised agriculture is by new entrants who still form a small segment. In fact, a phenomenon like accelerated commercialisation of agriculture would not have taken place if it was confined only to gentleman farmers. Yet, if the expansion of the modernised gentleman farms takes place rapidly and at the expense of farmers, we can face the threatening paradox of a dynamic and prosperous agriculture coexisting with stagnant peasants.

Conclusion

There is considerable evidence of an acceleration in the commercialisation, growth and diversification of agriculture since 1980s. In all possibility, the process has further accelerated in the 1990s. The acceleration by agricultural growth has occurred in spite of a fall in the rate of capital formation. Commercialisation has covered small and marginal farmers and also regions which were considered to be backward earlier. Rural poverty has on the whole tended to decline and employment and earnings to increase. Yet, there is a cause for concern. First, because the majority of holdings are marginal and their number is only tending to increase and not decrease. Second, there is the question of whether the new entrants into agriculture – gentleman farmers and corporate sector – will be significantly displacing traditional farmers. Do we then have the prospects of a dynamic and prospering agriculture along with stagnating peasants as the present evidence suggests? This is not because the type of commercialisation that has occurred is coercive. Had it been so, such growth would not have taken place. This would be because agriculture itself may be taken over from peasants.

Does accelerated commercialisation mean that agriculture in India can stand on its own and would need no support from the government? There is a heartening sign that private irrigation and private investment are becoming more and more important relatively to government efforts. Yet, the very existence of a marginal and small sector accounting for an overwhelming majority of holdings would suggest that at least this sector would continue to need support. But policies and programmes have to be such that they are targeted and benefit the marginal and small farmers and agricultural labour.

Since commercialisation would expose farmers to more market risks, these risks have to be monitored and appropriate institutional improvements and infrastructure supports would have to be extended. There may be a need for a body functioning at national and state levels, which can monitor agricultural development from this point of view and suggest timely policy measures.

[I have benefited from discussions on certain points with V M Rao, H G Hanumappa and Ranganath Bharadwaj, and with Madhav Pandit, a new entrant to agriculture himself. Usual disclaimers apply.]

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