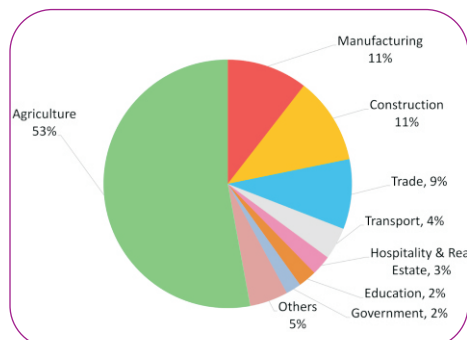




## ANALYSIS OF ECONOMIC LIBERALIZATION AND INDIAN AGRICULTURE



**Rakesh Kr. Singh**

Assistant Professor, Dept. of Economics , R.B.S. College, Teyai.

### ABSTRACT :

**T**his study of the performance of agriculture at the state level in India during the post-reform period (1990-93 to 2003-06) and the immediate pre-reform period (1980-83 to 1990-93) shows that the post-reform period has been characterised by deceleration in the growth rate of crop yields as well as total agricultural output in most states. By ending discrimination against tradable agriculture, economic reforms were expected to improve the terms of trade in favour of agriculture and promote its growth. The paper also discusses the cropping pattern changes that have taken place in area allocation as well as in terms of value of output.

**KEYWORDS :** performance of agriculture , economic reforms , favour of agriculture and promote .

### INTRODUCTION

The initiation of economic reforms in India in 1991 brought about major changes in the macroeconomic policy framework of the planned economy that existed in India during 1950-51 to 1990-91. Although no direct reference was made to agriculture, it was argued that the new macroeconomic policy framework, in particular, changes in exchange and trade policy, devaluation of the currency, gradual dismantling of the industrial licensing system and reduction in industrial protection would benefit tradable agriculture by ending discrimination against it and by turning the terms of trade in its favour. This, in turn, was supposed to promote exports leading to rapid agricultural growth.

But despite these changes in the macroeconomic policy framework and trade liberalisation, the agricultural sector in India neither experienced any significant growth subsequent to the initiation of economic reforms in 1991 nor did it derive the expected benefits from trade liberalisation. As a matter of fact, when compared with the immediate pre-liberalisation period (1980-83 to 1990-93), agricultural growth in India recorded a visible deceleration during the post-liberalisation period (1990-93 to 2003-06). The reasons for this deceleration need to be carefully analysed.

### DISCUSSION

Quite a few researchers have tried to study the impact of economic liberalisation on Indian agriculture at the national level. The present study analyses the impact of economic reforms on the levels and growth of land yields and agricultural output at the state and regional levels. The main components of agricultural output – area growth, yield growth and cropping pattern changes – are also analysed with a view to identifying the chief sources of growth in each period. The relationship, if any, between the levels and growth of agricultural output and the use of modern inputs like irrigation, fertilisers, etc, is also examined.

Cropwise data on area and output of 44 reporting crops for 17 major states have been obtained from the

government of India (GoI) publication.

For all crops, the triennium averages of area and output have been worked out for all states for 1962-65, 1970-73, 1980-83, 1990-93 and 2003-06. The value of crop output has been obtained by using all-India prices for the triennium ending 1993. Land yield or land productivity has been obtained by dividing the value of crop output as obtained above by the area under 44 crops. Intensity of cultivation is defined as gross cropped area (GCA) divided by net sown area.

**Growth rates are annual compound growth rates. For analysis, all states have been clubbed into the following four regions:**

(1) The north-western region comprising Haryana, Himachal Pradesh, Jammu and Kashmir (J&K), Punjab and Uttar Pradesh; (2) the eastern region comprising Assam, Bihar, Orissa and West Bengal; (3) the central region comprising Gujarat, Madhya Pradesh, Maharashtra and Rajasthan; and (4) the southern region comprising Andhra Pradesh, Karnataka, Kerala and Tamil Nadu.

### 1. Growth Rate of Crop Output

The new Borlaug seed-fertiliser technology introduced in the mid-1960s made a major impact on raising yield and output levels of some crops and of aggregate crop output in India. In the beginning, the new technology was confined to wheat in the irrigated north-western region of India. But over time, it covered rice and some other crops and its geographical coverage extended from the north-western region to many other parts of the country. By 2003-06, despite considerable interstate variation, most states in India were able to share the gains of the new technology. The deepening and extension of new technology led to significant growth of agricultural output.

Taking the entire period from 1962-65 to 2003-06, the total agricultural output (value of 44 crops at 1990-93 constant prices) increased at an annual growth rate of 2.36% (Table 1). During this period, the highest output growth rate, 2.85% per annum (pa), was recorded by the north-western region followed by the central and the southern regions and the lowest growth rate of only 1.76% pa was registered by the highly populated eastern region.

**Table 1: State and Regionwise Level and Growth of Value Output (1962-65, 1970-73, 1980-83, 1990-93 and 2003-06) (44 crops)**

Sl No	State	Average Value of Output (in Rs Million)					Annual Compound Growth Rate (%)			
		1962-65	1970-73	1980-83	1990-93	2003-06	1980-83/ 1962-65	1990-93/ 1980-83	2003-06/ 1990-93	2003-06/ 1962-65
1	Haryana	16,303	23,445	31,556	51,576	69,278	3.74	5.04	2.30	3.59
2	Himachal Pradesh	2,488	3,233	3,557	4,663	5,315	2.01	2.74	1.01	1.87
3	J and K	2,428	3,690	5,192	5,278	5,772	4.31	0.17	0.69	2.13
4	Punjab	22,079	36,898	58,654	88,635	1,09,510	5.58	4.22	1.64	3.98
5	Uttar Pradesh	93,628	1,14,461	1,50,373	2,03,292	2,43,514	2.67	3.06	1.40	2.36
	North-West Region	1,36,926	1,81,727	2,49,331	3,53,444	4,33,389	3.39	3.55	1.58	2.85
6	Assam	15,039	17,419	22,964	29,154	31,798	2.38	2.42	0.67	1.84
7	Bihar	39,332	42,993	41,276	50,648	52,413	0.27	2.07	0.26	0.70
8	Orissa	24,391	26,389	34,268	45,436	41,660	1.91	2.86	-0.67	1.31
9	West Bengal	32,536	39,230	41,980	75,035	1,02,047	1.43	5.98	2.39	2.83
	Eastern Region	1,11,298	1,26,032	1,40,488	2,00,274	2,27,919	1.30	3.61	1.00	1.76
10	Gujarat	33,174	38,209	51,959	56,842	1,11,692	2.52	0.90	5.33	3.01
11	Madhya Pradesh	48,073	56,214	63,846	99,386	1,37,294	1.59	4.52	2.52	2.59
12	Maharashtra	52,069	38,698	73,149	88,453	1,16,293	1.91	1.92	2.13	1.98
13	Rajasthan	24,153	33,788	38,276	68,932	1,03,960	2.59	6.06	3.21	3.62
	Central Region	1,57,469	1,66,909	2,27,231	3,13,613	4,69,240	2.06	3.27	3.15	2.70
14	Andhra Pradesh	49,878	53,718	76,565	1,06,962	1,34,279	2.41	3.40	1.76	2.44
15	Karnataka	33,176	40,854	51,372	73,573	83,424	2.46	3.66	0.97	2.27
16	Kerala	25,169	34,678	31,651	37,736	33,978	1.28	1.77	-0.80	0.73
17	Tamil Nadu	47,007	58,441	55,208	82,184	67,869	0.90	4.06	-1.46	0.90
	Southern Region	1,55,230	1,87,691	2,14,796	3,00,455	3,19,549	1.82	3.41	0.48	1.78
	All-India	5,65,643	6,66,706	8,43,474	11,74,471	14,69,719	2.24	3.37	1.74	2.36
	Coefficient of Variations (%)						54.19	51.07	118.59	43.95

Source: Calculated from MoA&C (various years).

### 1.1 Initial Period of Green Revolution (1962-65 to 1980-83)

The new seed-fertiliser technology, introduced in the irrigated states in the north-west during the mid-1960s, gradually spread to new areas. During 1962-65 to 1980-83, all the states in the north-western region, in particular Punjab and Haryana, registered high growth rates of agricultural output. In the eastern region, except for Assam, the growth performance of other states was rather modest with Bihar recording a very low growth rate of 0.27% pa. Crop output in the dry rainfed states in the central region was hardly influenced by new technology and agricultural production in that region was characterised by sharp weather-induced year to year fluctuations (Table 1). In the southern region, all states, except Tamil Nadu, were able to register medium growth rates of output.

### 1.2 Maturing of Green Revolution (1980-83 to 1990-93)

The period from 1980-83 to 1990-93 marks a turning point in India's agricultural development. At the all-India level, the growth rate of crop output accelerated from 2.24% pa during 1962-65 to 1980-83 to 3.37% pa during 1980-83 to 1990-93. An interesting feature of the 1980s was that agricultural growth permeated to all regions in India. In the north-western region, while there took place a slight slowdown of growth in Punjab, during the period 1980-83 to 1990-93, as compared with the earlier period, there was a significant acceleration in the growth rate of output in Haryana and in Uttar Pradesh.

An important development was the acceleration of growth in the eastern region. In West Bengal, the growth rate increased to 5.98% pa during 1980-83 to 1990-93 compared with a growth rate of 1.43% pa during 1962-65 to 1980-83. Bihar and Orissa also recorded an acceleration in their output growth rates during this period, but there was only a marginal increase in output growth rate in Assam.

The acceleration of the growth in the highly populated but hitherto agriculturally stagnant states of eastern India was a development of major significance because rapid agricultural growth in this region is likely to benefit to large workforce dependent on agriculture, thereby making a significant dent on rural poverty.

The central region also recorded an accelerated growth during this period although, for individual states there was a mixed picture. While growth rate accelerated significantly in Rajasthan and Madhya Pradesh, growth rates recorded a sharp deceleration in Gujarat primarily as a result of persistent drought during the late 1980s.

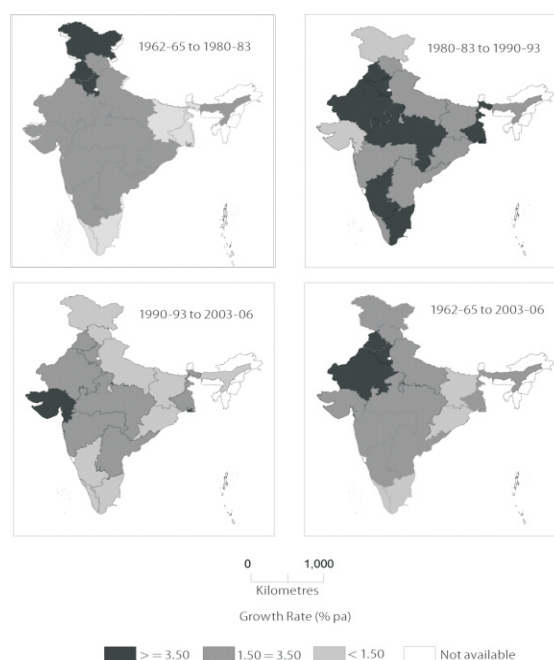
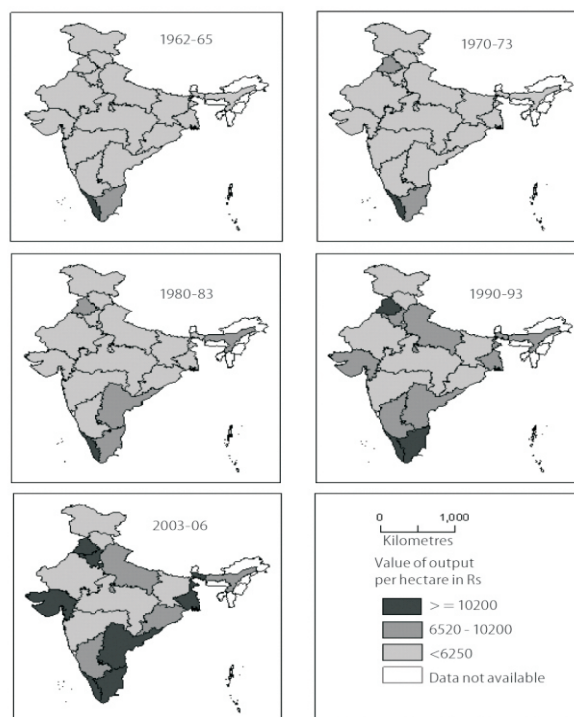


Figure 2: Statewise Levels of Agricultural Productivity (44 Major Crops)



**Figure 1: Statewise Growth of Agricultural Output (44 Major Crops)**

Among the southern states, the growth rate accelerated significantly during this period. But the most interesting development was the unprecedented rate of growth of 4.06% recorded by Tamil Nadu during 1980-83 to 1990-93 compared with a paltry growth rate of 0.90% pa registered during 1962-65 to 1980-83. Whereas Andhra Pradesh and Karnataka recorded a significant acceleration in their growth rates during 1980-83 to 1990-93 compared with the earlier period 1962-65 to 1980-83, Kerala registered only a slight acceleration in its growth rate.

### 1.3 Post-Liberalisation Period (1990-93 to 2003-06)

Agricultural growth during 1990-93 to 2003-06 reflects the impact of economic reforms on agricultural performance. The most important feature of this period is that agricultural growth decelerated sharply at the all-India level and in all regions. At the all-India level, the output growth decelerated to 1.74% pa during 1990-93 to 2003-06 compared with a growth rate of 3.37% pa during 1980-83 to 1990-93. At the regional level, during the same period, the growth rate of agricultural output decelerated from 3.55% to 1.58% pa in the north-western region, from 3.61% to 1.00% pa in the eastern region, from 3.27% to 3.15% pa in the central region and from 3.41% to only 0.48% pa in the southern region.

All states except Gujarat, and to some extent, Maharashtra registered a sharp decline in their output growth rates in the post-reform period. Gujarat was an exception because this state registered a very high output growth rate of 5.33% pa during the post-reform period compared with a growth rate of only 0.90% pa during the immediate pre-reform period. This remarkable performance was primarily because of the very rapid spread of Bt cotton in the state during the last triennium (Figure 1).

The main reason for the deceleration of growth during the post-reform period was a visible deceleration in investment in irrigation and other rural infrastructure.

### 2.Changes in Land Yields (1962-65 to 1980-83)

One of the key contributions to output growth in recent years has been the increases in levels and growth of crop yields. However, during the period 1962-65, prior to the advent of the green revolution at the all-

India level, the average yields levels were quite low although there were large regional variations (Figure 2).

Since the levels and growth rates of yields were low, the area growth was the major source of growth of output in India during the pre-green revolution period. For example, during 1949-50 to 1964-65, the contribution of area growth to output growth was 50.16%, while that of yield growth was only 38.41% (DES 2008). The introduction of new technology during the mid-1960s resulted in raising the yield levels of major crops, particularly wheat and rice, thereby making the yield growth the dominant source of growth of output. Thus during 1962 to 2003-06, the yield growth accounted for 85.2% of growth of output, while the contribution of area growth was only 14.41%.

During 1962-65 to 1980-83, the north-western states that had pioneered the green revolution registered significant increases in Average Net Sown Area (000 Hectares) Annual Compound Growth Rate (%) the yield levels and growth (Table 2). As compared with a yield growth rate of 1.73% pa at the all-India level, the north-western region recorded a growth rate of 2.53% pa. The growth of yield was 1.91% in the southern region, 1.49% in the central region and only 0.73% pa in the eastern region.

**Table 2: State and Regionwise Level and Growth of Crop Yield (1962-65, 1970-73, 1980-83, 1990-93 and 2003-06)**

Sl No	State	Value of Output (Rs Per Hectare of GCA)					Annual Compound Growth Rate (%)			
		1962-65	1970-73	1980-83	1990-93	2003-06	1980-83/ 1962-65	1990-93/ 1980-83	2003-06/ 1990-93	2003-06/ 1962-65
1	Haryana	3,927	5,090	6,229	9,682	11,569	2.60	4.51	1.38	2.67
2	Himachal Pradesh	3,048	3,734	3,918	5,187	6,176	1.40	2.85	1.35	1.74
3	J and K	2,987	4,481	5,759	5,432	5,985	3.71	-0.58	0.75	1.71
4	Punjab	5,396	7,476	9,708	13,215	15,373	3.32	3.13	1.17	2.59
5	Uttar Pradesh	3,970	4,590	5,805	8,355	9,894	2.13	3.71	1.31	2.25
	North-West Region	4,093	5,025	6,423	9,244	10,958	2.53	3.71	1.32	2.43
6	Assam	5,728	6,241	6,907	7,998	8,989	1.05	1.48	0.90	1.11
7	Bihar	3,680	4,010	4,049	5,278	5,670	0.53	2.69	0.55	1.06
8	Orissa	4,114	4,073	4,375	5,740	6,690	0.34	2.75	1.19	1.19
9	West Bengal	5,075	5,615	5,944	9,507	12,142	0.88	4.81	1.90	2.15
	Eastern Region	4,338	4,671	4,944	6,894	8,314	0.73	3.38	1.45	1.60
10	Gujarat	3,673	4,327	5,693	6,640	11,836	2.47	1.55	4.55	2.90
11	Madhya Pradesh	2,603	2,836	3,070	4,406	5,640	0.92	3.68	1.92	1.90
12	Maharashtra	2,899	2,344	3,795	4,490	5,960	1.51	1.70	2.20	1.77
13	Rajasthan	1,740	2,217	2,335	3,809	5,095	1.65	5.02	2.26	2.65
	Central Region	2,654	2,763	3,464	4,551	6,367	1.49	2.77	2.62	2.16
14	Andhra Pradesh	4,065	4,363	6,276	8,728	11,537	2.44	3.35	2.17	2.58
15	Karnataka	3,208	4,267	4,990	6,342	6,994	2.49	2.43	0.76	1.92
16	Kerala	11,376	12,958	12,334	14,655	13,858	0.45	1.74	-0.43	0.48
17	Tamil Nadu	6,690	7,900	8,756	13,037	13,117	1.51	4.06	0.05	1.66
	Southern Region	4,873	5,873	6,848	9,178	10,244	1.91	2.97	0.85	1.83
	All-India	3,738	4,257	5,090	6,957	8,460	1.73	3.17	1.52	2.01
	Coefficient of Variations (%)	50.13	50.19	42.75	42.59	36.98	57.93	49.87	78.28	35.41

Source: As in Table 1.

It is also clear that since yield growth rates were the main source of output growth, yield growth rates in various states were highly associated with their output growth rates in all periods (Tables 1 and 2).

## CONCLUSION

A state-level analysis of levels and growth of agricultural output during 1962-65 to 2003-06 has brought out the outstanding characteristics of agricultural development in India during the post-green revolution period beginning in the mid-1960s. To begin with, the new technology was instrumental in raising the yield and output levels of wheat and was confined to irrigated states in the north-western region of India. This resulted in raising crop yields and promoting growth of agricultural output in most of the north-western states. The rapid growth of output in these states also resulted in raising agricultural worker productivity in these states. However, the

spread of new technology remained confined to irrigated states only.

#### REFERENCES

- 1.Bhalla, G S (2004): Globalisation and Indian Agriculture, State of the Indian Farmer: A Millennium Study, Volume 19, Academic Publishers.
- 2.Chand, Ramesh (2002): Trade Liberalisation, WTO and Indian Agriculture: Experience and Prospects (New Delhi: Mittal Publications).
- 3.MoAC (various years): Area and Production of Principal Crops in India, Ministry of Agriculture and Cooperation, Government of India, New Delhi.