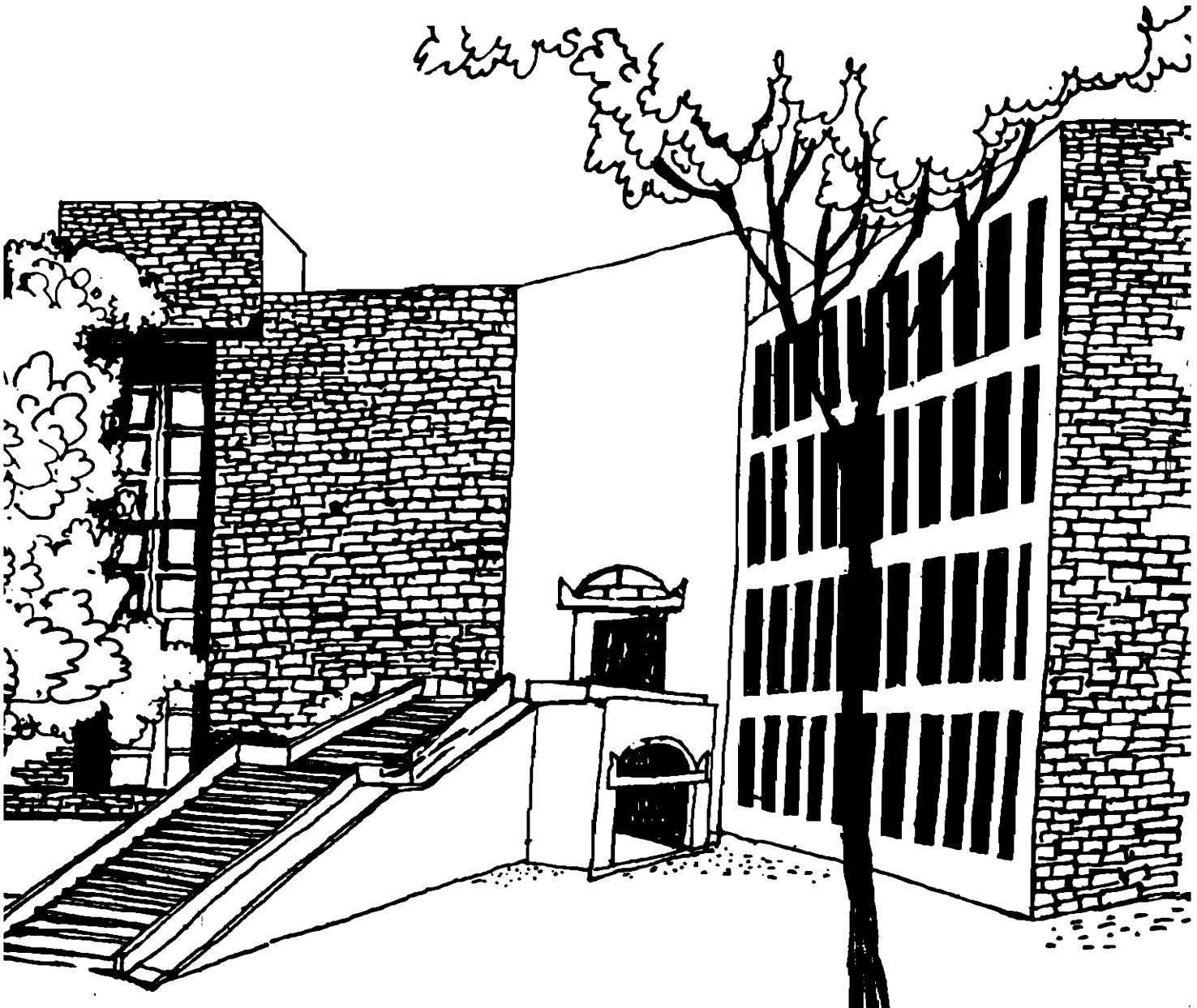




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Working Paper



**Impact of Economic Liberalisation on
the Growth of Indian Agriculture**

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IMPACT OF ECONOMIC LIBERALISATION ON THE GROWTH OF INDIAN AGRICULTURE

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I. Introduction

Wide ranging economic policy reforms introduced in Indian economy since mid-1991 have significantly accelerated the process of economic liberalisation which was initiated in 1985.*¹ While the main focus of the specific reforms introduced during the course of India's economic liberalisation has been largely on the Industrial sector, the impact of these reforms has turned out to be quite significant for the economy as a whole including the agricultural sector. In this context, it is interesting to observe that very limited reform effort has so far been directed specifically towards agriculture as such despite the relatively high importance of agricultural sector which accounts for almost two-thirds of the entire labour force and around one-third of the national output.*²

Given the crucial role of agricultural sector in Indian economy, it is obvious that the new macro economic strategy will have to eventually also focus on the policy measures aimed at removing the existing constraints on the rapid development of Indian agriculture. A recent study by Garry Pursell & Ashok Gulati has clearly brought out the strong and pronounced

¹ For a comprehensive account of the full spectrum of economic policy reforms introduced in recent years, see Montek S. Ahluwalia : "India's Economic Reforms" in Robert Cassen & Vijay Joshi (ed.) : *India - The Future of Economic Reform*, Oxford University Press, 1995.

² For a detailed discussion of the nature and degree of government interventions and policy reforms in the agricultural sector, see Garry Pursell & Ashok Gulati : "Liberalising Indian Agriculture - An Agenda for Reform" in Robert Cassen & Vijay Joshi (ed.) : *India - The Future of Economic Reform*, Oxford University Press, 1995.

anti-agriculture bias of the earlier regime characterised by high protection enjoyed by the manufacturing sector especially during the seventies and early eighties with the average nominal protection coefficient for agriculture hovering around one-third of the corresponding average NPC for the manufacturing during the seventies.*³ In fact, the most crucial positive impact of the recent spate of economic policy reforms on agricultural sector has been the significant reduction in the anti-agricultural bias through the expected general equilibrium effect of a more balanced degree of relative sectoral protection achieved by a sustained and substantial exchange rate adjustment coupled with a large scale liberalisation of the system of trade & payments. As Montek Ahluwalia has argued, the new regime of market determined exchange rate not only makes agricultural exports more competitive, but also stimulates the growth of agro-processing industry which has strong backward linkage to agriculture.*⁴

To maximize the positive impact of economic reforms on the agricultural sector what is most urgently required is the elimination of all restrictions on the movement of agricultural commodities with respect to both the domestic as well as the international trade. While all restrictions on the domestic trade of major agricultural commodities imposed by the Central Government in the earlier regime have been completely removed by now, several restrictions on domestic trade imposed by various state governments still exist. Similarly the restrictions on agricultural exports have been significantly reduced in recent years, but several restrictions still remain in force.*⁵ A major constraint in the formulation and implementation of agricultural reforms in India lies in the fact that many crucial areas such as land improvements, water management, supply of improved seeds, effective system for delivery of rural credit and the security of land tenure fall directly within the area of responsibility of the respective state governments which makes it extremely difficult to implement a centrally

³ Cf. Garry Pursell & Ashok Gulati : "Liberalising Indian Agriculture - An Agenda for Reform", *op.cit.*

⁴ Cf. Montek S. Ahluwalia : "India's Economic Reforms", *Op.cit.*

⁵ For a brief account of the specific liberalisation measures in agricultural exports policy introduced during the last two years, see (a) *Report on Currency & Finance 1994-95 : Volume I* (Chapter 3), Reserve Bank of India, June 1996; and (b) *Economic Survey 1995-96* (Chapter 8), Ministry of Finance, Government of India, February 1996.

designed reform agenda in all parts of the country within a reasonable time frame. Thus, as Pursell & Gulati have argued, there is a long unfinished agenda of wide ranging reforms in the agricultural sector that would require urgent attention in the near future.*⁶

According to a recent assessment of agricultural outlook made by the Finance Ministry, Indian agriculture is beginning to appear globally competitive and this welcome change seems to have been made possible by the following two important policy reforms introduced in the liberalised regime : (a) reduction in the excessive protection earlier accorded to the manufacturing sector, which has improved the relative profitability of agriculture; and (b) appropriate increase in the relative price of major farm products aimed at ensuring that the farming community receives market oriented prices resulting in more equitable terms of trade for the agricultural sector.*⁷

In the context of the above discussion, it would be interesting to examine the impact of economic liberalisation on the growth of Indian agriculture. The present study aims at making an initial attempt in this direction. Since the process of economic liberalisation in Indian economy started gathering momentum from 1985 onwards*⁸, our analysis is based on a comparison of the growth of Indian agriculture during what may be referred to as the pre-

⁶ For a detailed discussion of various types of policy reforms required in Indian agriculture, see Garry Pursell & Ashok Gulati : *Liberalising Indian Agriculture - An Agenda for Reform, Op. cit.*

⁷ Cf. *Economic Survey 1995-96*, Ministry of Finance, Government of India, February 1996.

⁸ Major industrial policy reforms such as a fairly large scale liberalisation of the licensing system to bring about a significant reduction in the barriers to entry, facility for automatic expansion & broad-banding of licensed capacity, relaxation of the threshold limit for assets under MRTP, etc., were introduced in 1985. Moreover, the period 1985 onwards saw the introduction of several new export incentives such as the IPRS, tax exemption under section 80-HHC and liberalised system of REP licences. In addition to these measures, a more realistic and export oriented exchange rate policy was also pursued from 1985 onwards, and, as a result, the exchange rate of the Rupee vis-a-vis the US \$, which had remained relatively steady throughout the period 1966 to 1984, moved from the level of US \$ 1 = Rs.10.3 prevailing in 1984 to the level of US \$ 1 = Rs.20.5 that prevailed before July 1991 devaluation.

liberalisation period (1960-61 to 1985-86)*⁹ and the post-liberalisation period (1985-86 to 1995-96). Some may argue that the post-1991 period can only be considered as the actual post-liberalisation period in view of the wide range and accelerated pace of reforms introduced in July 1991 and thereafter. We have, therefore, also made an attempt to present a comparison of the growth experience during the two sub-periods within the broadly defined post-liberalisation period, viz., the sub-period from 1985-86 to 1991-92, which may be regarded as the initial period of liberalisation and the sub-period from 1991-92 to 1995-96, which represents the period of accelerated reforms.

The specific aspects of the growth of Indian agriculture covered in our study are : comparative GDP growth, comparative trend in sectoral value added proportion, sources of growth of net output, behavior of agricultural and non-agricultural prices and growth of agricultural exports.

II. Impact of Reforms on GDP Growth

To assess the impact of economic policy reforms on the overall growth of agricultural sector, we have examined the time-series data on GDP originating in agriculture, manufacturing and all sectors covering the period from 1960-61 to 1995-96. Since the presence of public sector in Indian agriculture is only marginal as compared to the Indian manufacturing sector, it would be more appropriate to compare the growth of agriculture vis-a-vis manufacturing as well as all sectors taken together within the private sector. The relevant data on sectoral and aggregate GDP are presented in *Appendix Table 1*. The average growth rates of sectoral and overall GDP at current as well as constant prices observed during the pre-liberalisation period (1960-61 to 1985-86) and the post-liberalisation period (1985-86 to 1995-96) are presented in *Table 1*.

⁹ In some cases, we have treated the period 1980-81 to 1985-86 as the pre-liberalisation period primarily on account of the non-availability of the required type of comparable time series data.

Table 1			
Comparative Growth Rates of Gross Domestic Product Originating in Agriculture and Manufacturing			
(Per Cent Per Annum)			
Aggregates/Year	Agriculture	Manufacturing	All Sectors
GDP at Current Prices - Entire Economy			
1960-61 to 1985-86	10.09	12.33	11.54
1985-86 to 1995-96	14.41	15.21	15.06
1985-86 to 1991-92	14.38	15.05	15.39
1991-92 to 1995-96	14.45	15.44	14.57
GDP at Current Prices - Private Sector			
1960-61 to 1985-86	9.98	11.59	10.73
1985-86 to 1995-96	14.49	14.86	14.72
1985-86 to 1991-92	14.45	14.40	14.84
1991-92 to 1995-96	14.55	15.56	14.53
GDP at 1980-81 Prices - Entire Economy			
1960-61 to 1985-86	2.13	5.09	3.71
1985-86 to 1995-96	3.43	6.38	5.46
1985-86 to 1991-92	2.85	6.18	5.36
1991-92 to 1995-96	4.29	6.67	5.62
GDP at 1980-81 Prices - Private Sector			
1960-61 to 1985-86	2.07	4.72	3.02
1985-86 to 1995-96	3.50	6.22	5.11
1985-86 to 1991-92	3.04	5.78	4.70
1991-92 to 1995-96	4.19	6.89	5.74
Source : Appendix Table 1.			

It is evident from Table 1 that the overall growth rate of agricultural sector has accelerated significantly during the post-liberalisation period. The average growth rate of agricultural GDP at constant 1980-81 prices has increased sharply from 2.13% to 3.43% for the entire economy and from 2.07% to 3.50% for the private sector. Thus, the period of

economic liberalisation has not only witnessed a rapid increase in the overall growth of agricultural sector in real terms, but it is also characterised by a higher degree of growth acceleration in the private sector as compared to economy as a whole.

By now it has been well recognised that the Indian economy switched over to a higher growth path during the eighties and this switch-over occurred in all major sectors of the economy. It would be interesting to determine the precise point of switch-over to a higher growth path for the agricultural sector. We have applied the switching regression technique with Quandt Test*¹⁰ to determine the best estimate of the break in the time trend in GDP originating in the agricultural sector, using the time-series data covering the post-green revolution period (1967-68 to 1995-96). We have used a special additional dummy variable for weather and corrected the estimates for auto-correlation by using the Cochrane-Orcut method*¹¹. The results of this exercise clearly establish the year 1985-86 as the most appropriate cut-off point with respect to the time trend in agricultural GDP. Thus, the empirical analysis based on well established econometric techniques shows that the period characterised by a marked upward shift in agricultural performance coincides with the post-liberalisation period.

It is evident that the accelerated growth of agricultural sector during the post-liberalisation period has contributed significantly to the overall acceleration in the growth of Indian economy observed in recent years. A quick calculation shows that, had the average growth rate of agricultural GDP remained unchanged during the post-liberalisation period, the overall growth rate of Indian economy would have turned out to be 5% instead of 5.4%

¹⁰ Cf. Quandt, R.E. : "The Estimation of a Linear Regression System Obeying Two Separate Regimes", *Journal of the American Statistical Association*, Vol. 53, 1958. Subsequently, the switching regression technique to identify the precise point of break has been extensively used and refined. See, for instance, (i) Silber, W.L. : "The Market for Federal Agency Securities - Is there an Optimum Size of the Issue?", *Review of Economics & Statistics*, Vol. 56, 1974; and (ii) Moschos, D. : "Export Expansion, Growth and the Level of Economic Development", *Journal of Development Economics*, Vol.30, 1989.

¹¹ For details see, Gujarati, D.N. : *Basic Econometrics*, McGraw-Hill Book Co., 3rd edn., 1995.

actually observed during the period 1985-86 to 1995-96. It may be noted that the reduction of 0.4% of aggregate GDP growth based on the above calculation reflects only the direct effect of reduced agricultural growth since it does not take into account its indirect effect operating via the intersectoral linkages which could have resulted in a lower output growth in the non-agricultural sector during the same period.

If we consider GDP originating in the private sector, the post-liberalisation period reveals, perhaps for the first time in the history of India's economic growth during the post-Independence period, an average rate of growth of money income in the agricultural sector comparable to the non-agricultural sector in general and the manufacturing sector in particular. In fact, the growth rate of agricultural GDP in private sector (at current prices) has increased sharply from 9.98% during the pre-liberalisation period to 14.49% during the post-liberalisation period. This indicates a significant acceleration in the pace at which the nominal purchasing power is growing in the rural areas in recent years. While the average rate of inflation also increased from around 7.8% during the pre-liberalisation period (1960-61 to 1985-86) to around 8.5% during the post-liberalisation period, it is evident that the degree of acceleration in the inflation rate has been much lower than the corresponding acceleration in the growth of money income in the rural areas. Moreover, since there has been a marginal deceleration in the growth rate of rural population during the post-1985 period¹², the growth rate of per capita real purchasing power in rural areas has undergone a sharp increase during the post-liberalisation period - from only around 0.4% per annum during the pre-1985 period to more than 4% per annum during the post-1985 period. The direct implication of such accelerated growth of real purchasing power in rural areas is that the living standards of rural population are likely to double by the turn of the century (by the year 2003 in relation to the levels prevailing in 1985), whereas the same doubling would have required 175 years had the average growth rate of per capita living standards observed in the pre-1985 period continued during the post-1985 period also.

¹² According to the Population Census Data (1961 to 1991), the average growth rate of population in the rural areas has declined marginally from 1.9% per annum during 1961-1981 to 1.8% per annum during 1981-1991. The growth rate of total population for the country as a whole has also correspondingly declined from 2.3% p.a. to 2.1% p.a. during the same period.

It is interesting to note that the above conclusions are reinforced with greater strength if we divide the post-1985 period into two sub-periods representing post-1991 period and the pre-1991 period. Thus, the growth rate of GDP originating in agriculture has progressively increased from 2.13% observed during pre-1985 period to 2.85% during 1985-86 to 1991-92 and further to 4.29% during 1991-92 to 1994-95. In fact, during the post-1991 period, the degree of acceleration in the growth of GDP in the agricultural sector has turned out to be much greater than the corresponding degree of acceleration in the growth of non-agricultural sector in general and manufacturing sector in particular.

Higher growth of sectoral GDP would be generally brought about by the corresponding higher growth of the sectoral gross output. However, if the efficiency of processing material inputs improves and greater value addition takes place at various stages in the process of production, it would result in a considerable increase in the value added proportion, which by itself would significantly enhance the growth of sectoral GDP for a given increase in sectoral gross output over a specified period. It would, therefore, be useful to examine the behaviour of value added proportion for agriculture vis-a-vis the manufacturing sector. Time-series data on the ratio of value added to gross output (both measured at current prices) for agriculture and manufacturing are presented in *Appendix Table 2*, while the trends in the average value added proportions for the relevant sub-periods are brought out by the figures given in *Table 2*.

Table 2		
Trends in Value Added Proportion in Agriculture and Manufacturing		
Period	Average Ratio of Value Added to Gross Output at Current Prices (Per Cent)	
	Agriculture	Manufacturing
1980-81 to 1984-85	75.68	21.06
1985-86 to 1989-90	77.39	20.82
1990-91 to 1992-93	79.49	19.99
Source: <i>Appendix Table 2.</i>		

It can be seen from Table 2 that there has been a steady improvement in the value added proportion in the agricultural sector during the post-liberalisation period, while the value added proportion in the manufacturing sector shows a steadily declining trend during the same period. If the value added proportion in the agricultural sector has remained the same between 1980-81 and 1992-93 (the latest year for which the required data are available), the level of agricultural GDP in 1992-93 would have been Rs.166 thousand crores instead of the observed level of Rs.178 thousand crores, indicating that an additional 7% growth in agricultural GDP has resulted from the higher value added proportion achieved during the post-liberalisation period.

III. Sources of Growth of Net Agricultural Product

Having examined the impact of economic liberalisation on the growth of agricultural income, we may now analyse the sources of accelerated growth of net output produced by the agricultural sector. In a recent study, the author has estimated the sources of India's economic growth using Denison's growth accounting framework covering the period from 1960-61 to 1993-94*¹³. We have revised and updated the estimates relating to the primary sector presented in this study in the light of the latest available data for the years 1993-94 and 1994-95. Our estimates of the sources of growth of net output originating in the primary sector are presented in *Table 3*.

It is evident from the estimates given in Table 3 that there has been a significant change in the contribution made by different sources of growth during the post-liberalisation period as compared to the earlier period. During the pre-liberalisation period, labour was the major source of growth accounting for 41% of the observed growth of agricultural NDP, while total factor productivity and capital input accounted for 29% and 24%, respectively. As against this, growth of total factor productivity has emerged as the most important source of growth during the post-liberalisation period accounting for 70% of the observed growth of agricultural NDP, while labour input and capital input accounted for only 18% and 10%,

¹³ Cf. Bakul H. Dholakia : "Sources of India's Economic Growth", *Working Paper No. 1288*, Indian Institute of Management, Ahmedabad, December 1995.

Table 3				
Sources of Growth of Net Output Originating in Primary Sector				
	Absolute Contribution (in Percentage Points)		Relative Contribution (in Per Cent)	
	1960-61 to 1985-86	1985-86 to 1994-95	1960-61 to 1985-86	1985-86 to 1994-95
Labour	0.84	0.64	40.98	18.23
Capital	0.49	0.34	23.90	9.69
Land	0.13	0.08	6.34	2.28
Total Factor Input	1.46	1.06	71.22	30.20
Total Factor Productivity	0.59	2.45	28.78	69.80
Net Domestic Product	2.05	3.51	100.00	100.00
Source : <i>See the text.</i>				

respectively. In fact, the growth of total factor productivity in the primary sector has increased sharply from 0.59 percentage points during the pre-1985-86 period to 2.45 percentage points during the post-1985-86 period. Thus, substantial increase in total factor productivity growth has turned out to be the main factor contributing to the significant acceleration in the growth of agricultural sector observed during the post-liberalisation period.

It is interesting to observe that the contribution made by the growth of total factor input in the primary sector has actually turned out to be lower during the post-liberalisation period (1.06 percentage points) as compared to the earlier period (1.46 percentage points). This clearly indicates that the incremental flow of scarce national resources into the agricultural sector has slowed down in recent years and to that extent additional resources, that could have been absorbed by the agricultural sector, have actually been released for productive deployment in various non-agricultural sectors. It is evident that availability of incremental resources for the non-agricultural sectors would in turn facilitate their accelerated growth during the post-liberalisation period. This finding corroborates the following

conclusion deriving by an earlier study on the growth of total factor productivity in Indian agriculture during the eighties : "Thus, contribution of agricultural sector in the acceleration of overall growth of the Indian economy has been through both higher efficiency as indicated by the increased growth of TFP in agriculture as well as release of resources from agriculture to other sectors as revealed by the decreased growth of TFI in agriculture during the eighties." *¹⁴

The detailed analysis of the determinants of the growth of total factor productivity in Indian agriculture during the eighties presented in the above-mentioned study shows that a significant improvement in the rate of capacity utilisation contributed almost one-third of the observed growth of TFP, while the technical progress based on the use of modern inputs as well as weather conditions have also been found to be significant determinants of the growth of TFP in Indian agriculture. In this context, it is important to note that the post-1985 period has witnessed a remarkable and almost unprecedented run of eight consecutive good / normal monsoons considering the country as a whole, and to that extent favourable weather conditions can also be regarded as a contributory factor in bringing about the acceleration in the growth of agricultural output observed during the post-1985 period.

IV. Behaviour of Agricultural Prices

One of the important elements of policy reforms in the agricultural sector during the post-1985 period has been the continuous upward revision of minimum support prices of major agricultural products primarily aimed at bringing about more equitable terms of trade for the agricultural sector. A comparison of the average growth rates of minimum support prices observed during the pre-liberalisation period and the post-liberalisation period is presented in *Table 4*.

¹⁴ Cf. Ravindra Dholakia & Bakul Dholakia : "Growth of Total Factor Productivity in Indian Agriculture", *The Indian Economic Review*, Vol. XXVIII, No. 1, January-June 1993.

Table 4				
Average Growth Rates of Minimum Support Prices of Major Agricultural Products				
(Per Cent Per Annum)				
Product	1980-81 to 1985-86	1985-86 to 1995-96	1985-86 to 1991-92	1991-92 to 1995-96
WPI	6.47	8.96	8.77	9.23
Wheat	6.06	9.24	9.79	8.43
Paddy	6.22	9.75	8.37	11.86
Coarse Grains	4.36	8.72	7.88	9.99
Gram	11.50	10.85	12.26	8.78
Arhar	9.57	10.31	10.46	10.08
Moong	8.45	10.31	10.46	10.07
Urad	8.45	10.31	10.46	10.07
Groundnut	11.18	9.91	10.73	8.69
Sunflower Seed	12.86	10.98	12.24	9.12
Soyabean	6.44	9.15	7.92	11.03
Cotton	6.93	10.47	8.54	13.42
Sugarcane	4.88	9.92	7.88	13.07

Source : *Economic Survey*, Ministry of Finance, Government of India (Various Issues)

It can be seen from Table 4 that the average rate of increase in the support price of each major agricultural product during the period 1985-86 to 1995-96 has been significantly higher than the corresponding rate of increase in WPI, coarse grains being the only exception where the observed price increase turned to be almost the same as WPI. Moreover, the increase in support prices of major agricultural products during the post-liberalisation period has been uniformly much higher than the corresponding rates of increase observed during the pre-liberalisation period. While we do not have the required micro-level information for various categories of agricultural households, one can safely conclude that the significant increase in the relative price of agricultural products resulting from such sharp upward revision of support prices would go a long way to improve the profitability of farm operations covering a wide cross-section of cropping pattern across the country.

It would be interesting to examine the impact of steadily increasing support prices of major agricultural products on the overall agricultural price level as a component of WPI and compare the behaviour of agricultural and non-agricultural prices for the country as a whole. This comparison is presented in *Table 5*.

Table 5					
Average Growth Rates Agricultural and Non-Agricultural Prices					
(Per Cent Per Annum)					
Year	WPI	Primary Agricultural Articles	Food Articles	Non-food Agricultural Articles	Manufactured Products
1980-81 to 1985-86	6.47	7.61	8.65	5.79	5.47
1985-86 to 1995-96	8.67	9.95	9.84	10.15	8.56
1985-86 to 1991-92	8.77	10.64	10.26	11.32	8.52
1991-92 to 1995-96	8.51	8.93	9.21	8.43	8.62
Source: <i>Report on Currency & Finance</i> , (Various Issues), Reserve Bank of India, June 1996.					

It is evident from Table 5 that the degree of corrective action on the agricultural price front has been far more pronounced in the case of non-food articles as compared to the food articles. Moreover, the overall terms of trade have steadily moved in favour of agriculture at a fairly significant rate especially after 1985-86.

V. Performance of Agricultural Exports

Improving the export orientation of Indian agriculture has been a major objective of economic liberalisation in general and the agricultural policy reforms in particular. In this context, it would be useful to examine the performance of agricultural exports during the post-liberalisation period. Information on the export earnings from major agricultural commodities/product categories for the period 1980-81 to 1995-96 is given in *Table 6*, while

the product-wise growth rates of agricultural exports observed during the pre-liberalisation and the post-liberalisation periods are shown in *Table 7*.

(US \$ Million)					
Products	1980-81	1985-86	1991-92	1994-95	1995-96
Coffee	271	217	135	335	452
Tea and mate	538	512	491	311	351
Oils Cakes	158	110	374	573	704
Tobacco	178	139	153	81	110
Cashew Kernels	177	184	274	397	369
Spices	14	227	160	195	235
Sugar and Molasses	50	13	64	20	151
Raw Cotton	209	56	124	45	61
Rice	283	160	306	384	1363
Fish and Fish Preparations	274	334	585	1127	1013
Meat and Meat Preparations	70	60	94	128	188
Fruits, Vegetables and Pulses	101	101	143	193	242
Agricultural Products	2601	2467	3338	4227	6090
Non-Agricultural Exports	5885	6437	14527	22111	25786
Total Exports	8486	8904	17865	26338	31876
Source:					
(a) <i>Economic Survey</i> , Ministry of Finance, Government of India (Various Issues).					
(b) <i>Monthly Review of the Indian Economy</i> , May 1996, CMIE.					

It can be seen from Table 6 that agricultural exports as a whole actually declined between 1980-81 and 1985-86. Moreover, the declining trend in the level of exports during the pre-liberalisation period is clearly visible in the case of every product category with the exception of spices, fish and cashew. In fact, the magnitude of overall decline in

agricultural exports during 1980-81 to 1985-86 would have been much greater but for the dramatic growth in the exports of just one product category, viz., spices.

Table 7				
Comparative Growth Rates of Exports of Agricultural Products During the Pre-Liberalisation Period and the Post-Liberalisation Period				
(Per Cent Per Annum)				
Products	1980-81 to 1985-86	1985-86 to 1995-96	1985-86 to 1991-92	1991-92 to 1995-96
Coffee	-4.35	7.61	-7.61	35.27
Tea and mate	-0.99	-3.71	-0.70	-8.05
Oils Cakes	-6.99	20.40	22.63	17.13
Tobacco	-4.83	-2.31	1.61	-7.92
Cashew Kernels	0.78	7.21	6.86	7.73
Spices	74.57	0.35	-5.66	10.09
Sugar and Molasses	-23.62	27.79	30.43	23.94
Raw Cotton	-23.16	0.86	14.17	-16.25
Rice	-10.78	23.89	11.41	45.28
Fish and Fish Preparations	4.04	11.73	9.79	14.71
Meat and Meat Preparations	-3.04	12.10	7.77	18.92
Fruits, Vegetables and Pulses	0.00	9.13	5.97	14.06
Agricultural Products	-1.05	9.46	5.17	16.22
Non-Agricultural Exports	1.81	14.89	14.53	15.43
Total Exports	0.97	13.60	12.31	15.58
Source : Table 6.				

There has been a significant increase in the agricultural exports during the post-liberalisation period with total agricultural exports rising from US \$ 2.5 billion in 1985-86 to US \$ 6.1 billion in 1995-96. However, since the non-agricultural exports have increased at a much greater rate during the same period, the share of agricultural exports in total commodity exports has actually declined from 28% to 19.1% despite the spectacular turn-

around in agricultural exports during this period. However, it is heartening to note that the agricultural exports registered an unprecedented growth rate of 44% during 1995-96 and, in the process, accounted for 34% of the significant increase of \$ 5.5 billion in aggregate commodity exports achieved during the year. In fact, the share of agricultural exports in total commodity exports registered a sharp increase during 1995-96, thereby reversing the steadily declining trend observed till 1994-95.

A comparison of the product-wise growth rates of agricultural exports reveals that oilcakes, sugar & molasses, rice, fish and meat & meat preparations are the five major products which have registered an average growth rate of more than 10% per annum during the post-liberalisation period and it is significant to observe that four of these five items had actually shown a negative growth rate during the earlier period. In fact, if we consider the agricultural products which have shown an improvement of more than 10 percentage points in the growth rate of exports during the post-liberalisation period as a special fast growing category of agricultural exports, we find several items such as coffee, oilcakes, sugar & molasses, raw cotton, rice, meat & meat preparations, falling under this category. While evaluating the performance of agricultural exports during the post-1985 period, we should not overlook the fact that the pre-1995 period was marked by fairly high levels of agricultural subsidies in most of the industrialised countries, which, coupled with serious constraints of the basic market access itself, created formidable barriers to trade in agricultural commodities from the developing countries. It is, however, encouraging to observe that now the scenario is likely to change as the general trade agreement starts getting implemented and as a result, the global prices of primary products are likely to become more favourable for the developing countries like India. In fact, positive signals are already visible like, for instance, the global prices of grains attaining a level which enabled India to export large volumes of non-Basmati rice and might even lead to export of Indian wheat to become viable perhaps for the first time. To what extent the vast potential created by the development of Indian agricultural sector can be converted into large scale agricultural exports would, therefore, depend more on the policy initiatives and the sectoral strategy adopted in the Ninth Five Year Plan rather than on the global economic environment as in the past.

VI. Conclusion

Finally, we may summarise the main conclusions that emerge from the above analysis of the impact of economic liberalisation on selected aspects of the growth of Indian agriculture. The main conclusions emerging from our study are as follows :

- (a) Accelerated growth of agricultural sector has been a major contributory factor in the significantly higher rate of growth of Indian economy achieved during the post-liberalisation period;
- (b) There has been a steady improvement in the value added proportion in the agricultural sector, while this proportion shows a steadily declining trend in the manufacturing sector during the post-liberalisation period;
- (c) Acceleration in the growth of agricultural sector has been achieved mainly through a remarkable increase in the growth of total factor productivity in the agricultural sector;
- (d) Growth of total factor input in Indian agriculture, which indicates the flow of scarce national resources into this sector, has actually slowed down during the post-liberalisation period resulting in a release of resources for other non-agricultural sectors thereby contributing to their accelerated growth;
- (e) Average rate of increase in the support price of each major agricultural product during the period 1985-86 to 1995-96 has been significantly higher than the corresponding rate of increase in WPI and the degree of corrective action on the agricultural price front has been far more pronounced in the case of non-food articles as compared to the food articles;
- (f) Overall terms of trade have steadily moved in favour of agriculture, especially in relation to the manufacturing sector at a fairly significant rate especially after 1985-86;

- (g) There has been a significant increase in the agricultural exports during the post-liberalisation period, as against a general decline witnessed during the earlier period. Notwithstanding the spectacular turn-around in agricultural exports, the share of agricultural exports in total commodity exports has actually declined from 28% to 19% during this period. However, the agricultural exports registered an unprecedented growth rate of 44% during 1995-96 and, as a result, the share of agricultural exports in total commodity exports registered a sharp increase during 1995-96, thereby reversing the steadily declining trend observed till 1994-95;
- (h) The policy initiatives and sectoral strategy are likely to play a much greater role as compared to the global economic environment in determining the future growth of India's agricultural exports.

Appendix Table 1
Growth Gross Domestic Product by Broad Categories

(Rs. Crores)			
Aggregates/Year	Agriculture	Manufacturing	All Sectors
GDP at Current Prices - Entire Economy			
1960-61	6990	2285	15254
1980-81	46649	21644	122427
1985-86	77224	41775	233799
1991-92	172899	96881	552030
1994-95	265914	148484	854103
1995-96	296683	172042	951138
GDP at Current Prices - Private Sector			
1960-61	6911	2228	13730
1980-81	45292	18821	98256
1985-86	74493	34525	175473
1991-92	167410	77392	402516
1994-95	258199	118174	621215
1995-96	288283	138026	692493
GDP at 1980-81 Prices - Entire Economy			
1960-61	31995	8771	62904
1980-81	46649	21644	122427
1985-86	54218	30320	156566
1991-92	64174	43454	214156
1994-95	73688	51148	251010
1995-96	75929	56264	266537
GDP at 1980-81 Prices - Private Sector			
1960-61	31543	8296	57853
1980-81	45292	18821	98256
1985-86	52671	26283	121724
1991-92	63030	36820	160321
1994-95	72053	43452	188546
1995-96	74285	48064	200388

Source :

- (a) *National Accounts Statistics*, 1993 and 1995, C.S.O.
- (b) *National Accounts Statistics (New Series)*, 1950-51 to 1979-80, C.S.O., 1989.
- (c) *Quick Estimates of National Income 1994-95*, C.S.O., February 1996.
- (d) *Advance Estimates of National Income 1995-96*, C.S.O., February 1996.

Appendix Table 2
Behaviour of Value Added Proportion in Agriculture and Manufacturing

Year	Ratio of Value Added to Gross Output at Current Prices (Per Cent)	
	Agriculture	Manufacturing
1980-81	74.67	20.89
1981-82	74.95	20.20
1982-83	75.49	19.97
1983-84	76.63	22.47
1984-85	76.66	21.76
1985-86	76.64	21.02
1986-87	76.28	20.84
1987-88	76.69	20.81
1988-89	78.31	20.75
1989-90	79.01	20.66
1990-91	79.18	20.11
1991-92	79.39	19.86
1992-93	79.90	20.01

Source: *National Accounts Statistics 1993 and 1995, C.S.O.*