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Please follow the instructions meticulously. It will greatly expedite the editorial process.

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All text, including block quotations, footnotes, and table headings, should be double-spaced and typed on one side. Use medium-weight, opaque, bond paper. All pages should be of the same size, preferably 8-1/2" x 11", and unbound. Leave a minimum left-hand margin of one and a half inches, and a minimum right-hand margin of one inch. Number all pages, including footnotes and/or references, consecutively.

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4. For a critique of recent industrial policy proposals, see Marshall [Marshall, 1983, Pp. 281-98].

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COMPUTER DISK

If the manuscript is on a computer, send a copy of it on a disk covering text, tables, graphs, etc.

We are publishing here two papers on an important aspect of Indian Federal Finance. The initial argument is presented in the paper contributed by D.K. Srivastava and Pawan K. Aggarwal of the National Institute of Public Finance and Policy, New Delhi. This contribution is followed by a response by S.M. Vidwans, Honorary Fellow, Indian School of Political Economy. A rejoinder by Srivastava and Aggarwal will be published in this Journal later, if and when received.

Editor

ON THE ROLE OF POPULATION IN CRITERIA-BASED REVENUE SHARING IN INDIA

D.K. Srivastava and Pawan K. Aggarwal

Population enters as a key determinant in revenue-sharing arrangements in federal fiscal systems. It is used as a proxy for fiscal needs of the states in absolute terms as well as in conjunction with other factors. This paper examines the role of population as a determinant of the overall progressivity of the transfer mechanism under revenue-allocative criteria typically used by the Finance Commissions and the Planning Commission in India. If considerable weights are assigned to population, the overall progressivity of the allocative mechanism would be considerably compromised. Further, even in the case of progressive criteria, the use of dated population data instead of current year population data may result in unintended distortions and penalise states not only for a more than average population growth rate but also for being poorer.

The theoretical findings are illustrated with data on the Indian states. Under all the three allocative criteria considered here, use of dated population results in substantial losses/gains in revenue devolution for different states.

I. INTRODUCTION

In the allocative mechanism governing the transfer of resources from the central government to the state governments, the relative sizes of population of different states play a crucial role. Population is used as a proxy for fiscal needs of the states in absolute terms as well as in association with other indicators of fiscal needs such as deficiency in per capita income. In the former case, the relative shares of the states are determined entirely by their relative population sizes. In the latter case also, population has an important role to play in determining the overall share of a state. When various criteria are used in combination, the overall impact of the population factor may be considerable. In developing countries, often there is a considerable lag in the year for which the latest population data are available and the year for which the devolution exercise is done. Often, old population data are used as a matter of deliberate choice even when more recent data become available. This is the case in India, where only 1971 Census data are being used, even though 1991 Census data are available. Although not fully realised, this introduces unwarranted distortions in the revenue-sharing mechanism.

In this paper, an attempt is made to examine the role of the relative sizes of population of different states in the resource transfer mechanism in India. In particular, attention is focused on two specific aspects, viz., the impact of population as a determining factor on the overall progressivity of the transfer mechanism, and the implications of using dated data relating to population in the allocative exercises. It is shown that the distortion may be such that states are penalised not only for a more than average population growth rate which may be intended but also for being poorer, which is an unintended effect and characterises the revenue-sharing exercise with a perverse feature.

Various bodies concerned with the resource transfer exercise, like the Finance Commission

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and the Planning Commission in India, may be constrained to use population data which are old because of the time-lag in the availability of data or as a matter of deliberate choice. For example, in the Indian context, the final year of award of the Tenth Finance Commission was 1999-2000 and it used population data for 1971, i.e., with a time-lag of 25 to 29 years. Since this was made a part of their terms of reference, they had little choice in the matter. Even when this choice was not so externally imposed, the Finance Commissions were using data with considerable time-lag. For example, the last year of award of the Fifth Finance Commission was 1973-74 for which 1961 data were used, implying an information gap of 9 to 13 years. The relative losses to some states and the consequent gains to others may accumulate to substantial amounts, when such procedures are continued over a long period.

In the terms of reference of the Seventh Fiance Commission, and similarly in those of all the subsequent Commissions (i.e., Eighth, Ninth and Tenth), the following clause was included, making it mandatory for the Finance Commissions to use the 1971 Census data:

> 'In making its recommendations on the various matters aforesaid, the Commission shall adopt the population figures of 1971 in all cases where population is regarded as a factor of determination of devolution of taxes and duties and grants-in-aid'.

This stipulation, which governs the determination of the Planning Commission grants also, was seeded in the policy statement on Family Planning Programme issued on June 29, 1977. The stipulation is to last until the year 2001. The matter therefore would need to be reviewed before drafting the terms of reference of the Eleventh Finance Commission. The subject, therefore, is of considerable topical importance. This paper argues that there are unintended and perverse distortions involved in the use of old population data and that this practice should be given up forthwith.

For purposes of the analytical discussion in this paper, a distinction is made between the population criterion, which implies the same per capita shares for each state, and a group of progressive criteria where per capita shares are higher for poorer states. Two examples of the latter type, which have been extensively used are the distance criterion and inverse-income criterion.[1]

The outline of the paper is as follows. In Section II, relative progressivities of alternative criteria *vis-a-vis* the population criterion are discussed. In Section III, the importance of population in the overall mechanism of devolution consisting of a composite of alternative criteria is considered. In Section IV, an analytical framework is proposed for considering the implications of the allocative mechanism when dated population data are used. Section V contains concluding observations and policy implications of the analysis.

II. POPULATION IN ALTERNATIVE CRITERIA

Indicating per capita income of states by y_i, $i = 1, 2, ... n$, and arranging them in an ascending order ($y_i < y_{i+1}$), with their population indicated by N_i, we may write the shares of states determined under the population criterion as

$$q_i = N_i / \Sigma N_i \qquad (i = 1, ..., n) \qquad (1)$$

Correspondingly, the per capita shares of the states are given by

$$q_i^* = 1/\Sigma N_i = \phi(\text{say}), \qquad (2)$$

which is constant for a given distribution of N_i. Thus, under the population criterion, each state gets the same per capita share regardless of its per capita income or fiscal capacity. In this case,

$$\frac{\partial q_i^*}{\partial y_i} = 0, \quad \text{for a given } \phi.$$

In the (q_i^*, y_i) space, dispensation under this criterion would be indicated by a horizontal line with an intercept ($= 1/\Sigma N_i$), as indicated in Figure 1. Since, horizontal equity requires equal treatment of equals and *inter alia* vertical equity calls for unequal treatment of unequals, the population

criterion is inconsistent with vertical equity. In this case, $q_i^* = q_j^*$ even though $y_i < y_j$ where i and j take values from 1 to n.

A family of criteria based on per capita income (or more generally, per capita fiscal capacity) denoted by y_i may be defined as:

$$s_i = f(y_i)N_i / \sum f(y_i)N_i \quad (3)$$

where s_i is the share of the ith state. The corresponding per capita share is:

$$s_i^* = f(y_i) / \sum f(y_i)N_i \quad (4)$$

where y_i is arranged in a non-descending order [i.e., $y_i \leq y_{i+1}$, i=1, ... (n-1)]. Equation (4) can be rewritten as:

$$s_i^* = \pi \cdot f(y_i) \quad (5)$$

where $\pi = 1 / \sum f(y_i)N_i$,

which is constant for a given distribution of income and population.

Two specific examples of the above general specification are, the 'distance' and the 'inverse-income criteria'. In the case of the former,[2]

$f(y_i) = y_n - y_i$ and $f'(y_i) = -1$

In the case of inverse-income criterion,

$f(y_i) = 1/y_i$ and $f'(y_i) = -1/y_i^2$

The per capita shares under these two criteria may be written, respectively, as

$$a_i^* = \alpha(y_n - y_i), \quad \alpha = 1 / \sum N_i(y_n - y_i) \quad (6)$$

$$b_i^* = \beta/y_i, \quad \beta = 1 / \sum(N_i/Y_i) \quad (7)$$

The relative shares accorded under the population criterion may be compared with those under the distance and the inverse-income criteria by considering the points of intersection of the dispensation line under the population criterion with those relating to the latter two.

The point of intersection between the (q_i^*) and (a_i^*) lines can be worked out from

$$\alpha(y_n - y_i) = 1 / \sum N_i$$

which gives

$$y_i = \frac{\sum y_i N_i}{\sum N_i} = \mu(\text{say}) \quad (8)$$

where μ is the (weighted) average per capita income of all states, i.e., the mean income of the country. This implies that compared to the distance criterion, the population criterion would give higher per capita shares to all the richer states with per capita incomes greater than the mean per capita income, and lower per capita shares to all states with per capita income lower than the mean per capita income of the country as shown in Figure 1.

The point of intersection of the (q_i^*) and (b_i^*) lines is given by,

$$y_i = \beta \sum N_i (= y^*, \text{say}) \quad (9)$$

This point would lie to the left of μ, if

$$(\sum y_i N_i) \sum (N_i/y_i) > (\sum N_i)^2 \quad (10)$$

In this case also, the population criterion gives relatively lower shares to states with per capita incomes less than y*, and relatively higher shares to all states which lie to the right of this point[3] as shown in Figure 2.

In the population formula, the share of a state is determined purely by its share of population. In the other two formulae, the relative distribution of population among the states affects the shares by influencing the terms α and β, respectively. In particular, α and β are weighted aggregates of population where the population of poorer are given higher weights.

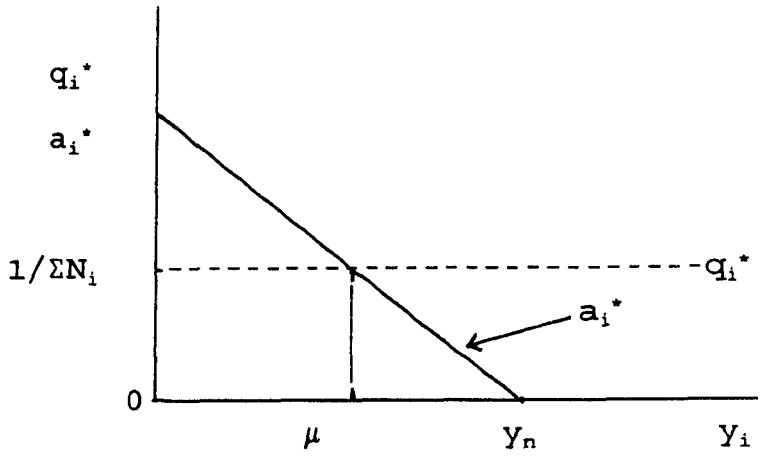

Figure 1

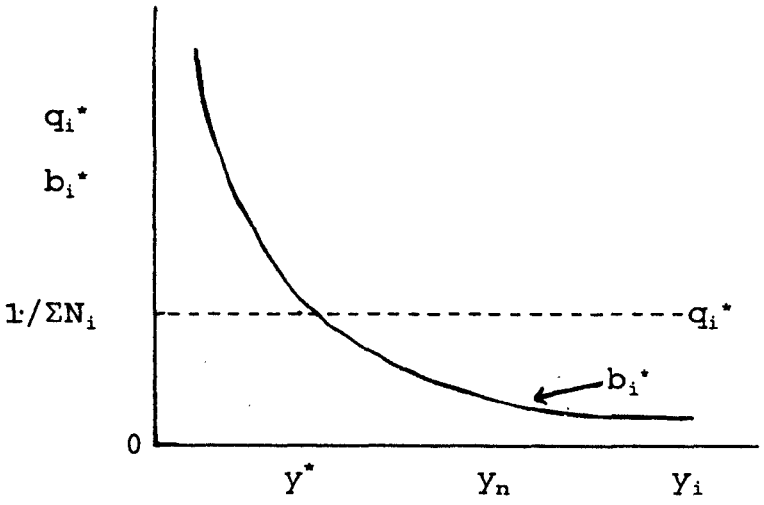

Figure 2

III. COMBINATION OF CRITERIA: AGGREGATE SHARES AND PROGRESSIVITY

The aggregate share of a state in a dispensation mechanism depends on the relative weights assigned to different criteria which are used in combination. Considering that the set of criteria could be divided into two categories, viz., population based, and progressive criteria like the distance and the inverse-income criteria with population as a scale factor, we consider here a combination of two criteria, viz., the population criterion and a general progressive criterion. The aggregate share of a state, under the combination of these two criteria as given by

$$A_i = wN_i/\sum N_i + (1-w)\pi f(y_i)N_i \qquad (11)$$

where $0 < w < 1$, is the weight given to the population criterion and $df(y_i)/dy_i < 0$.
The corresponding per capita share is:

$$A_i^* = w/\sum N_i + (1-w)\,\pi\, f(y_i) \qquad (12)$$

It is easily ascertained that population as a determinant of the aggregate or per capita share of a state would have greater importance, the greater is the weight (w) assigned to the population criterion, the smaller is the variance among per capita incomes, and the lower is the degree of progressivity of the progressive criteria.

The progressivity of the combined revenue sharing mechanism, treating π as a constant for a given distribution of (y_i, N_i), is given by

$$\frac{dA_i^*}{dy_i} = (1-w)\pi f'(y_i) \qquad (13)$$

This implies that $dA_i^*/dy_i < 0$, since $f'(y_i) < 0$. Thus, the combined revenue sharing mechanism results in progressive allocation of dispensation. This suggests that any progressive criterion combined with the population criterion would result in a distributive mechanism which is progressive as a whole. However, the larger is the weight attached to the population criterion, the lower would be the progressivity of the allocative mechanism taken as a whole.

IV. DATED POPULATION AND CURRENT DEVOLUTION SHARES

Suppose, for the year for which the allocative exercise is being done (current year), the population figures are given by N_i^t. However, instead of using these, some base year figures N_i^o are used. Some of the states would lose in this process while others would gain at their cost. In the ensuing analysis, the implications of this procedure are discussed for the three allocative formulae considered here.

a. Population Criterion

Writing q_i^t for shares based on N_i^t and q_i^o for those based on N_i^o, we have,

$$q_i^t - q_i^o = \frac{(\sum N_i^o)(N_i^t) - (N_i^o)(\sum N_i^t)}{(\sum N_i^o)(\sum N_i^t)}$$

$$= L(q_i^o) \quad \text{say} \qquad (14)$$

Suppose the rate of growth of population of the ith state between periods (o, t) os g_i and the mean rate of growth of population of all states is g, i.e.

$$N_i^t = (1+g_i)N_i^o$$

and

$$\sum N_i^t = (1+g)\sum N_i^o$$

The 'loss' to a state under fixed population shares is then given by

$$L(q_i^o) = \left(\frac{N_i^o}{\sum N_i^o}\right)\left(\frac{g_i - g}{1+g}\right) \qquad (15)$$

This difference is positive if $g_i - g > o$. In such a case, states which grow at a rate faster than the average rate of growth of population would be penalised. The loss to a state, satisfying this condition, is higher,

i. the higher is its share in the base year population; and
ii. the higher is the difference between its growth rate of population and the average growth rate.

Thus, a deliberate policy to use dated population penalises a state not only for its higher than average growth of population but also for being a large population state.

The above points are illustrated with the data on Indian states. The losses/gains for different states due to use of dated population under the population criteria are given in Table 1 along with other related statistics. The losses/gains for different states are computed with respect to use of 1971 population instead of the 1991 population data for revenue devolution in the year 1991. Per capita net state domestic product is taken as the average for the years 1987-88, 1988-89 and 1989-90.

From Table 1, it would be noted that the loss in share occurs for the states whose population grows faster relative to the average growth of population of all states. Consequently, the gain occurs for the states whose population growth is less than the average growth of population (Columns 4 or 5 and 9). Thus, fourteen states lose in the process with substantial loss for Rajasthan, Uttar Pradesh and Madhya Pradesh. Gain occurs for the other eleven states. Tamil Nadu, Kerala and Orissa gain significantly.

Table 1. Losses/Gains in States' Shares in Revenue Devolution Due to Use of Dated Population Under The Population Criterion

State	Population				Per capita Income	Share Based on Population in		Gain/Loss (-) in Share	Gain/Loss (-) per Crore Population
	1971 N(O) (Lakh)	1991 N(t) (Lakh)	Annual Growth Rate (Per cent)	Total Growth (Per cent)	(Y) (Rs)	1971 q(O) (Per cent)	1991 q(t) (Per cent)	q(O) - q(t) (Percentage Points)	(9)/(2)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Nagaland	5.16	12.10	4.35	134.50	3,929	0.10	0.14	-0.050	-0.967
Mizoram	3.32	6.90	3.73	107.83	4,094	0.06	0.08	-0.022	-0.648
Sikkim	2.10	4.07	3.36	93.81	4,846	0.04	0.05	-0.010	-0.480
Arunachal Pradesh	4.68	8.64	3.11	84.62	4,670	0.09	0.10	-0.017	-0.370
Tripura	15.56	27.57	2.90	77.19	3,163	0.29	0.33	-0.044	-0.281
Meghalaya	10.12	17.75	2.85	75.40	3,328	0.19	0.21	-0.026	-0.260
Manipur	10.73	18.37	2.72	71.20	3,449	0.20	0.22	-0.022	-0.209
Rajasthan	257.66	440.06	2.71	70.79	3,092	4.74	5.27	-0.527	-0.204
Jammu & Kashmir	46.17	77.19	2.60	67.19	3,534	0.85	0.92	-0.074	-0.161
Haryana	100.37	164.64	2.51	64.03	5,284	1.85	1.97	-0.124	-0.123
Madhya Pradesh	416.54	661.81	2.34	58.88	3,299	7.67	7.93	-0.257	-0.062
Uttar Pradesh	883.41	1391.12	2.30	57.47	2,867	16.27	16.66	-0.396	-0.045
Maharashtra	504.12	789.37	2.27	56.58	5,369	9.28	9.46	-0.172	-0.034
Gujarat	266.97	413.10	2.21	54.74	4,602	4.92	4.95	-0.032	-0.012
West Bengal	443.12	680.78	2.17	53.63	3,750	8.16	8.15	0.005	0.001
Karnataka	292.99	449.77	2.17	53.51	3,810	5.39	5.39	0.008	0.003
Bihar	563.53	863.74	2.16	53.27	2,135	10.38	10.35	0.031	0.005
Assam	146.25	224.14	2.16	53.26	3,195	2.69	2.68	0.008	0.006
Andhra Pradesh	435.03	665.08	2.15	52.88	3,455	8.01	7.97	0.044	0.010
Punjab	135.51	202.82	2.04	49.67	6,996	2.50	2.43	0.066	0.049
Himachal Pradesh	34.60	51.71	2.03	49.45	3,618	0.64	0.62	0.018	0.051
Goa	7.95	11.70	1.95	47.17	7,364	0.15	0.14	0.006	0.079
Orissa	219.45	316.60	1.85	44.27	2,945	4.04	3.79	0.249	0.113
Kerala	213.47	290.99	1.56	36.31	3,532	3.93	3.49	0.445	0.209
Tamil Nadu	411.99	558.59	1.53	35.58	4,093	7.59	6.69	0.895	0.217
All	5,430.80	8,348.61	2.17	53.73	3,621	100.00	100.00		

Note: The data on per capita net state domestic product (y: average of 1987-88, 1988-89 and 1989-90) is taken from the *Report of the Tenth Finance Commission*, December 1994, p. 131.

The gain/loss in the share is higher for the larger states. For example, for almost the same growth rate of population of Rajasthan and Manipur, the loss for the former is more than twenty four times the loss for the latter because of the substantially larger population of the former (Columns 2, 4 or 5 and 9 in Table 1). Similarly, for almost the same growth rate of population of Uttar Pradesh and Madhya Pradesh, the loss for the former is more than double the loss for the latter due to the larger population of the former. Between Bihar and Assam whose population has grown almost at the same rate, the gain for the former is about four times the gain for the latter due to the larger population of the former. Similarly, gain for Tamil Nadu is more than double the gain for Kerala because of larger population of the former.

Following Equation 15, the impact of population growth on the magnitude of loss/gain for a state can be clearly indicated by comparing the former with the loss/gain per crore of population of the base year (1971). For this purpose, we have computed the loss/gain per crore population of 1971 for each state as given in Column 10 in Table 1. Further, it may be noted that even if 1991 population is used, the basic inferences do not change. A comparison of Column 4 or 5 with Column 10 reveals that the magnitude of a loss/gain for a state is higher, the larger is the deviation of growth of population of the state from the mean growth of population. The loss in share per crore population declines from about 0.967 percentage points to about 0.012 percentage points as the annual population growth rate declines from 4.35 per cent for Nagaland to 2.21 per cent for Gujarat (a rate close to the mean growth rate of population, i.e., 2.17 per cent). Similarly, the gain in share per crore population increases from about 0.001 percentage points to about 0.217 percentage points as the annual population growth rate declines from about 2.17 per cent for West Bengal to about 1.53 per cent for Tamil Nadu (implying an increase in deviation from the mean growth of population). The gain/loss for the states whose population growth rate is close to the mean growth rate (2.17 per cent) is small. These states are West Bengal, Karnataka, Bihar, Assam, Andhra Pradesh and Gujarat. Their loss/gain per crore population does not exceed 0.012 percentage points.

From the above discussion, it follows that substantial loss in share in revenue devolution occurs to large and fast growing states like Rajasthan, Uttar Pradesh and Madhya Pradesh and substantial gain occurs to large and slow growing states like Tamil Nadu, Kerala and Orissa due to use of dated population under the population criterion.

b. Distance Criterion

The share of a state, based on current population data under the distance formula would be

$$a_i^t = \frac{(y_n - y_i)N_i^t}{\Sigma(y_n - y_i)N_i^t} \qquad i=1,.....,n \qquad (16)$$

The corresponding shares for the states, based on fixed base-year population data would be

$$a_i^o = \frac{(y_n - y_i)N_i^o}{\Sigma(y_n - y_i)N_i^o} \qquad (17)$$

Both sets of shares refer to the same (current) year per capita income, y_i.

Writing, $\Sigma(y_n - y_i)N_i^t = X_t$

and $\Sigma(y_n - y_i)N_i^o = X_o$

we have,

$$a_i^t - a_i^o = [(y_n - y_i)\{x_o N_i^t - x_t N_i^o\}]/x_t x_o$$

$$= \left[(y_n - y_i) N_i^o \left\{g_i - \frac{x_t - x_o}{x_o}\right\}\right]/x_t$$

$$= [(y_n - y_i) N_i^o (g_i - g^*)/x_t \qquad (18)$$

Where $g^* = \frac{x_t - x_o}{x_o} = \frac{\Sigma(y_n - y_i)g_i N_i^o}{\Sigma(y_n - y_i)N_i^o}$

$$= \Sigma\left(\frac{(y_n - y_i)N_i^o}{\Sigma(y_n - y_i)N_i^o}\right) \cdot g_i \qquad (19)$$

g^* can be interpreted as the weighted average of population growth in all the states where weights are linear income distances $(y_n - y_i)N_i^o$. Therefore, g^* is different from the mean growth rate.

Now, $a_i^t - a_i^o > O$, according as

$$g_i \gtrless g^* \quad (20)$$

Thus, the share of a state based on fixed population shares would be less than, equal to or greater than that based on current population shares, if

$$g_i \gtrless g^* \quad (21)$$

Thus, a state which shows a population growth greater than g^* would suffer a loss in its share and a state which shows a population growth which is lower than g^* would have a higher share. The loss/gain for a state would be higher, (i) the higher is the difference $(y_n - y_i)$ between its per capita income from that of the highest per capita income state, (ii) the higher is its population in the base year (N_i^o); and (iii) the larger is the difference between its population growth and g^*.

These observations imply that among the states which satisfy the condition $g_i > g^*$, poorer and larger states will be penalised more (higher $y_n - y_i$ and N_i^o), and among the states which satisfy the condition $g_i < g^*$, the gain to the richer and smaller states will be smaller.

It is important to note that the use of the progressive criterion implies a shift in the critical value of population growth rate from g (as in the population criterion) to g^*. If $g^* < g$, the states whose population growth rate falls in the range (g^*, g) lose even though their population grows at a rate which is less than the mean rate of growth of population. Correspondingly, if $g^* > g$, the states whose growth rate falls in the range (g, g^*), gain even though their population grows at a rate faster than the mean growth rate.

The points raised in this section, are illustrated with the data on Indian states. The losses/gains for different states due to use of dated population under the distance criterion are given in Table 2 along with other relevant parameters. The critical value 'g^*' is only marginally higher than the mean growth of population. In terms of total growth of population during 1971 and 1991, g^* is 53.94 per cent as against mean growth of 53.73 per cent. Similarly, in terms of annual growth of population g^* and g take values 2.1802 and 2.1733, respectively.

From Table 2, it would be noted that the loss in share occurs for the states whose population grows faster to the critical growth rate g^* (=53.94 per cent) and the gain occurs for the states whose population grows at a rate lower than the critical growth rate (Columns 4 to 5 and 12). A substantial loss occurs for the states such as Rajasthan, Uttar Pradesh and Madhya Pradesh whereas substantial gain occurs for the states such as Tamil Nadu, Kerala and Orissa.

The loss/gain in the share is higher for the states with larger distance $(y_n - y_i)$ and/or larger population (N_i^o). For almost the same growth rate of population, the loss for Rajasthan is more than twenty five times the loss for Manipur because of substantially large value of $(y_n - y_i)N_i^o$ for the former as compared to that for the latter (Columns 4 or 5, 8 and 12 in Table 2). Similarly, the loss for Uttar Pradesh is more than five times the loss for Maharashtra though their population growth rates do not differ much. The population of Bihar and Assam has grown at the same rate whereas the gain for Bihar is more than four times the gain for Assam due to larger value of $(y_n - y_i)N_i^o$ for the former. Similarly, the gain for Tamil Nadu is greater than that for Kerala due to larger product term for the former.

Following Equation 18, the impact of population growth and income distance on the magnitude of loss/gain for a state can be clearly indicated by comparing the former factors with the loss/gain per crore of base year population. For this purpose, we have computed the loss/gain per crore population of 1971 for each state as reported in Column 13 in Table 2. Further, it may be noted that even in this case, if 1991 population is used, the basic conclusions remain unchanged. A comparison of Columns 4 or 5, 7 and 13 reveals that the distance $(y_n - y_i)$ has a substantial impact on the magnitude of loss/gain for a state. Between Arunachal Pradesh and Tripura, the loss for the latter should have been lower due to its lower

population growth but the loss is higher due to a dominating impact of the higher distance (y_n-y_i) of the latter. Between Manipur and Rajasthan, whose population has grown at the same rate, the loss for the latter is higher because of higher distance (y_n-y_i) of the latter. Between Kerala and Tamil Nadu, the gain per crore population for the latter is lower due to its lower distance (y_n-y_i) in spite of a relatively lower growth of its population.

Table 2. Losses/Gains in States' Shares in Revenue Devolution due to Use of Dated Population under the Distance Criterion

State	Population				Per capita Income (Y)	y(n) - y(i)	y(n) - y(i)* N(o)	y(n) - y(i)* N(t)	Share Based on Population in		Gain/ Loss (-) in Share a(O) - a(t) (Percentage points)	Gain/ Loss (-) per Crore Population (12)/(2)
	1971 N(O) (Lakh)	1991 N(t) (Lakh)	Annual Growth Rate (Per cent)	Total Growth (Per cent)	(Rs)	(Rs)	(Rs Crore)	(Rs Crore)	1971 a(O) (Per cent)	1991 a(t) (Per cent)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Nagaland	5.16	12.10	4.35	134.50	3,929	3,435	177	416	0.09	0.13	-0.046	-0.885
Mizoram	3.32	6.90	3.73	107.83	4,094	3,270	109	226	0.05	0.07	-0.019	-0.564
Sikkim	2.10	4.07	3.36	93.81	4,846	2,518	53	102	0.03	0.03	-0.007	-0.321
Arunachal Pradesh	4.68	8.64	3.11	84.62	4,670	2,694	126	233	0.06	0.07	-0.012	-0.264
Tripura	15.56	27.57	2.90	77.19	3,163	4,201	654	1,158	0.32	0.37	-0.049	-0.312
Meghalaya	10.12	17.75	2.85	75.40	3,328	4,036	408	716	0.20	0.23	-0.028	-0.277
Manipur	10.73	18.37	2.72	71.20	3,449	3,915	420	719	0.21	0.23	-0.023	-0.216
Rajasthan	257.66	440.06	2.71	70.79	3,092	4,272	11,007	18,799	5.42	6.01	-0.594	-0.230
Jammu & Kashmir	46.17	77.19	2.60	67.19	3,534	3,830	1,768	2,956	0.87	0.95	-0.075	-0.162
Haryana	100.37	164.64	2.51	64.03	5,284	2,080	2,088	3,425	1.03	1.10	-0.067	-0.067
Madhya Pradesh	416.54	661.81	2.34	58.88	3,299	4,065	16,932	26,903	8.34	8.61	-0.268	-0.064
Uttar Pradesh	883.41	1,391.12	2.30	57.47	2,867	4,497	39,727	62,559	19.56	20.01	-0.449	-0.051
Maharashtra	504.12	789.37	2.27	56.58	5,369	1,995	10,057	15,748	4.95	5.04	-0.085	-0.017
Gujarat	266.97	413.10	2.21	54.74	4,602	2,762	7,374	11,410	3.63	3.65	-0.019	-0.007
West Bengal	443.12	680.78	2.17	53.63	3,750	3,614	16,014	24,603	7.89	7.87	0.015	0.003
Karnataka	292.99	449.77	2.17	53.51	3,810	3,554	10,413	15,985	5.13	5.11	0.014	0.005
Bihar	563.53	863.74	2.16	53.27	2,135	5,229	29,467	45,165	14.51	14.45	0.062	0.011
Assam	146.25	224.14	2.16	53.26	3,195	4,169	6,097	9,344	3.00	2.99	0.013	0.009
Andhra Pradesh	435.03	665.08	2.15	52.88	3,455	3,909	17,005	25,998	8.37	8.32	0.057	0.013
Punjab	135.51	202.82	2.04	49.67	6,996	368	499	746	0.25	0.24	0.007	0.005
Himachal Pradesh	34.60	51.71	2.03	49.45	3,618	3,746	1,296	1,937	0.64	0.62	0.019	0.054
Goa	7.95	11.70	1.95	47.17	7,364	368	29	43	0.01	0.01	0.001	0.008
Orissa	219.45	316.60	1.85	44.27	2,945	4,419	9,697	13,991	4.78	4.48	0.300	0.137
Kerala	213.47	290.99	1.56	36.31	3,532	3,832	8,180	11,151	4.03	3.57	0.461	0.216
Tamil Nadu	411.99	558.59	1.53	35.58	4,093	3,271	13,476	18,271	6.64	5.84	0.791	0.192
All	5,430.80	8,348.61	2.17	53.73	3,621		203,073	312,604	100.00	100.00		

Notes: 1. Per capita net state domestic product (y) is average of 1987-88, 1988-89 and 1989-90.
2. In terms of total growth of populagtion during 1971 and 1991, critical growth rate g(*) = 53.94, and mean growth rate g = 53.73.
3. In terms of annual growth rate, critical growth rate g(*) = 2.1802, and mean growth rate g = 2.1733.
4. In this table, distance of per capita income of a state is measured from the highest per capita income state.

The loss/gain per crore population is small for the states whose population growth rate is close to the critical growth rate. These states are Gujarat, West Bengal, Karnataka, Bihar, Assam, Andhra Pradesh and Punjab.

c. Inverse-income Criterion

In the case of inverse-income formula, as in the case of distance formula, the difference between the shares with current and fixed year population, i.e., between b_i^1 and b_i^0 can be worked out. Writing,

$W_t = \Sigma(N_i^t/y_i)$ and $W_0 = \Sigma(N_i^0/y_i)$,

We have,

$$b_i^t - b_i^0 = \frac{1}{W_0 W_t y_i}(N_i^t W_0 - N_i^0 W_t)$$

$$= \frac{N_i^0}{y_i W_t}\left(g_i - \frac{W_t - W_0}{W_0}\right)$$

$$= \frac{N_i^0}{y_i W_t}[g_i - g^{**}] \quad (22)$$

where $$g^{**} = \frac{W_t - W_0}{W_0} = \frac{\Sigma g_i N_i^0/y_i}{\Sigma N_i^0/y_i} \quad (23)$$

Thus, a state with population growth greater than g^{**} (which is different from the mean growth rate) would have a lower share and that with a growth rate lower than g^{**} would have a higher share. The loss/gain would be higher for a state,

i. the poorer is the state (greater value of $1/y_i$);
ii. the larger is the initial size of population (N_i^0) of the state; and
iii the larger is the difference between its population growth and g^{**}.

These findings are illustrated with the data on Indian states. The losses/gains for different states due to use of dated population under the inverse-income criteria and other relevant parameters are given in Table 3. In the inverse-income criterion, as in the distance criterion, the critical value of population growth is close to the mean growth of population. The critical value is found to be 53.96 per cent as against mean growth of 53.73 per cent.

In terms of annual growth, the critical value is found to be 2.1811 per cent as against mean annual growth of 2.1733 per cent.

From Table 3, it may be noted that loss in shares occurs for the states whose population grows at a rate greater than the critical growth rate of 53.96 per cent whereas states whose population grows at a rate lower than the critical growth rate gain (Columns 4 or 5 and 11). Substantial loss in share occurs for Rajasthan, Uttar Pradesh and Madhya Pradesh which are large and relatively poor states (Columns 2 and 6). Similarly, substantial gain occurs for Tamil Nadu, Kerala and Orissa which are moderate in terms of size and per capita income but have relatively large deviation from the critical growth rate of population. In the group of states for whom gain occurs, the gain for the small and/or rich states such as Goa, Himachal Pradesh and Punjab is not large.

Following Equation 22, the impact of population growth on the magnitude of loss/gain for a state can be clearly indicated by comparing the former with the loss/gain per crore of base year population. For this purpose, we have computed the loss/gain per crore population of 1971 for each state as reported in Column 12 in Table 3. Further, it may be noted that the use of 1991 population does not alter the basic conclusions. A comparison of Columns 4 or 5, 6 and 12 reveals the effect of population growth and per capita income. The effect of per capita income becomes clear from a careful selection of pairs of states. In the group of states for whom loss occurs, such pairs are: Arunachal Pradesh and Tripura; and Manipur and Rajasthan. In each of these pairs, the loss for the latter state is higher in spite of its lower growth of population, and this is attributable to their relatively lower income. In the group of states that gain, the relevant pairs of states are: Bihar and Assam; Himachal Pradesh and Goa; and Kerala and Tamil Nadu. In each of these pairs, the gain for the latter state is lower in spite of its lower growth of population and this is attributable to its relatively higher income. Thus, it follows that the lower is the per capita income of a state, the higher is loss/gain.

Table 3. Losses/Gains in States' Shares in Revenue Devolution due to Use of Dated Population under the Inverse-income Criterion

State	Population				Per capita Income (Y)	N(o)/y	N(t)/y	Share Based on Population in		Gain/ Loss (-) in Share b(O) - b(t) (Percentage points)	Gain/ Loss (-) per Crore Population (11)/(2)
	1971 N(O) (Lakh)	1991 N(t) (Lakh)	Annual Growth Rate (Per cent)	Total Growth (Per cent)	(Rs)	(Per cent)	(Per cent)	1971 b(O) (Per cent)	1991 b(t) (Per cent)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Nagaland	5.16	12.10	4.35	134.50	3,929	0.13	0.31	0.08	0.12	-0.043	-0.826
Mizoram	3.32	6.90	3.73	107.83	4,094	0.08	0.17	0.05	0.07	-0.018	-0.530
Sikkim	2.10	4.07	3.36	93.81	4,846	0.04	0.08	0.03	0.03	-0.007	-0.331
Arunachal Pradesh	4.68	8.64	3.11	84.62	4,670	0.10	0.19	0.06	0.07	-0.012	-0.264
Tripura	15.56	27.57	2.90	77.19	3,163	0.49	0.87	0.31	0.35	-0.046	-0.296
Meghalaya	10.12	17.75	2.85	75.40	3,328	0.30	0.53	0.19	0.21	-0.026	-0.259
Manipur	10.73	18.37	2.72	71.20	3,449	0.31	0.53	0.19	0.21	-0.022	-0.201
Rajasthan	257.66	440.06	2.71	70.79	3,092	8.33	14.23	5.17	5.73	-0.565	-0.219
Jammu & Kashmir	46.17	77.19	2.60	67.19	3,534	1.31	2.18	0.81	0.88	-0.070	-0.151
Haryana	100.37	164.64	2.51	64.03	5,284	1.90	3.12	1.18	1.25	-0.077	-0.077
Madhya Pradesh	416.54	661.81	2.34	58.88	3,299	12.63	20.06	7.83	8.08	-0.250	-0.060
Uttar Pradesh	883.41	1,391.12	2.30	57.47	2,867	30.81	48.52	19.11	19.54	-0.436	-0.049
Maharashtra	504.12	789.37	2.27	56.58	5,369	9.39	14.70	5.82	5.92	-0.099	-0.020
Gujarat	266.97	413.10	2.21	54.74	4,602	5.80	8.98	3.60	3.62	-0.018	-0.007
West Bengal	443.12	680.78	2.17	53.63	3,750	11.82	18.15	7.33	7.31	0.015	0.003
Karnataka	292.99	449.77	2.17	53.51	3,810	7.69	11.80	4.77	4.75	0.014	0.005
Bihar	563.53	863.74	2.16	53.27	2,135	26.39	40.46	16.37	16.29	0.073	0.013
Assam	146.25	224.14	2.16	53.26	3,195	4.58	7.02	2.84	2.83	0.013	0.009
Andhra Pradesh	435.03	665.08	2.15	52.88	3,455	12.59	19.25	7.81	7.75	0.055	0.013
Punjab	135.51	202.82	2.04	49.67	6,996	1.94	2.90	1.20	1.17	0.033	0.025
Himachal Pradesh	34.60	51.71	2.03	49.45	3,618	0.96	1.43	0.59	0.58	0.017	0.050
Goa	7.95	11.70	1.95	47.17	7,364	0.11	0.16	0.07	0.06	0.003	0.037
Orissa	219.45	316.60	1.85	44.27	2,945	7.45	10.75	4.62	4.33	0.291	0.133
Kerala	213.47	290.99	1.56	36.31	3,532	6.04	8.24	3.75	3.32	0.430	0.201
Tamil Nadu	411.99	558.59	1.53	35.58	4,093	10.07	13.65	6.24	5.50	0.745	0.181
All	5,430.80	8,348.61	2.17	53.73	3,621	161.26	248.28	100.00	100.00		

Notes: 1. Per capita net state domestic product (y) is average of 1987-88, 1988-89 and 1989-90.
2. In terms of total growth of population during 1971 and 1991, critical growth rate g(**) = 53.96, and mean growth rate g = 53.73.
3. In terms of annual growth rate, critical growth rate g(*) = 2.1811, and mean growth rate g = 2.1733.

In the group of states for whom loss occurs, the loss declines as population growth rate declines from top to the critical growth rate except in the case of above mentioned pairs of states where the income effect dominates. Similarly, in the group of states that gain, the gain increases with decline in population growth except in the case of above mentioned pairs of states where the income effect dominates. This clearly illustrates the point that the higher is the deviation of growth of population from its critical growth, the higher is loss/gain.

d. Summing Up

Under all the three criteria, use of dated population results in losses in shares for the same set of fourteen states and gains for the other states. The losses for Rajasthan, Uttar Pradesh and Madhya Pradesh are substantial while there are substantial gains for Tamil Nadu, Kerala and Orissa. The magnitude of loss/gain for a state is larger: (i) the larger the deviation of its growth rate of population from the critical growth rate of population which is close to the mean growth rate; and (ii) the larger the population of the state, under all the criteria. In addition, the lower the per capita income of a state, the higher is the loss/gain under the distance as well as inverse-income criterion.

V. CONCLUDING REMARKS

In revenue-sharing mechanisms where considerable weights are assigned to population as a determining factor, the overall progressivity of the allocative mechanism is considerably compromised. Furthermore, if dated population is used over a long period, substantial and unintended losses/gains in shares occur for different states. Using fixed, base year population shares rather than current population shares means that as far as the population criterion is concerned, losses/gains would be larger, the larger is the size of the state and the larger is the deviation of the population growth rate of a state from the mean growth rate of population. When progressive dispensation criteria are used, this same procedure of using static population shares would not only imply a penalty for showing more than mean population growth but also for being low on the income scale, i.e., the poorer the state, the higher would be the implied loss, although the reward in terms of gain in share for a poorer state would also be higher for showing less than mean population growth. Consequently, substantial losses may occur for poor and large states. To the extent that the devolution criteria are designed as a compensatory mechanism, penalising states for faster growth of population or for being poor and large are perverse features of such a mechanism. The relevant theoretical results for different allocation criteria are given in Table 4.

Table 4. Losses to States with Faster Growth of Population Due to Use of Dated Population in the Allocation Criteria

Criterion	Formula for Determining Loss to the ith State
(1)	(2)
Population	$\left(N_i^o/\Sigma N_i^o\right)[(g_t-g)/(1+g)]$ where $N_i^t = N_i^o(1+g_i)$ and $\Sigma N_i^t = (1+g)\left(\Sigma N_i^o\right)$
Distance	$(1/x_t)\,[(y_n - y_i)\,N_i^o\,(g_i - g^*)]$ where $g^* = (x_t - x_o)/x_o, = \Sigma\left(\frac{(y_n-y_i)N_i^o}{y_n-y_i)N_i^o}\right)\cdot g,$ $x_t = \Sigma(y_n - y_i)N_i^t,$ and $x_o = \Sigma(y_n - y_i)N_i^o$
Inverse-income	$\frac{N_i^o}{y_i w_t}\left(g_i - g^{**}\right)$ where $g^{**} = \frac{W_t - W_o}{W_o} = \frac{\Sigma g_i N_i^o/y_i}{\Sigma N_i^o/y_i}$ $W_t = \Sigma\left(N_i^t/y_i\right),$ and $W_o = \Sigma\left(N_i^o/y_i\right)$

Notes: 1. N_i^o and N_i^t denote population of the ith state in the base and current periods, respectively.
2. g denotes average growth rate of population of all states and g_i denotes growth rate of population of the ith state.
3. y_i and y_n denote per capita incomes of the ith state and of the highest per capita income state, respectively.

The above theoretical findings are illustrated with the data on Indian states. Under each of the three allocative criteria considered here, namely, population criterion, distance criterion and inverse-income criterion, use of dated population instead of current year population results in losses in shares in revenue devolution for fourteen states whose population growth exceeds the critical population growth which is found to be close to mean population growth of all states. On the other hand, gains occur for the other eleven states whose population growth is lower than the critical growth of population. The losses are substantial for the three large and poor states, namely, Rajasthan, Uttar Pradesh and Madhya Pradesh while substantial gains occur for Tamil Nadu, Kerala and Orissa, the states with population growth rate towards the lower end. The losses/gains are small for the states whose population growth is close to the critical growth of population such as for Gujarat, West Bengal and Karnataka, or for those with very low population such as Sikkim, Mizoram and Goa.

NOTES

1. Alternative versions of both, the distance and the inverse-income, criteria are used in different federations. The similarities and differences in the alternative versions used in different federations are discussed in Srivastava and Aggarwal, 1994.

2. This is subject to one further modification, namely the distance $(y_n - y_i)$ for the highest income state, which would be zero, is taken as $(y_n - y_{n-1})$ and correspondingly, the denominator is also adjusted. For a discussion on this and other versions of the distance criterion see Aggarwal and Srivastava (forthcoming).

3. For details see Srivastava and Aggarwal 1993 or 1994.

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ROLE OF POPULATION IN REVENUE SHARING IN INDIA
Stating the Obvious but Missing the Vital

S. M. Vidwans

In their paper: On the Role of Population in Criterion-Based Revenue Sharing in India, published in this issue of *JISPE,* D. K. Srivastava and P. K. Aggarwal (SA for short, used in plural hereafter) attempt to show deficiencies of the three major schemes of allocation of revenue among states in India. In fact 'show deficiencies' is an understatement. For, right from the introduction to their paper to its conclusion, they have laced their criticism of these schemes with such words and phrases as distortions, unwarranted distortions, unintended distortions, intended distortions, pervert distortions, pervert features or penalisation. Creating thus enough revulsion about the use of old population data in these schemes they demand that this practice should be given up forthwith. SAs' strongly worded multifrontal attack on all aspects of the three major revenue-sharing formulae currently used, namely, population, 'dated' population at that, and progressivity, has serious import for future policies and decisions on such an important issue as the sharing of revenue among the states in India. It therefore merits a critical examination which this paper attempts to make. Revealing that the basis of their criticism is deficient, and using a correct mathematical measure, the paper shows that SAs' conclusions are wrong, if not misleading, and that, in fact, contrary conclusions emerge from the analysis of the Indian situation.

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The author is grateful to the Editor for bringing to his attention the contribution by Srivastava and Aggarwal in an area in which he has specialised over the years and then agreeing to publish in *JISPE* his response to analysis by the two authors.

The main text of the paper deals with the results and inferences drawn by SA in their Section IV. A few comments on other sections are relegated to Notes. The Mathematical Notes give the derivations whose results are used in the paper and a few comments on the mathematical part of SAs' paper. As far as possible, the main text of the paper is kept free of mathematical derivations and formulae.

I. USE OF DATED POPULATION

In their Section IV, based on data for Indian states, SA have worked out the implications of using old population data in revenue allocation schemes and drawn their main conclusions. The section contains three tables showing the details of the calculations. One must express appreciation of the lay-out of these tables in which SA have arranged states according to the descending order of population growth rate rather than in the generally accepted alphabetical order. This helps the reader easily capture the relationship between the population growth rate and the other variables under discussion. The perception of the potential of an appropriate lay-out of a table for visually bringing out relationships from the table itself is not often noticed. SA deserve to be complimented for this special care they have taken in displaying the results of their analysis.

The three schemes of allocation are distinguished by the three different quantities in proportion to which a state's share is determined. These quantities are: 1) State's population; 2) the mathematical product of state's population and the distance of the its per capita income (strictly speaking, state domestic product) from the corresponding maximum value among the states; and 3) the mathematical product of state's population and the inverse of its per capita income. We shall describe these schemes as population, distance and inverse income based schemes and assign numbers 1 to 3 to them, respectively. SA have shown the results in their Tables 1, 2 and 3 of the losses suffered and of gains made by states, because of the use of 1971 population instead of the current, that is, 1991 population, for the three schemes, respectively. These are respectively discussed by them in their sub-Sections IV(a) to IV(c) in the same sequence.

The pattern of SAs' arguments and inferences in these sub-sections is uniform except for the element about progressivity that does not feature in the first sub-Section. The pattern is as follows:

(i) aggregate shares and losses of states;
(ii) per capita shares and losses of states; and
(iii) effect on losses of progressivity of the scheme.

and they combine (ii) and (iii) in their discussion.

Abbreviation of Terms

To avoid using the same long phrases repetitively, the term: *Loss*, will mean loss to a state because the base year (1971) population, instead of the current (1991) population, is used in the formula of any revenue sharing or allocation scheme; a negative loss is a gain. Also the term: *Population growth*, will stand for the proportionate population growth, that is the increase of population, from the base to the current year, expressed as a ratio to the base year population. The *population growth ratio* will be the ratio of the current to the base year population.

Aggregate Loss

In the first (population based) scheme, obviously, states which have a larger than average population growth rate suffer a loss and those with a smaller population growth rate gain. It should be obvious also that the more populous a state is the larger will be its share and the loss. This is all that one can conclude from a comparison of aggregate losses or gains among states with considerably different populations. Worse, such comparisons without considerations of the differences in population, could be totally misleading. When SA say in sub-Section IV(a)

> 'Thus, a deliberate policy to use dated population *penalises* a state not only for its higher than average growth of population but also for being a large population state' (emphasis added),

employing the loaded word 'penalise', they reinforce the misleading effect in the mind of a reader. Further at the end of this sub-section they say:

> 'From the above discussion, it follows that substantial loss in share in revenue devolution occurs to large and fast growing states ..... and substantial gain occurs to large and slow growing states ..... due to use of dated population under the population criterion',

which is but a statement of the obvious. For that is what the decision to use the 1971 population was taken for. Incidentally, their terms 'fast growing' and 'slow growing' apply to population growth and not economic growth.

SA make similar comparisons in the case of progressive schemes of allocation in their sub-Sections IV(b) and IV(c). In such a scheme, the effective population of a poorer state increases and that of a better-off state decreases. What has been said above equally well applies to these modified populations, which we may term as *sizes*. For example, SA state in sub-Section IV(b):

> 'For almost the same growth rate of population, the loss for Rajasthan is more than twenty five times the loss for Manipur because of substantially large value of $(y_n - y_i)N_i^0$ for the former as compared to that for the latter....'

But they do not point out that the *size* of Rajasthan is 25.81 or 26.13 times that of Manipur depending upon whether 1971 or 1991 population is used. The same is true for all other similar comparisons in the same paragraph and the corresponding paragraph in sub-Section IV(c).

By stating the obvious, all these paragraphs serve little purpose. SA should have invited attention to the fact that the losses or gains for states with nearly equal population growth rate were higher because the *sizes*, the shares or allocations of the states were higher. By focussing attention only on the absolute size of loss or gain, they tend to create a false impression of a defect in the schemes of allocation.

Per Capita Loss

For each allocation scheme, SA then discuss the results of per capita losses, strictly speaking, losses per crore of population. Hereafter we shall not make this distinction and when the term per capita is used it should be understood that the unit of measuring population had been one crore people. Also, the short form 'p.c.' may be read both as 'per capita' or 'per crore of population'.

A minor point needs to be indicated first. Consistent with their equation (14),

$$q_i^t - q_i^0 = L(q_i^0)$$

the loss will be positive when q_i^t, that is the allocation that should have been made, in SAs' view, using (1991) current population, is greater than q_i^0, the allocation actually made using the base year (1971) population. But SA have shown the loss as a negative quantity. By reversing the signs I have removed this anomaly to remain consistent with the algebraic formulation. Further, I shall refer to the difference $(q_i^t - q_i^0)$ always as a loss to avoid repeating the phrase 'losses or gains'; a negative loss will be understood as a gain.

An apparently simple point deserves scrutiny. In calculating the p.c. loss, should one divide the loss by the base year or current year population? Logic dictates that one should use the latter, for the deemed incident of loss takes place in the current year, and the loss occurs for, and its amount determined by, the population of a state as it exists (now) in the current year. Since SA are arguing their case for the use of current population, and the population will go on changing as years pass, the loss itself becomes a function of the time-span between the current and the base

year and should therefore be related, for consistency, to the current year population. SAs' use of the base year (1971) population for working out p.c. Losses is thus not correct. They say in every one of the sub-Sections IV(a) to IV(c) that even if 1991 population were to be used their basic inferences do not change. This is not fully correct as we shall soon see.

The root of SAs' logical inconsistency can be traced to their Equation (14) given above. The notation on its right hand side (RHS) is incorrect. For the loss relates to the quantity: q_i^t, and not q_i^0, which is a fixed quantity for all future years. The notation $L(q_i^0)$ on the RHS should have been actually $L(q_i^t)$ which would have correctly denoted that the loss is a function of the current time or of current population. Their inconsistent notation and algebraic formulation perhaps led SA to calculate p.c. losses using 1971 population. The inferences they have drawn may not change, but some others may, which Table A brings out.

Table A: Statewise Losses due to Use of Dated Population under Revenue Allocation Schemes per crore of 1971 and 1991 Population

(Rupees)

Sr.No.	State	Revenuue Allocation Scheme based on					
		Population only		Population and Distance of p.c. Income		Population and Inverse of p.c. Income	
		1971	1991	1971	1991	1971	1991
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Nagaland	0.967	0.413	0.885	0.378	0.826	0.352
2	Mizoram	0.648	0.312	0.564	0.271	0.530	0.255
3	Sikkim	0.480	0.248	0.321	0.166	0.331	0.171
4	Arunachal Pradesh	0.370	0.200	0.264	0.143	0.264	0.143
5	Tripura	0.281	0.159	0.312	0.176	0.296	0.167
6	Meghalaya	0.260	0.148	0.277	0.158	0.259	0.148
7	Manipur	0.209	0.122	0.216	0.126	0.201	0.118
8	Rajasthan	0.204	0.120	0.230	0.135	0.219	0.128
9	Jammu & Kashmir	0.161	0.096	0.162	0.097	0.151	0.090
10	Haryana	0.123	0.075	0.067	0.041	0.077	0.047
11	Madhya Pradesh	0.062	0.039	0.064	0.040	0.060	0.038
12	Uttar Pradesh	0.045	0.028	0.051	0.032	0.049	0.031
13	Maharashtra	0.034	0.022	0.017	0.011	0.020	0.013
14	Gujarat	0.012	0.008	0.007	0.005	0.007	0.004
15	West Bengal	-0.001	-0.001	-0.003	-0.002	-0.003	-0.002
16	Karnataka	-0.003	-0.002	-0.005	-0.003	-0.005	-0.003
17	Bihar	-0.005	-0.004	-0.011	-0.007	-0.013	-0.008
18	Assam	-0.006	-0.004	-0.009	-0.006	-0.009	-0.006
19	Andhra Pradesh	-0.010	-0.007	-0.013	-0.009	-0.013	-0.008
20	Punjab	-0.049	-0.032	-0.005	-0.003	-0.025	-0.016
21	Himachal Pradesh	-0.051	-0.034	-0.054	-0.036	-0.050	-0.034
22	Goa	-0.079	-0.053	-0.008	-0.005	-0.037	-0.025
23	Orissa	-0.113	-0.079	-0.137	-0.095	-0.133	-0.092
24	Kerala	-0.209	-0.153	-0.216	-0.158	-0.201	-0.148
25	Tamil Nadu	-0.217	-0.160	-0.192	-0.142	-0.181	-0.133

Note: Total revenue distributed over all states = Rs 100.

Table A shows the comparison of results of p.c. losses as worked out by SA and those based on 1991 population for every one of the three allocation schemes. SAs' results are shown in Cols. (3), (5), and (7), and the corresponding latter results in Cols. (4), (6), and (8) of the table. With some minor exceptions, of Sikkim and Tripura under the distance formula, and Arunachal Pradesh and Meghalaya under the inverse-income scheme, the ordinal relationship among states' p.c. losses remains the same in the two sets of figures. Perhaps, this made SA say that the use of 1991 population does not change their basic inferences or conclusions. But there is expectedly a vast change in the absolute and relative magnitude of losses. The maximum p.c. loss is more than halved (about 42 per cent) and the maximum gain is reduced by about 27 per cent. As a result the *variation* in p.c. losses is greatly reduced by a little more than 50 per cent. SAs' use of 1971 population not only is inconsistent and therefore incorrect but also gives an exaggerated impression about p.c. losses due to the use of dated population.

Comparisons Lacking Bases

The serious deficiency in SAs' inferences about p.c. losses is unwittingly masked by the limited results in their tables. The last four columns of their three tables show:

(i) A state's share based on 1971 population
(ii) A state's share based on 1991 population
(iii) A state's loss = (i) - (ii)
(iv) A state's p.c. loss

Note that (iii) is inconsistent with their Equation (14) and should have shown {(ii)-(i)}. I have corrected the inconsistency in this paper. The main point is that SA have not shown the p.c. figures of (i) and (ii) possibly because of the constraints of space which a one-page table imposes. But without references to those figures, their observations and conclusions based on the comparison of p.c. losses of states have become deficient in content. One example will suffice. They say in sub-Section IV(b):

'A comparison of Columns 4 or 5, 7 and 13 reveals that the distance (y_n - y_i) has a *substantial impact* on the magnitude of loss/gain for a state. Between Arunachal Pradesh and Tripura, the loss for the latter should have been lower due to its lower population growth but the loss is higher due to a *dominant impact* of the higher distance (y_n - y_i) of the latter' (emphasis added).

The entire emphasis of the paragraph where the above quoted sentences occur is on the impact of the 'distance' on the p.c. losses. Actually, when distance is introduced as a criterion in addition to population to make the allocation scheme progressive, why one should expect that Tripura's p.c. loss be lower, due to its lower population growth, than Arunachal's is not clear; the expectation is unjustified. It should be obvious that 'distance' will have an impact. And if one tries to prove that this impact is substantial by comparing pairs of states with nearly equal population growth (the other factor, the basic cause of loss) one is overstating the obvious. And further when the distances of the two such states, comparable in population growth, are vastly different as in the case of Arunachal, with a distance of Rs 2,694 much below the average distance of Rs 3,739 and Tripura with an above average distance of Rs 4,201, one is exaggerating the obviousness of the obvious!

By selecting pairs of states with roughly the same population growth, SA have highlighted the effect of substantial impact of 'distance' on the magnitudes of p.c. losses. But the same can be done the other way round to show the substantial impact of population growth. For example, in the case of Mizoram and Tamilnadu, with almost identical distances, Mizoram loses (per capita) and Tamilnadu gains, the p.c. loss, in absolute terms, being much more than the gain. Tripura and Rajasthan have nearly equal distances, but Tripura loses much more than Rajasthan because of higher population growth. All this also holds good when the allocation scheme is based on the

inverse of per capita income. SAs' last statement of the paragraph in sub-Section IV(c) where they discuss p.c. losses:

'Thus, it follows that the lower is the per capita income of a State, the higher is loss/gain'.

is not correct because they ignore the differences in population growth.

We shall consider the question of dominance of impact later. To fully analyse the results, I have prepared Table B using SAs' data, taking the illustrative case of Arunachal Pradesh and Tripura. It shows the results at the missing stages before one obtains the results of p.c. losses shown in Table A or in SAs' tables. Table B shows, for the three allocation schemes, results for both the methods of calculating p.c. losses, one based on 1971 population as SA have done, and the other on 1991 population as they should have done.

Table B: Analysis of Losses of Arunachal Pradesh and Tripura per crore of Population

Scheme of Allocation/State	Share Per Crore Population of					
	1971			1991		
	Allocation Scheme Based on Population of		Loss	Allocation Scheme Based on Population of		Loss
	1971	1991	(3) - (2)	1971	1991	(6) - (5)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i) Population						
1.1. Arunachal Pradesh (Rs)	1.8413	2.2113	0.3700	0.9974	1.1978	0.2004
1.2. Tripura (Rs)	1.8413	2.1223	0.2810	1.0392	1.1978	0.1586
1.3. Ratio of (2) to (1)	*1.000*	*0.960*	*0.759*	*1.042*	*1.000*	*0.791*
1.4. Pop.Growth Effect	**0.75945**				**0.79130**	
ii) Distance						
2.1. Arunachal Pradesh (Rs)	1.3266	1.5910	0.2644	0.7186	0.8618	0.1432
2.2. Tripuara (Rs)	2.0687	2.3811	0.3124	1.1675	1.3439	0.1763
2.3. Ratio of (2) to (1)	*1.559*	*1.497*	*1.182*	*1.625*	*1.559*	*1.231*
2.4. Pop.Growth Effect	**0.75782**				**0.78960**	
iii) Inverse of per capita income						
3.1. Arunachal Pradesh (Rs)	1.3278	1.5922	0.2644	0.7192	0.8625	0.1432
3.2. Tripuara (Rs)	1.9605	2.2562	0.2958	1.1065	1.2734	0.1669
3.3. Ratio of (2) to (1)	*1.477*	*1.417*	*1.119*	*1.539*	*1.476*	*1.166*
3.4. Pop.Growth Effect	**0.75764**				**0.78941**	

Notes: 1) Same as for Table A.
2) All derived figures, calculated by using constituent figures with greater degree of accuracy, may not tally with those calculated using figures displayed in the table.
3) Ratio of Tripura's 'Distance' to that of Arunachal Pradesh = 4201/2694 = 1.559.
4)Ratio of Tripura's Inverse per capita income to that of Arunachal Pradesh = 4670/3163 = 1.475.
5) For calculation of population growth effect see formula (16) of mathematical notes.

Let us consider SAs' method of calculating the p.c. losses using the 1971 population for working out p.c. losses. Full results for Arunachal and Tripura are given in columns (2) to (4) for the three schemes of allocation. Columns (2) and (3) give p.c. allocation of the states and the ratio of Tripura's allocation to that of Arunachal using 1971 and 1991 population respectively for the allocation scheme. Column (4) gives figures of p.c. loss, the figures given by SA in their tables 1 to 3 in their last columns, and the ratio of Tripura's p.c. loss to that of Arunachal. Further, the fourth line for each scheme shows the figures in Col.(2) of the population growth effect given by formula (16) in the Mathematical Notes.

When only the population criterion is used in the allocation scheme (Lines 1.1 to 1.4), the p.c. allocations (Col.(2)) of both the states are equal when 1971 population is used in the scheme. Both increase when the scheme uses 1991 population because the population growth of both the states is larger than the average; but they are now unequal with Arunachal getting a larger allocation because of its larger population growth. For this reason the loss of Tripura is less than that of Arunachal, the ratio being 0.759 (Col.(4)).

With 'distance' used as an additional criterion, the picture changes. Note that Tripura's distance is 1.559 (= 4201/2694) times that of Arunachal. The p.c. allocations, Col.(2)), are different now; that of Arunachal goes down from what it got when only population criterion is used, because its distance is less than the average, while that of Tripura goes up. The ratio of the latter to the former is 1.559, the same as that of their distances, as it should be. If however 1991 population is used in the allocation scheme, the p.c. allocations go up for both the states but more (20 per cent) for Arunachal than for Tripura (15 per cent) because of their different population growths. As a result, the ratio of the new p.c. allocations comes down from 1.559 to 1.497.

The p.c. losses in Col.(4) are a product of this compound process. From equal p.c. allocations, when only the population criterion is used in the scheme, with the introduction of distance, the two change: Arunachal's decreases and Tripura's increases, making their ratio the same as that of their distances. Then, with the use of 1991 population in the scheme, the ratio is affected in favour of Arunachal. *But even then, Tripura's p.c. allocation continues to be substantially larger than that of Arunachal. That its loss is larger should not be a surprise.* The ratio of resultant p.c. losses thus depends upon both the factors of distance and population growth, and it is incorrect to say from one set of extreme values that one or the other is dominant.

The mathematical note gives the exact nature of relationship of the ratio of p.c. losses of two states with the ratio of the values of the progressivity function and the effect of different population growths. When only the population criterion is used, the ratio of the functional values is unity, and the ratio of p.c. losses (Line 1.3, Col.(4)) equals the effect of the different population growths given in Line 1.4 Col.(2), i.e., 0.75945. The following relationship thus holds good.

[Line 1.3, Col.(2)] x [Line 1.4, Col(2)] = Line 1.3, Col.(4)

In the case of the scheme based on distance, since the *average* population growth changes slightly, the effect of different population growths of the two states also changes slightly to 0.75782, the value in Line 2.4, Col.(2). The ratio of distances is 1.559; the multiplication of the two gives 1.182 the figure in Col.(4) showing the ratio of p.c. losses when the allocation scheme is based on 'distance'. In this case the relationship of figures in Col.(2) Lines 2.3 and 2.4 and Col.(4) Line 2.3 also holds good in the same manner as above, that is,

[Line 2.3, Col.(2)] x [Line 2.4, Col(2)] = Line 2.3, Col.(4)

Table B also shows similar calculations for allocation scheme based on the inverse of per capita income. Because of a slight change in the *average* growth the effect of different population growths slightly changes to 0.75764 (Line 3.4, Col.(2)), and this multiplied by the ratio of the inverses (4670/3163 = 1.476), gives the ratio of p.c. losses (1.120) as shown in Col.(4), the difference in results being due to rounding of numbers at different stages.

Columns (5), (6), and (7) of the table show the results when the 1991 population is used for calculation of per capita figures of allocations and losses. The figures in lines 1.4, 2.4, and 3.4 in Col.(6) show the effects of differential population growth in this case based on formula (19) of

Mathematical Notes. The same type of relationship holds good between the figures shown in Col.(6) Lines 1.3 and 1.4, or 2.3 and 2.4, or 3.3 and 3.4, and Col.(7) Lines 1.3 or 2.3 or 3.3, respectively, as for those in the same lines in Columns (2) and (4). Note that the population growth effect figures are slightly larger (but less than unity) than before. This means that the fact of Tripura having less population growth reduces its p.c. loss by 20 per cent only compared with 24 per cent before. As a result, the ratio of Tripura's p.c. loss to Arunachal's is reduced by a lesser magnitude and the ratio becomes a little higher than before.

It should thus be clear that when one is considering two changes, simultaneously, the effect of dated population (which in the first place makes the authors conceive of 'loss' and 'gain') and the element of progressivity, it is not possible to assign to only one of them the role of dominance without examining mathematically the relationship of the two with p.c. loss. In their inferences SA pick on progressivity and from there proceed to draw unsubstantiated conclusions about unintended distortions and perversions of revenue sharing exercises. We now attempt to examine the question of dominance.

Dominant Factor in p.c. Loss

The figures in Table B give us another clue. Since the reciprocal of 0.75782, the population growth effect in the case of the distance formula, (Line 2.4, Col(2)), is 1.31957, if the ratio of distances had been less than this, that is, if Tripura's distance were to be less than Rs 3,555 (=1.31957x2694) it would continue to have had less p.c. loss than that of Arunachal. The p.c. loss will be equal when Tripura's distance becomes Rs 3,555. Thus, an increase of distance from 2,694 to 3,555, that is, by 31.96 per cent, is counterbalanced by reduction in proportionate population growth from 84.62 to 77.19, that is, by only 8.78 per cent (of 84.62). Clearly, the population growth is a more dominant factor than distance in the determination of p.c. loss (as worked out by SA).

To find which of the two factors is dominant one has to work out the implications of the relationship between the p.c. loss on the one hand and distance and proportionate population growth on the other. When SA use 1971 population to work out p.c. loss,

$$\text{p.c. loss} = \text{Constant} \times (\text{distance}) \times (g_i - g^{(f)})$$

as Equation (12) of Mathematical Notes shows. It is obvious from this that for the same population growth, a *one per cent* rise in distance will result in a *one per cent* rise in p.c. loss. The effect of the population growth is however different. Taking the example of Arunachal Pradesh, we have g_i = 0.85615, and in the case of distance formula $g^{(f)}$ = 0.53935, and a little arithmetic will show that g_i has to increase to 0.859318, that is by only 0.37 per cent to increase the p.c. loss by one per cent. Thus, in this example a one per cent increase in distance is equivalent, in its effect on p.c. loss, to only 0.37 per cent increase in proportionate population growth. It is the latter factor, and not the former as SA deduce, which is the dominant of the two.

Thus, a vitally important point to note is the manner in which the differences in population growth affect the p.c. losses. Between 1971 and 1991 Arunachal's population increased by 84.615 per cent and that of Tripura by 77.185 per cent. The two figures of growth differ only by 8.78 or 9.63 per cent depending upon whether the former or the latter is taken as the base. But, as stated in the preceding paragraph, the effect on p.c. losses due to different population growths depends not merely on the figures of growth but their *differences* from the 'average' growth determined for the scheme of allocation. In the case of the 'distance' scheme, the average growth is 53.935 per cent. The effect of different population growths on the p.c losses of the two states will be in the same proportion as (77.185 *minus* 53.935)

for Tripura to (84.615 *minus* 53.935), for Arunachal that is 23.25 to 30.68 which equals 0.75782 as shown in Line 2.4, Col.(2). A relatively small difference in population growth will thus lead to a large population growth effect on p.c. losses. This tendency is especially enhanced when the growth figures move nearer to the average.

The issue of p.c. loss, deemed to take place because of the use of dated population, and the question of the dominant factor that influences the loss, have been discussed in detail here because SAs' conclusions are based on them. The major issue is quite different and is discussed next. But, from academic interest, the Section II of Mathematical Notes makes a detailed analysis of the issue of dominance. It shows that firstly, progressivity affects p.c. allocations and p.c. losses in the same direction and secondly, in the range of their values experienced by the 25 Indian states, barring one exception, *it is, the population growth, and not the p.c. income, and certainly not its inverse or the distance, that is the dominant factor greatly influencing p.c. loss.*

Proportionate Loss

The most serious defect of SAs' exercise lies in their ignoring of a simple aspect of what they deem as a 'loss' or 'gain', that is the size of a state's share itself. A state's loss may be large simply because its aggregate share was large to begin with. By taking per capita allocations, two states may be brought on par as far as the difference in their population is concerned. But that still does not make their p.c. losses comparable, because one state's p.c. allocation may be larger than the other's. We saw this above in the example of Arunachal and Tripura. The comparisons of aggregate and p.c. losses carry little meaning. The amount of loss must be related to the amount from which the loss occurs. Thus the measure to consider is the *proportionate loss* if two losses are to be compared. By definition

$$\text{Proportionate loss} = \frac{\text{(Amount Due } \textit{minus} \text{ Amount Received)}}{\text{Amount Due}}$$

where amount due, in SAs' view, is a state's share in a particular allocation scheme, if 1991 population were used, and the amount received is the share that the state receives under the same scheme when presently 1971 population is used.

It is this measure which will be comparable across states within every allocation scheme, and also for the same state across schemes, something which SA did not attempt in their exercise. Using SAs' basic data, Table C, in its Columns (4), (6), and (8) shows the percentage losses of states. The table also shows the ratio of 1991 to 1971 population for every state in its Col.(3).

The figures in Columns (4), (6) and (8) are worked out from the last three but one columns of SAs' corresponding Tables 1 to 3, respectively. But SAs' figures rounded to only two places of decimal in these columns have not been used; they have been worked out with a greater accuracy for these calculations. For example, for Nagaland, under the allocation scheme using only population, the aggregate shares would be:

Amount due = 0.144934
Amount received = 0.095013
Difference = 0.049921

which figures, after being rounded to two places of decimal, are shown in SAs' Table 1 in its Columns (8), (7) and (9), respectively. From these figures the proportionate loss works out at 34.44 per cent, the figure in Col.(4) in Table C against Nagaland.

Table C: Statewise Proportionate Losses

(Figures in per cent)

Sr. No.	State	1991 to 1971 population	Revenue Allocation scheme based on					
			Population only		Population and Distance of p.c. Income		Population and Inverse of p.c. Income	
		Ratio	SA	Formula	SA	Formula	SA	Formula
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Nagaland	2.34496	34.44	34.44	34.35	34.35	34.34	34.34
2	Mizoram	2.07831	26.03	26.03	25.93	25.93	25.92	25.92
3	Sikkim	1.93810	20.68	20.68	20.57	20.57	20.56	20.56
4	Arunachal Pradesh	1.84615	16.73	16.73	16.62	16.62	16.61	16.61
5	Tripura	1.77185	13.24	13.24	13.12	13.12	13.11	13.11
6	Meghalaya	1.75395	12.35	12.35	12.24	12.24	12.22	12.22
7	Manipur	1.71202	10.21	10.21	10.09	10.09	10.07	10.07
8	Rajasthan	1.70791	9.99	9.99	9.87	9.87	9.86	9.86
9	Jammu & Kashmir	1.67186	8.05	8.05	7.93	7.93	7.91	7.91
10	Haryana	1.64033	6.28	6.28	6.16	6.16	6.14	6.14
11	Madhya Pradesh	1.58883	3.24	3.24	3.11	3.11	3.10	3.10
12	Uttar Pradesh	1.57472	2.38	2.38	2.25	2.25	2.23	2.23
13	Maharashtra	1.56584	1.82	1.82	1.69	1.69	1.68	1.68
14	Gujarat	1.54736	0.65	0.65	0.52	0.52	0.50	0.50
15	West Bengal	1.53633	-0.06	-0.06	-0.20	-0.20	-0.21	-0.21
16	Karnataka	1.53510	-0.14	-0.14	-0.28	-0.28	-0.29	-0.29
17	Bihar	1.53273	-0.30	-0.30	-0.43	-0.43	-0.45	-0.45
18	Assam	1.53258	-0.31	-0.31	-0.44	-0.44	-0.46	-0.46
19	Andhra Pradesh	1.52881	-0.55	-0.55	-0.69	-0.69	-0.70	-0.70
20	Punjab	1.49672	-2.71	-2.71	-2.85	-2.85	-2.86	-2.86
21	Himachal Pradesh	1.49451	-2.86	-2.86	-3.00	-3.00	-3.02	-3.02
22	Goa	1.47170	-4.46	-4.46	-4.60	-4.60	-4.61	-4.61
23	Orissa	1.44270	-6.56	-6.56	-6.70	-6.70	-6.72	-6.72
24	Kerala	1.36314	-12.77	-12.77	-12.93	-12.93	-12.94	-12.94
25	Tamil Nadu	1.35583	-13.38	-13.38	-13.54	-13.54	-13.55	-13.55
	Average Growth Ratio	1.64129	1.53727		1.53935		1.53959	

Notes: SA = By direct calculation using SA's figures.
Formula = By using Formula (21) in the mathematical notes.

The Formula (22) in Mathematical Notes shows a strikingly surprising, though logically expected, simple result. It is that for any state, the proportionate loss *in any scheme* is identically equal to

$$\frac{\text{(1991 Population } \textit{minus} \text{ Notional 1991 Population)}}{\text{(1991 Population)}}$$

where the notional 1991 population of a state is that population which the state would have had, if its population growth (from 1971 to 1991) had been the same as the 'average', the 'average' being appropriately determined for the scheme. The figures of proportionate loss so obtained are shown in Columns (5), (7) and (9) of Table C.

As an example, Rajasthan's population was 257.66 lakh in 1971 and 440.06 lakh in 1991. Consider the allocation scheme based on 'distance' for which the 'average' proportionate population growth is 53.935 per cent. Therefore, Rajasthan's notional 1991 population would be 257.66x1.53935 = 396.628921 lakh, and the proportionate loss works out at 9.87 per cent, the figure shown in Col.(7) of Table C against

Rajasthan. The pairs of figures for every state in Columns (4) and (5), (6) and (7), and (8) and (9) will be seen to be identical.

The proportionate loss can be directly worked out from the figures of population (growth) ratio of 1991 to 1971 population shown in Col.(3) of Table C. The proportionate loss, as given in Formula (21) of Mathematical Notes, equals:

$$\frac{\text{(Growth Ratio } \textit{minus} \text{ Average Growth Ratio)}}{\text{Growth Ratio}}$$

For example, the population growth ratio for Haryana is 1.64033, and for the allocation scheme based on the inverse of p.c. income the average growth ratio is 1.53959; with these values the proportionate loss works out at 6.14 per cent, the figure shown in Table C in its Col. (9).

The table shows that *for every scheme of allocation the proportionate loss goes on decreasing as the population growth ratio declines as we go down the columns*. Further, even though the proportionate loss increases as population growth increases, it increases at a decreasing rate. On the other hand proportionate gain increases at an increasing rate as population growth declines below the average. The proportionate loss is very large for smaller states with very high population growth rates compared to the average. But the first seven belong to special category states. For the rest the maximum loss is about 10 per cent and the maximum gain around 14 per cent.

The calculation of figures in Columns (5), (7), and (9) was not exactly necessary because their identity with the corresponding figures in their preceding columns is mathematically established. But these figures have been given to emphasise that for every one of the three schemes of allocation, progressive or otherwise, the proportionate loss in revenue allocation that a state suffers depends only on its proportionate population growth. It is simply the proportionate excess of its actual 1991 population over what it would have been if the state experienced the 'average' proportionate growth. This is so simple and easily understandable a result that one wonders what the whole discussion was about, because that such a state should suffer a 'loss' in this manner was the very purpose of pegging down the population figures at their 1971 level. The very spectre of 'loss' that SA have raised tantamounts to begging the question, and their calling the fact of 'loss' an intended *distortion* is a twisting of reality.

Effect of Progressivity on Loss

Let us now attempt to search for *unintended 'distortions'*. Does progressivity in an allocation scheme exacerbate the 'loss' of poor and/or more populous states? We have seen above that SAs' discussion of this question is deficient. To answer this question, they should have compared the results of the same state across the schemes. Table C enables us to do that.

Note that in the last formula for proportionate loss the *average* population growth is also a factor. This average is a weighted average of the proportionate population growths using the mathematical product of population and the criterion of progressivity as weight. *If with progressivity the average decreases, then for all states the proportionate loss will increase, and* vice versa. But, for the Indian situation, in fact, the average growth rate has changed from the first to the third scheme of allocation by minuscule amounts and it actually *increases*. As a result, as Table C shows, *the proportionate losses, in fact, reduce with progressivity albeit by small fractions of a percentage point.* It should be therefore clear that far from unintended distortions bordering on perverse features being introduced due to progressivity of a revenue sharing scheme, that is, something that SA attempted to establish in their paper, in the specific case of the 25 Indian states, the two progressive schemes would, if anything, reduce the losses of faster (population) growing states, even of the poor and/or more populous ones. Thus SAs' entire exercise does not prove their assertions and certainly not justify the

loaded terms they have used in their inferences. If properly carried out, the analysis of their data proves exactly the opposite.

II. POPULATION, ITS GROWTH, AND P.C. INCOME

It is how the *average* proportionate population growth changes from one allocation formula to another that determines the effect of progressivity on the proportionate losses of states. It will be useful to dwell upon the factor which determines the variation in this *average*. From formula (5) of Mathematical Notes it will be seen that the average $g^{(f)}$ depends upon the function $f(y)$ of y, the p.c. income that is used in addition to population in the allocation scheme. The *average* is given by the equation

$$g^{(f)} = (\text{Sum of } f_i N_i^0 g_i)/(\text{Sum of } f_i N_i^0)$$

When f_i is a constant and N_i^0 is also the same for all $i = 1$ to n, then

$$g^{(0)} = (\text{Sum of } g_i)/n$$

that is, $g^{(0)}$ is the simple average of the growth rates. It should be then clear that $g^{(f)}$ will be greater than $g^{(0)}$, if the correlation coefficient between g_i and $f_i N_i^0$ is positive, and less than $g^{(0)}$, if the correlation coefficient is negative, and equal to $g^{(0)}$, if that coefficient is zero. Further the *absolute difference* between $g^{(f)}$ and $g^{(0)}$ increases (or decreases) as the *absolute value* of the correlation co-efficient increases (or decreases). It will be therefore important to study this correlation.

In the first allocation scheme when only population is used, the corresponding average growth rate $g^{(1)}$ is given by the equation

$$g^{(1)} = (\text{Sum of } N_i^0 g_i)/(\text{Sum of } N_i^0)$$

The simple average of g_i that is, $g^{(0)} = 0.64129$. But when g_is are weighted by population, the average *decreases* to $g^{(1)} = 0.53727$, because of a *negative* correlation co-efficient, (-)0.4561, between population and its growth; that is, the smaller the population, the population growth tends to be larger and *vice versa*.

In the case of distance formula, the correlation coefficient between g_i and $d_i N_i^0$, where d_i is the 'distance' for the i^{th} state, becomes the determining factor and is equal to (-)0.3844. As a result, the average growth rate $g^{(2)}$ is less than $g^{(0)}$ but less different from it than what $g^{(1)}$ is; in other words, $g^{(2)}$ is greater than $g^{(1)}$ but remains less than $g^{(0)}$, its actual value being 0.53935, a little larger than $g^{(1)}$.

Similarly, when the inverse of p.c. income is used as an additional criterion, the correlation co-efficient between g_i and N_i^0/y_i, where y_i denotes the p.c. income of the i^{th} state, being (-)0.3807, the average growth rate $g^{(3)}$ goes up slightly to 0.53959

Thus, we observe that the values of the correlation coefficient of population growth, with population, and population multiplied by a measure of a progressive criterion, are all negative, and its absolute value decreases when distance and inverse criteria are respectively employed in addition to population. This consequently increases the average growth rate $g^{(f)}$ in the same sequence resulting in slightly smaller proportionate losses as progressivity is introduced. In other words, *progressivity of the two allocation schemes does not introduce any distortion; it, in fact, reduces losses compared with the scheme based only on population, though by small amounts. If anything, progressivity is beneficial.*

The negative correlation between the size of population and its growth may appear a rather surprising result because one expects that more populous states have larger population growth rates. A little closer look at the data in SAs' tables reveals that the first nine states have population growth larger than the simple average of 0.64129, and, except for Rajasthan, all have population less than *one crore*. This is the reason for the negative correlation coefficient.

Even though all the 25 are legally states their population differs vastly; the ratio of the largest to the smallest population in 1971 exceeded 400! From academic interest therefore an analysis was carried out only for the 15 states whose population in 1971 was one crore or more. (Note that because the set of states was thus changed, 'distances' had to be recalculated.) *The correlation coefficients* between population growth on the one hand, and population, the product of population and distance, and the product of population and the inverse of p.c. income, on the other, *all changed from negative to positive* and worked out at 0.07123, 0.08231, and 0.09274, respectively, showing also an increasing sequence. And because of the positive correlation and its increase across the schemes, the average population growth increased, from its simple average of 52.99 per cent, to 53.35, 53.53 and 53.61 per cent, respectively, showing small increases (because the coefficients were small). Even in this case *the proportionate loss for any state will be less for* the two schemes *using progressive criteria than* that when only population is used. *Progressivity does not introduce any distortions; in fact, it is beneficial.*

III. CONCLUSION

One should compare the comparables; otherwise one states something that is too obvious to need a statement. But when such a statement, superficially drawn as a conclusion pointing out apparently negative aspects of a scheme in practice, is repeated often enough, it is likely to mislead the reader. This paper has amply shown that SAs' exercise fails to bring about comparability between the magnitudes of losses they compare making their paper only a statement of the obvious. For example, see the entire single paragraph of their sub-Section IV(d) on 'Summing Up', and the first half of the first paragraph of their Section V on 'Concluding Remarks'. But they seem to be drawing conclusions of serious import on the basis of their deficient analysis. When they say in their last Section:

> 'When progressive dispensation criteria are used, this same procedure of using static population shares would not only imply a *penalty* for showing more than mean population growth but also for being low on the income scale, i.e., the poorer the State, the higher would be the implied loss, although the reward in terms of gain in share for a poorer State would also be higher for showing less than mean population growth. Consequently, substantial losses may occur for poor and large States. To the extent that the devolution criteria are designed as compensatory mechanism, *penalising* States for faster growth of population or for being poor and large are *perverse features* of such a mechanism' (emphasis added),

they are making misleading observations because they are not comparing the comparables.

This paper has pointed out not only that SAs' conclusions and observations are without foundation because of this simple defect of their analysis, but also that the reality is exactly the opposite of what they present. The correct measure for comparing losses (or gains) is the measure of proportionate loss. Using this measure, this paper has clearly established two results: (1) The extent of loss is directly and positively related *only* to the excess of a state's population growth over the average growth, and that (2) when an element of progressivity (as defined by SA) is introduced in the two allocation schemes, *the* extent of loss for any *state does not increase but, in fact, decreases.* The first is exactly what the national policy of using 1971 population figures was specifically designed to achieve; it is no distortion at all, although SA call it of 'intended' variety, a statement of purely subjective value judgement which has no place in a technical paper. The second conclusion completely negates SAs' inferences about the creation of 'unintended' distortions and their stigmatizing the two progressive schemes of allocation as possessing 'perverse features'. Strongly worded conclusions should at least be backed by equally sound analysis, otherwise they become pure rhetoric that

not only does not provide objective professional advice to policy makers but, given the mathematical basis of the analysis which few understand but most would be willing to accept as proof, could also mislead them.

Two clarifications are necessary before this paper can end. The paper does not suggest that the issue of the use of dated population is closed and does not need a serious investigation. A deeper demographic analysis, separating the effects of natural population growth and net inmigration in every state may be needed to better serve the original objective of freezing the population figures at their 1971 level. Second, this paper is not an endorsement of the two progressive schemes of revenue sharing currently in use. They can be faulted for reasons other than those SA have attempted to establish. But that is a different matter altogether worthy of a separate examination.

NOTES

1) In Section II, in the first paragraph, SA describe the order among states based on y_i, the per capita income as ascending, specifying that $y_i<y_{(i+1)}$; but when they discuss the more general family of criteria based on $f(y_i)$, they describe the order more rigorously as non-descending, that is, $y_i<=y_{(i+1)}$. The change in the two statements was not required; the latter should have been uniformly adopted.

2) At the end of Section II, SA say that α and β are weighted aggregates of population where populations of poorer states are given higher weights. This is not correct. SA have defined α and β by their Equations (6) and (7), respectively, and it is clear that they are *reciprocals* of aggregated weighted populations.

3) Since, the first allocation scheme, based only on population is neither progressive nor regressive, and the second and the third are progressive, it is obvious that a scheme which combines the first with the second or the third, will not be as progressive as either of the latter, and that the greater the weight assigned to the first scheme, the less progressive the combined scheme will be. The authors have given the mathematical formulation of these textually describable truths in Section III. But they have not provided the mathematical formulation, which was needed, for their following statement after Equation (12):

> 'It is easily ascertained that population as a determinant of the aggregate or per capita share of a state would have greater importance, the greater is the weight (w) assigned to the population criterion, the smaller is the variance among per capita incomes, and the lower the degree of progressivity of the progressive criteria',

so far as it relates to variance of the per capita income, and have not given a definition of the degree of progressivity. And they leave unanswered the question that if the variance is not substantially large enough, would progressive criteria make a large difference?

4) Once a progressive criterion is used in combination with population, it is pointless to discuss only population growth. In their subsection IV(b) SA describe the situations when a state's population growth falls between, $g^{(1)}$ and $g^{(2)}$ in my notation, and emphasise, by using the conditional conjunction 'even though', a kind of anomaly, if not injustice, that results. But when the distance formula is used $g^{(1)}$ loses significance and it is $g^{(2)}$ that matters. There is no anomaly. It is of course a different matter that $g^{(1)}$ and $g^{(2)}$ are so close in the reality of Indian situation that SAs' feared contingency does not arise. But by their misplaced emphasis on this point they seem to point out a fault in the allocation scheme which is not there.

MATHEMATICAL NOTES

I: General Results

The variety of mathematical notation introduced by SA in Section IV and different derivations made are unnecessary and have needlessly added to the mathematical content of the paper. In part this is due to similar different notations in Section II and SA have attempted to retain consistency with them. But a reader will find it difficult to compare the same quantity in different allocation schemes as it is denoted by different algebraic symbols in the three sub-sections of Section IV. I have tried to harmonise the mathematical formulations starting with the general expression already provided by SA in their Equation (3). According to it the proportionate (expressed as a percentage in their tables) share s_i of the i^{th} state is given by

$$s_i = f_iN_i/\sum (f_iN_i)$$

where f_i is written for $f(y_i)$ for brevity. All other notations are the same as those of SA. Using further the *0* and *t* as the superscripts to denote the quantities in the base (1971) and the current (1991) years respectively, and g_i for the proportionate growth in the population of the i^{th} state, we get

$$N_i^t = (1 + g_i)N_i^0 \quad \ldots. (1)$$

Therefore,

$$\sum (f_iN_i^t) = \sum [f_iN_i^0(1 + g_i)] \quad \ldots. (2)$$

$$s_i^0 = f_iN_i^0/\sum (f_iN_i^0) \quad \ldots. (3)$$

$$s_i^t = f_iN_i^t/\sum (f_iN_i^t) \quad \ldots. (4)$$

Let

$$g^{(f)} = \sum (f_iN_i^0g_i)/ \sum (f_iN_i^0) \quad \ldots. (5)$$

which gives the weighted average of proportionate population growth of the states using $(f_iN_i^0)$ as weights and which thus depends upon *f*, the function of *y*, the per capita income, that is used in the allocation scheme.

Denoting by G_i the ratio of current population N_i^t to base population N_i^0 for the i^{th} state, and noting that $G_i = (1 + g_i)$ we get $G^{(f)}$, the corresponding weighted average of the population ratio, by

$$G^{(f)} = \sum (f_iN_i^0G_i)/ \sum (f_iN_i^0) = (1 + g^{(f)}) \quad \ldots. (5A)$$

Note that

$$(G_i - G^{(f)}) = (g_i - g^{(f)}) \quad \ldots. (5B)$$

and

$$(G_i - G_j) = (g_i - g_j) \quad \ldots. (5C)$$

From these relationships we obtain

$$s_i^t = f_i N_i^0 G_i / \sum (f_i N_i^0 G_i) \quad \ldots\ldots (6)$$

which, after using (5A) gives

$$s_i^t = f_i N_i^0 G_i / [G^{(f)} \sum (f_i N_i^0)] \quad \ldots\ldots (7)$$

that is,

$$s_i^t = s_i^0 G_i / G^{(f)} \quad \ldots\ldots (8)$$

Loss

The "loss" to the i^{th} state, denoted by L_i^t, in its share because the revenue allocation formulae use the 1971 population instead of the current population is given by

$$L_i^t = s_i^t - s_i^0 \quad \ldots\ldots (9)$$

which after using (8) gives

$$L_i^t = \{s_i^0 G_i / G^{(f)}\} - s_i^0 \quad \ldots\ldots (10)$$

that is

$$L_i^t = s_i^0 (G_i - G^{(f)}) / G^{(f)} = s_i^0 (g_i - g^{(f)}) / G^{(f)} \quad \ldots\ldots (11)$$

All the formulae given by the authors for the three allocation schemes follow from these results, by putting

i) $f_i = 1$, for all i = 1 to n, in the first scheme based on population;

ii) $f_i = (y_n - y_i)$, for i = 1 to (n - 1), and
$f_i = (y_n - y_{(n-1)})$, for i = n; for the second scheme based on distance; and

iii) $f_i = 1/y_i$, for the third scheme based on the inverse of per capita income.

We shall denote the corresponding average growth by the notations $g^{(1)}$, $g^{(2)}$ and $g^{(3)}$ and denote by $g^{(0)}$ the simple average of the growth figures.

With this general formulation covering all the three schemes SAs' equations (16) to (23) are unnecessary.

Per Capita Loss

i) Loss divided by base population

Now, the per capita loss can be worked out by using the base year (1971) population or correctly the (1991) population. Denoting by $PC^0L_i^t$ the former and by $PC^tL_i^t$ the latter, we get, using (3) and (11),

$$PC^0L_i^t = L_i^t/N_i^0 = f_i(g_i - g^{(f)})/[G^{(f)} \Sigma (f_iN_i^0)] \quad \ldots. (12)$$

From this it follows that the ratio of the per (1971) capita loss of the i^{th} state to that of the j^{th} state is given by

$$PC^0L_i^t/PC^0L_j^t = f_i(g_i - g^{(f)})/[f_j(g_j - g^{(f)})] \quad \ldots. (13)$$

which can also be written as

$$PC^0L_i^t/PC^0L_j^t = (f_i/f_j)x[(g_i - g^{(f)})/(g_j - g^{(f)})] \quad \ldots. (14)$$

In other words, the ratio of p.c. losses of two states can be expressed as a product of two components: the *first* due to the change in the value of the function, given by

$$(f_i/f_j), \quad \ldots. (15)$$

and the *second* due to differences in population growth, given by

$$[(g_i - g^{(f)})/(g_j - g^{(f)})] \quad \ldots. (16)$$

ii) Loss divided by current population

Similarly, if current (1991) population is used, as it should be used, for calculating the per capita figures of losses, the per capita loss $PC^tL_i^t$ of the i^{th} state is given by

$$PC^tL_i^t = L_i^t/N_i^t$$

which after using the results (3), (11) and (5A) will be seen to be

$$PC^tL_i^t = f_i(g_i - g^{(f)})/[G_i \Sigma (f_iN_i^0G_i)] \quad \ldots. (17)$$

From this the ratio of per capita losses of the i^{th} and the j^{th} states is given by

$$PC^tL_i^t/PC^tL_j^t = (f_i/f_j) \times [\{(g_i - g^{(f)})xG_j\}/\{(g_j - g^{(f)})xG_i\}] \quad \ldots. (18)$$

In this case also, the ratio of p.c. losses of two states can be expressed as a product of two components: the *first* due to the change in the value of the function, given by

$$(f_i/f_j),$$

which is the same as before, and the *second* due to differences in population growth, given by

$$\{(g_i - g^{(f)})G_j\}/\{(g_j - g^{(f)})G_i\} \quad \ldots. (19)$$

Proportionate loss

From the expressions of loss given by (11) and using (8) it will be seen that the *proportionate loss* of the i^{th} state is given by

$$(s_i^t - s_i^0)/s_i^t = (g_i - g^{(f)})/G_i \quad \ldots. (20)$$

which can also be expressed as

$$(s_i^t - s_i^0)/s_i^t = (G_i - G^{(f)}\}/G_i \quad \text{.... (21)}$$

Multiplying both the numerator and the denominator by N_i^0, we get

$$(s_i^t - s_i^0)/s_i^t = \{N_i^t - G^{(f)}N_i^0\}/N_i^t \quad \text{.... (22)}$$

Here $G^{(f)}N_i^0$ is the notional current population of the i^{th} state if its base year population N_i^0 had increased at the average rate.

II: Factor Dominance in p.c. Loss

We have seen above in equations (12) and (17) that the per capita (p.c.) loss is a mathematical product of the value of the function f_i, of the p.c. income y_i and a function of the proportionate population growth g_i. Calling p.c. loss by z, writing f_i in full functional form $f(y_i)$ and dropping subscripts, we can write the equation (12), when 1971 population is used for working out p.c. loss as

$$z = \text{Constant} \times f(y) \times (g - g^{(f)}) \quad \text{.... (23)}$$

and the equation (17), when 1991 population is used for working out p.c. loss as

$$z = \text{Constant} \times f(y) \times (g - g^{(f)})/(1 + g) \quad \text{.... (24)}$$

Partial Elasticity Coefficient (PEC)

The question whether the f(y) or y, or g is a dominant factor in the determination of the p.c. loss requires the calculation of the partial elasticity coefficient (PEC) of z with respect to (w.r.t.) each one of them. Denoting by E(z,u) the PEC of z w.r.t. a variable u,

$$E(z, u) = \partial(\boldsymbol{Ln}z)/\partial(\boldsymbol{Ln}u) \quad \text{.... (25)}$$

where $\boldsymbol{Ln}z$ means logarithm of z to the base $\boldsymbol{e}$.

From this it will be clear that the PEC of z w.r.t. f(y), that is

$$E(z,f(y)) = +1 \quad \text{.... (26)}$$

in both the cases of (23) and (24). Therefore, for distance as the function of p.c. income, a one per cent increase (decrease) in distance will be accompanied by a one per cent increase (decrease) in p.c. loss; which is otherwise also obvious.

PEC for p.c. Income

Similarly in the case of the allocation scheme based on the inverse of p.c. income, in both cases of (23) and (24)

$$E(z,y) = (-)1$$

that is one per cent increase (decrease) in p.c. income will result in a one per cent decrease (increase)

in p.c. loss in the third scheme of allocation.

In the case of the second scheme based on distance, and for both the methods of calculating the p.c. loss, the situation is, however, different. The PEC of p.c. loss w.r.t. p.c. income is given by

$$E(z,y) = (-)y/(y_n - y) \quad \ldots\ldots (27)$$

showing that an increase (decrease) in the value of y will result in a decrease (increase) in the p.c. loss. Further the absolute value of the RHS goes on increasing as y increases; it becomes equal to unity when y equals half of y_n, the maximum value of y, which is Rs.7,364 in our example. The following table shows the values of E(z,y) over the range of values of y which covers the observed p.c. income of the 24 states excluding the one with the maximum.

Per Capita Income (y) *Rs.*	PEC of p.c. Loss w.r.t. (y)
2,000	-0.37
2,500	-0.51
3,000	-0.69
3,500	-0.91
3,682	**-1.00**
4,000	-1.19
4,500	-1.57
5,000	-2.12
5,500	-2.95
6,000	-4.40
6,500	-7.52
7,000	-19.23

We should note that the average p.c. income is Rs.3,621 as given in SAs' Table 1 which is a little less than half the maximum, that is Rs 3,682. Thirteen of the 25 states have p.c. income less than Rs.3,682. This means that, at their level of p.c. income, the absolute value of the partial elasticity of p.c. loss w.r.t. p.c. income is less than 1. In other words, everything else remaining the same, an increase of one per cent in the p.c. income will result in less than one per cent of decrease in the p.c. loss in their case. This is independent of whether the base year or current year population is used for working out the p.c. losses.

We should note that the p.c. income, or its function, distance or inverse, affects the p.c. loss in the same direction as it does the p.c. allocation itself.

PEC for Population Growth

Since different functions of the variable g, the proportionate population growth, appear in (23) and (24), the PEC of p.c. loss w.r.t. g differs in the two cases.

i) 1971 population based p.c. loss

When the loss of a state is divided by its 1971 population, as SA have done, from equation (23) we get

$$E(z,g) = g/(g - g^{(0)}) \quad \ldots\ldots (28)$$

It is unlikely that g will be negative. Therefore the RHS of (28) is greater than unity so long as $g>g^{(f)}$; that is a one per cent increase (decrease) in g will result in more than one per cent increase (decrease) in p.c. loss in such cases. Further as g decreases to $g^{(f)}$ the elasticity coefficient increases to ∞. When g increases, the elasiticity coefficient, always greater than unity, reaches unity as a limit.

When $g<g^{(f)}$, the loss becomes negative, that is a gain results. The absolute value of the RHS of (28) is then $g/(g^{(f)} - g)$. It can be easily derived that so long as $g>g^{(f)}/2$, the absolute value of E(z,g) will be greater than unity. It will be equal to unity when $g = g^{(f)}/2$, and will decrease to zero as g decreases to zero. Thus a decrease in growth below the average will have more than proportionate increase in gains so long as the growth is more than half the average.

The table below shows the values of E(z,g), the elasticity coefficient of p.c. loss w.r.t., to population growth for the second and the third progressive schemes, for which the value of $g^{(f)}$ is 0.53935 and 0.53959 respectively. The range of values shown in it covers the values of g for the 25 states in addition to the critical values of $g^{(f)}/2$.

Proportionate Population Growth (g)	PEC of p.c. loss w.r.t. (g) for the schemes based on p.c. income	
	Distance	Inverse
1.4	1.63	1.63
1.3	1.71	1.71
1.2	1.82	1.82
1.1	1.96	1.96
1.0	2.17	2.17
0.9	2.50	2.50
0.8	3.07	3.07
0.7	4.36	4.37
0.6	9.89	9.93
0.5	-12.71	-12.63
0.4	-2.87	-2.87
0.3	-1.25	-1.25
0.2698	-1.001	-1.00
0.2697	-1.00	-0.999
$g^{(f)}$ =	0.53935	0.53959

Note: Negative values apply to gains, i.e., when $g < g^{(f)}$.

ii) 1991 population based p.c. loss

From equation (24) it follows that

$$E(z,g) = \{g(1 + g^{(f)})\}/\{(g - g^{(f)})(1 + g)\} \quad \text{.... (29)}$$

After some algebraic derivation it will be seen that when $g>g^{(f)}$, E(z,g) will be positive and a decreasing function of g and for $0<g<[g^{(f)}+\{g^{(f)}(g^{(f)}+1)\}^{1/2}]$, E(z,g) will be greater than unity, and equal to unity at the upper end of this range. Beyond that value it becomes less than unity and continues to decrease. On the other hand when g decreases to $g^{(f)}$ from above, E(z,g) tends to ∞.

When $g<g^{(f)}$, E(z,g) becomes negative but its absolute value is greater than unity till g decreases to $\{(1+g^{(f)})^{1/2} - 1\}$ when it becomes unity, and goes on decreasing as g decreases further. E(z,g) tends to $(-)\infty$ as g tends to $g^{(f)}$ from below. The following table shows the values of E(z,g) for the range of values of g obsereved and for its values when the absolute value of E(z,g) becomes unity.

Proportionate Population Growth (g)	PEC of p.c. Loss w.r.t. (g) for the Schemes Based on p.c. Income	
	Distance	Inverse
1.4510	0.9996	1.00
1.4505	1.00	1.0004
1.4	1.04	1.04
1.3	1.14	1.14
1.2	1.27	1.27
1.1	1.44	1.44
1.0	1.67	1.67
0.9	2.02	2.02
0.8	2.62	2.62
0.7	3.95	3.95
0.6	9.52	9.56
0.5	-13.04	-12.96
0.4	-3.16	-3.15
0.3	-1.48	-1.48
0.2408	-1.001	-1.00
0.2407	-1.00	-.999
$g^{(f)}$ =	0.53935	0.53959

Note: Negative values apply to gains, i.e., when $g < g^{(f)}$.

We may note that in this case (Equation (29)), E(z,g) is obtained by multiplying that obtained by Equation (28) by a factor $(1 + g^{(f)})/(1 + g)$. Therefore, the absolute values of E(z,g) in this case are smaller (larger) than the corresponding values in the preceding case for the same g when g is larger (smaller) than $g^{(f)}$.

We now bring all these results together to find out what happens in reality of the situation of the 25 states by using the actually observed values of g, the population growth and y, the p.c. income, for the second scheme based on distance. A table for the third scheme based on the inverse of p.c. income is not given because of the negligible differences between elasticity coefficients we observed above in the two cases. The next table shows in its columns (5) to (8) the PECs of p.c. loss w.r.t. distance of p.c. income; p.c. income; and the population growth in the two cases when 1971 or 1991 population is used for working out p.c. losses.

We note from this table that only in the case of Nagaland, Sikkim and Punjab, the absolute value of the PEC w.r.t. per capita income is larger, much larger in many cases, than that w.r.t. population growth when the p.c. losss is worked out on the basis of 1991 population. However, for Nagaland and Sikkim, the difference is negligible. The Punjab case is easily explained by the closer proximity of its p.c. income to the maximum p.c. income than that of its population growth to the average population growth. For SAs' method of calculating p.c. loss, that is when 1971 population is used for calculating p.c. loss, except for Punjab, in the case of all states PEC w.r.t. population growth is larger than the absolute value of the PEC w.r.t. per capita income. This amply establishes that population growth is the greatly dominant factor in p.c. loss, except perhaps for Punjab and a few states with very high population growth.

The above mathematical exercise suffers from an important limitation. While finding the partial differential coefficients of z, the p.c. loss, w.r.t. f(y), for example, we have treated $g^{(f)}$ as a constant in Equations (23) and (24). But $g^{(f)}$ will also change when one of the f(y) values changes by an infinitesimal amount; for that matter what has been called a constant in these two equations is also a function of f(y). We have ignored this because the purpose of this exercise is to compare states' p.c. losses and understand the actual differences in them in terms of the simlutaneous differences in the p.c. income and in population growth that are observed. It is not as if either of the two values of a state is assumed to have changed in reality. The mathematical derivations therefore do not give the effect on p.c. loss when a *change* in p.c. income or population growth or both of a particular state takes place. That was not their purpose.

Table M.1: For Scheme Based on Distance of per capita Income

Sr. No.	State	Proportinate Population Growth (g)	Per Capita Income (y)	Partial Elasticity Coefficients of Per capita Loss with Reference to			
				Distance	Per capita Income	Proportionate Population Growth (g) with p.c. Loss Based on Population of	
						1971	1991
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Nagaland	1.34496	3,929	1	-1.14	1.67	1.10
2	Mizoram	1.07831	4,094	1	-1.25	2.00	1.48
3	Sikkim	0.93810	4,846	1	-1.92	2.35	1.87
4	Arunachal Pradesh	0.84615	4,670	1	-1.73	2.76	2.30
5	Tripura	0.77185	3,163	1	-0.75	3.32	2.88
6	Meghalaya	0.75395	3,328	1	-0.82	3.51	3.08
7	Manipur	0.71202	3,449	1	-0.88	4.12	3.71
8	Rajasthan	0.70791	3,092	1	-0.72	4.20	3.79
9	Jammu & Kashmir	0.67186	3,534	1	-0.92	5.07	4.67
10	Haryana	0.64033	5,284	1	-2.54	6.34	5.95
11	Madhya Pradesh	0.58883	3,299	1	-0.81	11.90	11.53
12	Uttar Pradesh	0.57472	2,867	1	-0.64	16.25	15.89
13	Maharashtra	0.56584	5,369	1	-2.69	21.37	21.00
14	Gujarat	0.54736	4,602	1	-1.67	68.33	67.98
15	West Bengal	0.53633	3,750	1	-1.04	-177.54	-177.89
16	Karnataka	0.53510	3,810	1	-1.07	-125.89	-126.24
17	Bihar	0.53273	2,135	1	-0.41	-80.44	-80.78
18	Assam	0.53258	3,195	1	-0.77	-78.63	-78.98
19	Andhra Pradesh	0.52881	3,455	1	-0.88	-50.17	-50.52
20	Punjab	0.49672	6,996	1	-19.01	-11.65	-11.98
21	Himachal Pradesh	0.49451	3,618	1	-0.97	-11.03	-11.36
22	Goa	0.47170	7,364	1	***	-6.97	-7.29
23	Orissa	0.44270	2,945	1	-0.67	-4.58	-4.89
24	Kerala	0.36314	3,532	1	-0.92	-2.06	-2.33
25	Tamil Nadu	0.35583	4,093	1	-1.25	-1.94	-2.20

Notes: 1) *** Does not exist, 2) Negative values in Cols. (7) and (8) apply to gains,i.e., when $g<g^{(0)}$.

But, to make the mathematical exercise complete, we end this section by studying the PECs of z for *changes* in the variable values for any particular state. But we should note that such changes will also affect the values for all other states. Denoting by E* such coefficients, the following results can be mathematically established.

$$E^*(z_i, f(y_i)) = E(z_i, f(y_i)) \times [1 - s_i^o - s_i^t] \quad \ldots(30)$$

Therefore the PEC of z_i w.r.t. distance d_i, is given by

$$E^*(z_i, d_i) = [1 - s_i^o - s_i^t] \quad \ldots(31)$$

and the PEC of z_i w.r.t. y_i, the per capita income in the inverse income formula by

$$E^*(z_i, y_i) = (-)[1 - s_i^o - s_i^t] \quad \ldots(32)$$

and in the case of distance formula by

$$E^*(z_i, y_i) = \{-y_i/(y_n - y_i)\} \times \{1 - s_i^o - s_i^t\} \quad \ldots(33)$$

The above four formulae hold good independent of the method of calculating p.c. loss, i.e., whether 1971 or 1991 population is used for that calculation.

The PEC of z_i w.r.t. the population growth g_i, however, depends upon whether z_i has been calculated using 1971 population or 1991 population. In the former case (1971)

$$E^*(z_i, g_i) = E(z_i, g_i) \times [1 - s_i^o \times G_i/G^{(f)}] \quad \ldots. (34)$$

using $E(z_i, g_i)$ from Equation (28), and in the latter case (1991),

$$E^*(z_i, g_i) = E(z_i, g_i) \times [1 - s_i^o \times (G_i/G^{(f)})^2] \quad \ldots. (35)$$

using $E(z_i, g_i)$ from Equation (29).

Note from Equations (30) to (35) that the values of these elasticity coefficients depend upon the allocation scheme. The following two tables M.2 and M.3 show these values for the distance formula and inverse income formula, respectively. They support the same conclusion that except in the case of Punjab and only marginally in the case of Nagaland and Sikkim, the population growth is a much more dominant factor than p.c. income, and certainly its inverse or distance, in determination of the p.c. loss.

Table M.2: Partial Elasticity Coefficients for Allocation Scheme based on Distance of per capita Income

Sr. No.	State	Proportinate Population Growth (g)	Per Capita Income	Partial Elasticity Coefficients of Per capita Loss with Reference to: Distance	Per capita Income	Proportionate Population Growth (g) with p.c. Loss Based on Population of: 1971	1991
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Nagaland	1.34496	3,929	0.9978	-1.1413	1.6673	1.0937
2	Mizoram	1.07831	4,094	0.9987	-1.2504	1.9993	1.4804
3	Sikkim	0.93810	4,846	0.9994	-1.9234	2.3519	1.8678
4	Arunachal Pradesh	0.84615	4,670	0.9986	-1.7311	2.7559	2.2976
5	Tripura	0.77185	3,163	0.9931	-0.7477	3.3075	2.8719
6	Meghalaya	0.75395	3,328	0.9957	-0.8210	3.5053	3.0754
7	Manipur	0.71202	3,449	0.9956	-0.8771	4.1142	3.6983
8	Rajasthan	0.70791	3,092	0.8857	-0.6410	3.9473	3.5328
9	Jammu & Kashmir	0.67186	3,534	0.9818	-0.9060	5.0223	4.6205
10	Haryana	0.64033	5,284	0.9788	-2.4864	6.2719	5.8815
11	Madhya Pradesh	0.58883	3,299	0.8306	-0.6741	10.8777	10.5071
12	Uttar Pradesh	0.57472	2,867	0.6043	-0.3852	12.9999	12.6350
13	Maharashtra	0.56584	5,369	0.9001	-2.4224	20.2895	19.9281
14	Gujarat	0.54736	4,602	0.9272	-1.5449	65.8352	65.4815
15	West Bengal	0.53633	3,750	0.8424	-0.8741	-163.5680	-163.9171
16	Karnataka	0.53510	3,810	0.8976	-0.9622	-119.4523	-119.8009
17	Bihar	0.53273	2,135	0.7104	-0.2901	-68.8152	-69.1628
18	Assam	0.53258	3,195	0.9401	-0.7205	-76.2828	-76.6303
19	Andhra Pradesh	0.52881	3,455	0.8331	-0.7363	-45.9992	-46.3451
20	Punjab	0.49672	6,996	0.9952	-18.9188	-11.6218	-11.9537
21	Himachal Pradesh	0.49451	3,618	0.9874	-0.9537	-10.9586	-11.2895
22	Goa	0.47170	7,364	0.9997	***	-6.9710	-7.2916
23	Orissa	0.44270	2,945	0.9075	-0.6048	-4.3751	-4.6820
24	Kerala	0.36314	3,532	0.9240	-0.8517	-1.9873	-2.2537
25	Tamil Nadu	0.35583	4,093	0.8752	-1.0951	-1.8256	-2.0881

Notes: 1) *** Does not exist, 2) Negative values in Cols. (7) and (8) apply to gains, i.e., when $g<g^{(f)}$.

Table M.3 : Partial Elasticity Coefficients for Allocation Scheme Based on Inverse of Per capita Income

Sr. No.	State	Proportinate Population Growth (g)	Per capita Income	Partial Elasticity Coefficients of Per capita Loss with Reference to		
				Per capita Income	Proportionate Population Growth (g) with p.c. Loss Based on Population of	
					1971	1991
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Nagaland	1.34496	3929	-0.9979	1.6679	1.0944
2	Mizoram	1.07831	4094	-0.9988	2.0002	1.4814
3	Sikkim	0.93810	4846	-0.9994	2.3532	1.8692
4	Arunachal Pradesh	0.84615	4670	-0.9986	2.7580	2.2997
5	Tripura	0.77185	3163	-0.9934	3.3115	2.8759
6	Meghalaya	0.75395	3328	-0.9960	3.5096	3.0797
7	Manipur	0.71202	3449	-0.9959	4.1204	3.7045
8	Rajasthan	0.70791	3092	-0.8910	3.9646	3.5501
9	Jammu & Kashmir	0.67186	3534	-0.9831	5.0345	4.6327
10	Haryana	0.64033	5284	-0.9757	6.2763	5.8859
11	Madhya Pradesh	0.58883	3299	-0.8409	10.9921	10.6215
12	Uttar Pradesh	0.57472	2867	-0.6135	13.1629	12.7980
13	Maharashtra	0.56584	5369	-0.8826	20.2791	19.9177
14	Gujarat	0.54736	4602	-0.9279	67.8328	67.4790
15	West Bengal	0.53633	3750	-0.8536	-152.7704	-153.1195
16	Karnataka	0.53510	3810	-0.9048	-113.6698	-114.0183
17	Bihar	0.53273	2135	-0.6734	-65.0406	-65.3881
18	Assam	0.53258	3195	-0.9434	-73.8690	-74.2165
19	Andhra Pradesh	0.52881	3455	-0.8444	-45.2804	-45.6263
20	Punjab	0.49672	6996	-0.9763	-11.4510	-11.7828
21	Himachal Pradesh	0.49451	3618	-0.9883	-10.9068	-11.2377
22	Goa	0.47170	7364	-0.9987	-6.9436	-7.2641
23	Orissa	0.44270	2945	-0.9105	-4.3713	-4.6781
24	Kerala	0.36314	3532	-0.9293	-1.9898	-2.2562
25	Tamil Nadu	0.35583	4093	-0.8826	-1.8300	-2.0925

Note: Negative values in Cols. (6) and (7) apply to gains, i.e., when $g<g^{(0)}$.

PRIVATE CORPORATE INVESTMENT AND DEPLOYMENT OF FUNDS: (SOME RECENT TRENDS)

M.R. Anand

Economic liberalisation is based on the premise that competitive pressures would ensure productive use of resources. This depends on the extent to which savings are translated intc productive investment. The liberal policies initiated during the eighties in India resulted in higher growth of the private sector. From 1983-84, the private corporate sector (PVCS) started to rely on the capital markets for funding. Stock prices also continued to increase. However, from the mid-eighties, companies started to deploy funds back into financial assets mainly due to the widening differential between returns on financial to fixed assets. Thus, a large proportion of funds found their way back into the capital markets. Consequently, financial incomes, in proportion to total income grew dramatically. The study notes that in a growing economy, time-lags in the deployment of resources is natural. Nevertheless, it warns that excess reliance on treasury activities by manufacturing companies can result in economic distortions and disrupt the process of investment. In sum, the findings suggest that even when the private sector is left to operate on the basis of market signals, public policy has still a role to play.

BACKGROUND

The current trend towards economic liberalisation, in particular, of the financial and industrial sectors is based on the premise that competitive pressures would ensure more productive use of investible resources. This premise naturally depends on the extent to which savings and financial flows are translated into productive investment.

The saga of economic liberalisation in India can be said to have begun in the mid-eighties when some controls on private investment began to be relaxed. The details are by now well known. It suffices to note that, in spirit, the liberalisation measures of the eighties aimed at allowing the private sector, particularly large industries, greater scope for expansion and diversification. The increase in the rate of industrial growth during the eighties has often been attributed to the liberalisation measures introduced during that period. Prominent studies in this regard have been from the perspective of changes in output and productivity [e.g., Ahluwalia, 1991]. Interestingly, 'investment' by the 'private corporate sector' has not been subject to such detailed analysis. This is surprising, for, investment logically precedes output. This study, therefore, intends to focus on certain specific aspects of investment by the Indian private corporate sector.

The liberalisation of the eighties was very much within the then existing licensing and control regime as compared to the more comprehensive economic refxorms initiated since 1991. However, there are some issues relating to investment that are of continuing relevance. In particular, the extent to which investible funds were effectively translated into productive assets deserves further scrutiny. The commonly expressed view that the private corporate sector has often diverted funds to speculative uses instead of productive investment needs to be critically examined. More so, because the private corporate sector also started to rely increasingly on the capital markets. The study that follows examines the pattern and composition of private corporate investment and the deployment of funds during the post 1975 period with a view to ascertain whether (and to what extent) this sector deployed its funds into financial assets. The reasons and implications of the shifts (if any) in the pattern of investment and deployment of funds will be discussed. That, the

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issue under consideration is relevant to the post-reform period (after 1991), will become self evident.

The study is organised in five sections. Section 1 provides an overview of the relevant literature. A description of the data base in section 2 is followed by an analysis of the pattern of investment and the use of funds. Factors underlying the shift in the pattern of deployment of funds is the subject matter of section 3. The impact of these shifts is then studied in section 4. In view of the economic reforms introduced since 1991, this section also presents a preliminary analysis of the pattern of deployment of funds during the early part of the nineties. The study concludes with a brief note on the possible implications of the findings.

I

The term 'investment' normally implies investment in physical assets. At the aggregate level, it is physical investment that matters. A given firm has, however, the option of investing in physical or financial assets. The literature on the determinants of business fixed investment has been extensively reviewed and needs no repetition [See Jorgenson, 1971, Pp. 1,111-47; Chirinko, 1993]. In essence, different theories have stressed the importance of demand side variables (accelerator models), relative price of capital and financial factors in determining investment. Investment is thus effected through a process of adjustment of the capital stock, depending on changes in these variables. Financial theories lay stress on the role of the availability of internal funds, access to external funds and the stock market valuation of a firm.

Recent literature has focused on investment decisions in the presence of sunk costs, that is, irreversible investment. When investment is irreversible and the future demand or cost conditions are uncertain, an investment expenditure today involves exercising or forgoing an option, that is, the option of investing in future [Pindyck, 1988]. A value has therefore to be assigned to the option of retaining the choice of investing at a later date when greater amount of information would be available. Greater the level of uncertainty, firms tend to postpone or reduce the level of investment [Joseph, 1987]. Models incorporating irreversibility explicitly recognise that capital assets, once bought, may not be mobile. This literature also suggests that the economic environment and uncertainty arising from policy changes regarding interest and exchange rates and the informational status of agents can significantly affect investment decisions.

The literature on the determinants of investment has been conditioned by the idea that there exists an 'optimal' size of the capital stock. There is also an implicit assumption that fixed-investment decisions are independent of decisions to invest in financial assets. This view of the behaviour of a firm arises, perhaps, due to the emphasis on the determinants of investment in productive assets, i.e., plant and machinery and on the preoccupation with the cost of funds. It is also because literature on investment has traditionally focused on manufacturing activities of a firm. However, a look at the present day world suggests that even manufacturing companies invariably have multifarious activities, and investment in financial assets can be one. Would the prospect of making short-term capital gains on financial assets persuade a manufacturing firm to deploy its resources any differently? Why would a firm at any given point of time prefer to invest in financial assets (even if it is only at the margin) rather than in plant and equipment? Is it for diversifying risk, managing liquidity or to keep the option of investing on a later date? Is it on account of delays in project implementation arising from policy uncertainties or structural constraints? The literature on irreversibility referred to earlier may be of relevance. Empirical studies on India are mostly silent on the foregoing questions.[1] The answer to the question, how decisions to raise finance from alternate sources and decisions to

deploy them into different uses are together influenced by changes that may occur in the policy environment, is not very straight forward.

Nevertheless, some observations of F.X. Browne [1994] on the applicability of alternative theories of finance in the context of industrialised countries are instructive. To quote: 'Prudential policy makers should be interested (in corporate financing) because certain debt equity settings for the non financial corporate sector might contain the seeds of financial fragility for the banking system and could in turn portend economy wide systemic weakness'. Browne further notes: 'Measured either as the ratio of short term or total financial assets to sales, corporate liquidity ratios rose sharply from the early 1980s for the United States, Japan, France and the United Kingdom... These trends suggest that corporate liquidity is becoming decoupled from the day to day transactions needs of firms and increasingly portfolio-related'. Investment decisions of a given firm may be based on demand conditions, internal liquidity, profits, relative returns on financial assets and industry specific factors. These decisions may, at best, affect the profitability, sales, etc., of that firm or the industry. But individual decisions over an aggregate of firms may have a different message for the overall functioning of the economy. The study that follows is at the aggregate level for the private corporate sector in India.

II. PATTERN AND COMPOSITION

The Data Base

The pattern and composition of investment has been analysed using the combined financial accounts published by the Reserve Bank of India (RBI) for a sample of non-government non-financial public limited companies in the private corporate sector (that is, manufacturing companies). The study uses standard financial ratios from the sample data. Annexure Tables giving basic set of data compiled from several issues of *Reserve Bank of India Bulletin* are provided at the end of the paper. These include a table (AX-4) providing indices computed for key variables used in the study. In order to examine the movements of various aggregates (e.g., fixed investment, incomes, etc.) a continuous time series is obviously essential. However, the sample size (in terms of the number of companies) in successive RBI studies has been changing over the years. The lack of a continuous time series has forced researchers to adopt various methods of adjusting the available data and to generate a time series. Alternate approaches adopted by various researchers to resolve this problem, including the one developed for this study, have been discussed separately in Appendix I. In brief, for examining growth and movement of different variables, we have computed value indices (for income, gross investment, etc.). Appendix I provides the relevant details.

Composition and Pattern of Investment

An examination of the change in the composition of assets provides some insight into the pattern of investment. Table 1 shows the composition of gross fixed assets (GFA) for the private corporate sector. The relative proportions convey that the share of 'capital works in progress' increased from about 2.7 per cent of the gross fixed assets in 1975-76 to about 7.6 per cent in 1990-91.

Table 1. Composition of Gross Fixed Assets (GFA)

(per cent)

Year	P & M	Land & Bldg.	Capital Works	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)
1975-76	73.5	16.8	2.7	7.0	100
1979-80	74.3	15.3	3.9	6.5	100
1983-84	73.2	14.8	6.3	5.7	100
1984-85	73.5	16.1	5.1	5.3	100
1988-89	71.4	17.2	6.3	5.1	100
1989-90	72.6	16.4	6.0	5.0	100
1990-91	71.3	16.1	7.6	5.0	100

N.B. Abbreviabtions used in all the tables are listed alphabetically with expanded forms at the end.

Source: Computed from 'Finances of Public Limited Companies', *RBI Bulletin*, several issues.

Given the policy framework during the eighties, when the private sector, in particular large industrial groups, was given greater liberty to diversify and expand existing capacities to a minimum economic size, it is quite likely that investment in expansion and diversification may have dominated over investment in modernisation of existing plant and equipment. This in turn may be the reason for the increase in the share of 'capital works in progress' in the gross fixed assets. Table 1 also shows that the share of plant and machinery declined marginally from about 73.5 per cent in 1975-76 to about 71.3 per cent of the gross fixed assets in 1990-91.

In order to get a picture of the relative importance of assets of different types in relation to fixed assets, the composition of Net Total Assets is presented in Table 2. An interesting point to note is that although financial assets[2] continued to constitute a relatively small proportion of net total assets, there was a general increase in its share from the mid-eighties. Subsequent analysis will show that even this modest increase from about 2 per cent of the net total assets in 1975-76 to about 5.5 per cent in 1989-90, can be considered to be significant and indicative of a new trend in corporate investment behaviour. Table 2 also shows that the share of net fixed assets in net total assets increased by over 6 percentage points during this period.

Table 2. Composition of Net Total Assets

(per cent)

Year (1)	NFA (2)	Invent (3)	Fin-Asts (4)	OTH (5)	Total (6)
1975-76	35.2	35.2	2.0	27.6	100
1979-80	35.3	35.4	2.0	27.3	100
1983-84	42.9	25.8	1.7	29.6	100
1985-86	45.7	23.4	2.6	28.3	100
1988-89	43.5	24.4	3.8	28.3	100
1989-90	40.8	24.3	5.5	29.4	100
1990-91	41.3	24.3	5.1	29.3	100

Note: Figures Computed.
Source: Same as Table 1.

The movement in the stock of financial assets *vis-a-vis* fixed assets is very starkly depicted by Figure 1. [For data on which Figures are based, Annexure Table AX-4 may be reffered to.] It is seen that the change in holdings of the two assets (indices) moved very closely till about 1984-85 and suddenly diverged thereafter. Given the increase in stock prices witnessed through the eighties, this increase in the share (as well as stock) of financial assets assumes importance and will be examined further.

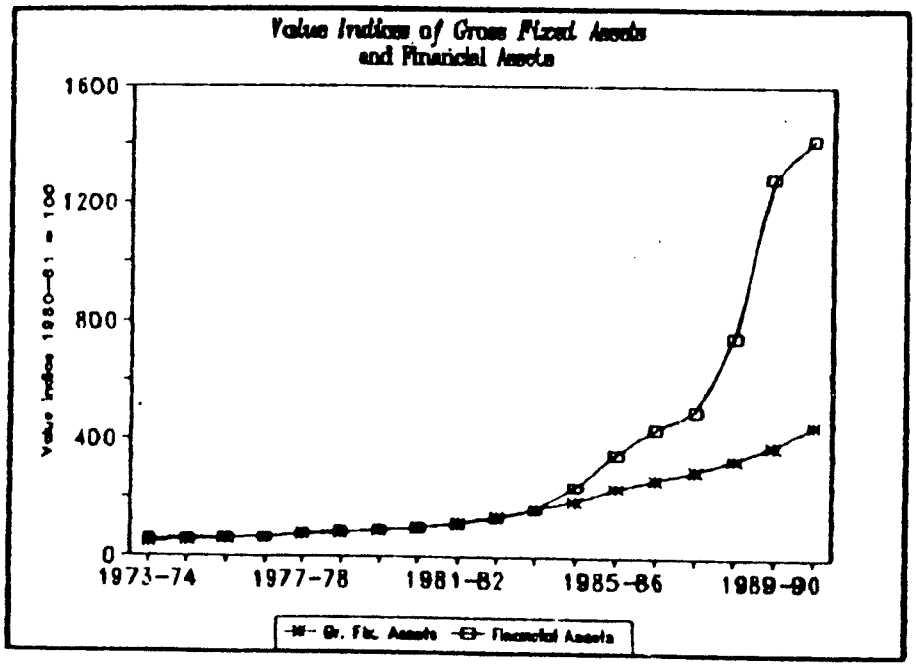

Figure 1

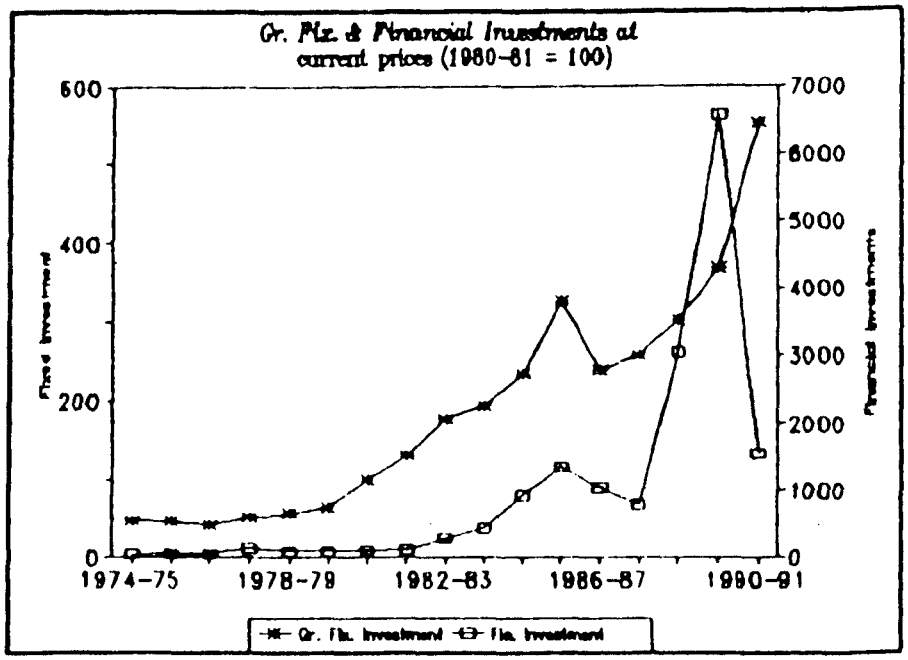

Figure 2

Unlike Figure 1 that shows the stock position, Figure 2 shows the flows, i.e., value indices (at current prices) of the gross fixed investment and indices of financial investment. (Financial investments are plotted on right side secondary axis). It is seen that fixed investment maintained a steady upward trend, barring a surge in 1985-86. This pattern was replicated by investment in financial assets. Starting from the mid-eighties, there was a surge in financial investments by the corporate sector as a whole, albeit with fluctuations. Between 1987-88 and 1989-90 financial investments increased sixfold. In 1990-91, financial investments declined sharply, whereas, fixed investment showed an increase. The indices plotted in Figure 2 have also been shown in Table 3 for reference.

Unlike data derived from the combined balance sheets that give the position at a given point of time, the sources and use of funds statement shows the deployment of funds into different uses through the year. Table 4 shows that from the mid-eighties, there was an increase in the share of funds deployed for financial assets. From a virtually insignificant proportion in the beginning of the eighties, financial investments accounted for over 12 per cent of the total use of funds by 1989-90.

Table 3. Value Indices Fixed and Financial Investment (Indices at Current Prices 1980-81 =100)

Year (1)	Investment GFI (2)	P&M (3)	Fin Inv (4)
1975-76	46	53	51
1976-77	40	43	53
1977-78	51	56	127
1978-79	56	64	93
1979-80	64	72	81
1980-81	100	100	100
1981-82	130	127	110
1982-83	177	190	270
1983-84	195	213	422
1984-85	235	252	916
1985-86	327	315	1,347
1986-87	239	262	1,041
1987-88	258	254	779
1988-89	303	299	3,045
1989-90	368	439	6,571
1990-91	553	520	1,556

Note: Figures computed.
Source: Same as Table 1.

Table 4. Use of Funds by Private Corporate Sector

(per cent)

Year (1)	GFA (2)	Invent (3)	Fin Inv (4)	OTH (5)	Total (6)
1981-82	45.59	29.05	0.70	24.66	100.00
1982-83	57.20	16.50	1.68	24.62	100.00
1983-84	61.53	5.08	2.82	30.57	100.00
1984-85	55.23	14.95	5.01	24.81	100.00
1985-86	43.52	22.91	5.38	28.19	100.00
1986-87	52.65	15.01	3.53	28.81	100.00
1987-88	60.80	15.04	3.25	20.91	100.00
1988-89	40.98	24.43	7.39	27.20	100.00
1989-90	37.75	19.87	12.32	30.06	100.00
1990-91	50.86	21.30	2.67	25.17	100.00

Note: Figures Computed.
Source: Same as Table 1.

As already mentioned, during the eighties various schemes such as re-endorsement of capacity, prescription of minimum economic size for industrial units and broad-banding of industrial licenses, etc., allowed manufacturing companies to expand and diversify. With this, the private corporate sector also required higher volume of external finance. Table 5 shows that from about 1984 there was an increase in the total volume of funds raised from the capital market by the private corporate sector which was accompanied by a continued rise in stock prices.

Table 5. New Issues of Capital and Stock Prices

Year (1)	Amount Rs Cr. (2)	Growth Per cent (3)	SPI * (4)	Growth Per cent (5)
1975-76	92	-	61	-
1976-77	94	2.17	65	6.78
1977-78	176	87.23	67	3.37
1978-79	162	-7.95	82	21.42
1979-80	476	193.83	90	9.82
1980-81	647	35.92	100	11.52
1981-82	770	19.01	119	18.90
1982-83	704	-8.57	110	-7.15
1983-84	836	18.75	125	13.50
1984-85	1,056	26.32	136	8.54
1985-86	1,741	64.87	222	63.01
1986-87	2,563	47.21	231	4.01
1987-88	1,770	-30.94	207	-10.10
1988-89	3,169	79.04	248	19.39
1989-90	6,465	104.01	359	45.21
1990-91	4,217	-34.77	500	39.20

Note: * SPI, i.e., Index of Industrial Securities 1980-81 = 100
Source: Computed from *The Report on Currency and Finance*, RBI, Parts I and II, several issues.

The analysis so far suggests that the growth in capital markets may have influenced the rate of fixed investments as well as financial investments. It is also known that funds through capital markets were mostly accessed by large companies. An important policy change during the eighties was the enhancement of the asset limit for the erstwhile MRTP[3] companies from Rs 20 crore to Rs 100 crore in 1984. Data on stock of financial assets expressed as a share of net total assets for different size class of companies is presented in Table 6. It is evident that the increase in the share of financial assets from the mid-eighties occurred mainly in the top two size classes, that is, companies with paid-up capital of more than Rs 5 crore and Rs 25 crore, respectively.

Given the relative shift in favour of financial assets, it is essential to examine further as to what happened to growth in fixed investment, before exploring the possible reasons for the changes in the composition and pattern of investment by the private corporate sector.

Growth in Fixed Investment

Growth in fixed investment should ideally be studied from changes in net fixed assets. However, most studies on investment (including the present one) use gross fixed investment (rather than net fixed investment) on account of the problems inherent in using accounting data.[4] Hereafter, gross fixed investment (GFI) is taken as equal to the year to year change in gross fixed

assets. Table 7 shows that GFI and investment in plant and machinery for non-government non-financial public limited companies in the private corporate sector grew in real terms[5] at the rate of 10.11 per cent and 9.34 per cent, respectively during 1975 to 1990.[6]

Table 6. Financial Investments as Per cent of Net Total Assets

Size Class * (1)	1975-76 (2)	1980-81 (3)	1985-86 (4)	1986-87 (5)	1987-88 (6)	1988-89 (7)	1989-90 (8)	1990-91 (9)
0.0-0.05	na	na	3.0	3.0	2.5	1.9	1.6	1.8
0.05-0.1	1.4	1.6	5.2	2.0	1.2	1.2	1.0	0.9
0.1-0.25	2.3	2.2	1.6	1.6	1.6	2.4	2.5	2.6
0.25-0.5	1.6	1.1	1.4	1.3	1.9	3.3	3.5	3.4
0.5- 1.0	1.7	1.6	1.2	1.4	1.2	2.8	2.5	2.1
1.0- 2.0	2.0	1.7	1.5	1.8	1.6	1.8	2.2	2.4
2.0- 5.0	2.7	1.8	2.3	2.9	2.9	2.7	2.9	3.2
5.0-10.0	1.8	2.0	2.5	2.7	2.4	3.3	3.4	4.1
10- 25.0	na	1.7	2.2	3.3	3.2	3.2	3.5	4.4
> 25....	na	1.6	4.3	3.4	4.5	5.8	10.4	8.7

Note: * Size Class is by Paid-up Capital in Rs Crore.
Source: Same as Table 1.

Table 7. Rate of Growth of Gross Fixed Investment (1975-1990)

(per cent)

Growth Rates (1)	GFI (2)	P & M (3)
Nominal	17.61	16.75
Real	10.11	9.34

Note: * All growth rates are statistically significant at 5 per cent.

We had earlier noted that the increase in the volume of funds raised from capital market sources may have enabled higher volumes of fixed as well as financial investment although the rate of accretion of financial assets was higher. It is, therefore, likely that the investment patterns may have been influenced by movements in stock prices. To examine this aspect, growth rates of fixed investment (indices at constant prices) and annual percentage changes in stock prices are presented in Figure 3 which shows that till 1983-84, the direction and timing of growth of gross fixed investment (at constant prices) and stock-price index did not necessarily coincide.

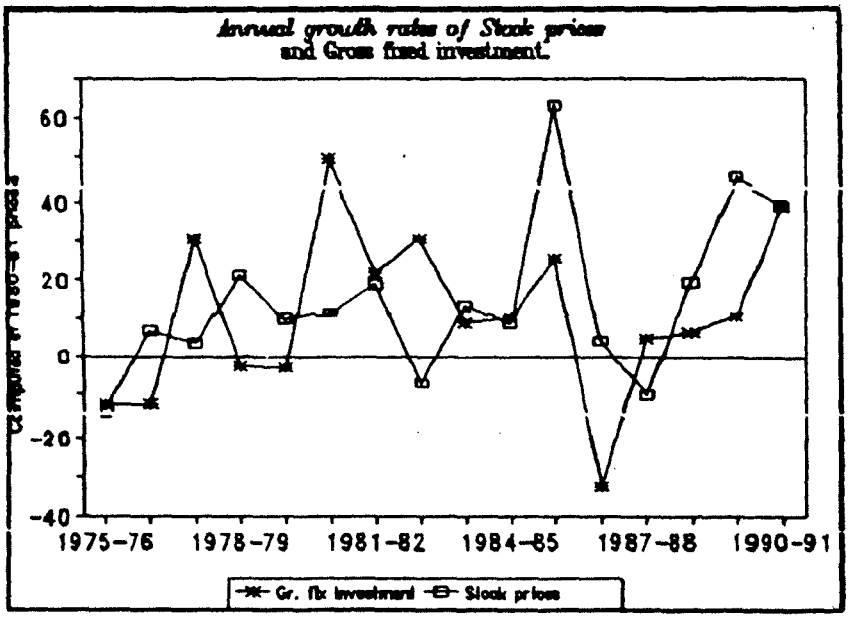

Figure 3

However, after the mid-eighties, changes in real investment moved broadly in consonance with the direction of change in the stock prices. It seems that as the corporate sector started to rely more and more on capital markets, the relationship between GFI and stock-prices also underwent a change (from the mid-eighties).

While GFI in real terms grew at over 10 per cent through 1975 to 1990, there is an *important qualification.* When the trend is examined, we find a significant break (downward) after 1985. This conclusion is based on the following regression which incorporates a dummy variable 'd' which takes the value zero till 1985-86 and one thereafter (till 1990-91).

$$\text{LnGI} = 3.58 + 0.15\,t - 0.04\,dt \qquad R^2 = 0.94$$
$$(12.5) \quad (-5.05) \qquad DW = 1.43$$
$$DF = 13$$

One need not elaborate on the significance of the timing of the downward shift in the trend rate of GFI, except to note that it corresponds with the period of increase in the rate of accretion of financial assets. This is an interesting development, especially when viewed against the earlier observation that from the mid-eighties real investment followed changes in stock prices more closely. While the period after 1985-86 witnessed lower growth in private corporate investment, in the last year of the decade (i.e., 1990-91) there was a very sharp increase in fixed investment (refer to Figure 3). A look at the imports of capital goods (not presented separately) by the private corporate sector also reveals that the last year of the eighties was characterised by sharp increase in import of capital goods.

In his study covering the fifties, A.K Bagchi 1962 notes: '....so long as the foreign exchange position was comfortable, the controlling element in determining the volume of investment was the demand for investment and the level of private imports especially in capital goods reflected rather than determined the private sector investment. However, as soon as import controls came into operation, it was the level of private imports particularly of capital goods which determined the level of investment'.

He goes on to say that between 1956 and 1957, there was a quickening in the pace of investment (and imports) and it was widely anticipated that there would be a foreign exchange crisis and this led to a further acceleration in the pace of imports. Bagchi further notes that '... the anticipation of a foreign exchange crisis by the private sector brought the crisis nearer'.

Does history repeat itself? We don't know, but, the eighties was characterised by a relaxation on imports, especially of capital goods, as also an increase in external commercial borrowing. By the end of the decade the possibility of a serious balance of payments crisis had become imminent. The spurt in import of capital goods by the private corporate sector was possibly on account of its attempt to import as much of capital goods as possible, before the doors got closed. The expectation of a sharp escalation in capital costs due to a possible devaluation may also have accentuated the process. Therefore, it seems that considerations relating to the external sector were also important in determining private corporate investment.

The analysis so far suggests that liberal measures for allowing greater freedom to the private corporate sector did enable higher growth in gross fixed investment. There was also a general increase in stock-prices and in the volume of funds raised through the capital markets. Since fresh capital issues were still subject to controls, the funds would have been raised with a stated purpose of taking up investment projects. But, from about the mid-eighties, there was an increase in the share and the level of financial investments. This was also accompanied by a downward break in the trend in fixed investment. The fact that the increase in financial investments was mainly accounted for by large companies also suggests that access to external funds played an important role in supporting the increase in the level of financial investments. For, it was mainly the large houses that raised funds from the capital markets. What could be the factors underlying the change in the pattern of deployment of funds in favour of financial assets? It is to this question that we turn to in the following section.

III. CAUSES OF THE RELATIVE SHIFT

The shift in favour of financial assets by corporate entities might seem intriguing, especially because the policies initiated during the mid-eighties were aimed specifically toward creating an environment conducive to investment. The financial and real factors that may have shaped the foregoing pattern of deployment of funds needs to be seen in the light of the overall performance of the corporate sector and the supply and demand factors. A look at the profitability of the corporate sector, the composition of the corporate portfolio of financial assets and the structure of interest rates may give some insights into underlying causes.

Relative Profitability

Some of the standard profitability ratios for the private corporate sector have been compared with the one period capital gains from holding of industrial securities in Table 8. Columns 2 and 3 of the Table 8 show gross profits (GP) as a percentage of sales and of net total assets (NTA), respectively. These are the gross profit margin and the asset utilisation rates, respectively. Column 4 shows operating profits (OP) as a percentage of net total assets and Column 5 shows profit after tax (PAT) as a percentage of net worth which gives us the return on net worth. Column 6 shows the one period average capital gains from holding of marketable securities (equity shares).[7]

Table 8. Selected Profitability Ratios and Average Rate of Capital Gains on Industrial Securities

(per cent)

Years (1)	GP/Sales (2)	GP/NTA (3)	OP/NTA (4)	PAT/NW (5)	Capital Gains (6)
1976-77	9.0	11.0	6.5	7.9	-1.1
1977-78	9.0	11.0	6.5	8.8	10.5
1978-79	9.5	11.7	7.5	11.6	11.5
1979-80	10.1	12.6	8.3	14.5	14.2
1980-81	9.6	12.0	7.3	14.1	13.5
1981-82	9.3	11.2	6.3	13.4	7.7
1982-83	8.7	9.7	4.6	10.5	8.4
1983-84	7.9	8.4	3.3	6.6	4.9
1984-85	8.3	8.7	3.7	7.7	28.3
1985-86	9.0	8.8	4.1	8.3	25.1
1986-87	8.5	8.0	2.9	5.7	18.9
1987-88	7.8	7.4	2.0	3.5	4.4
1988-89	9.1	8.8	3.4	8.3	18.1
1989-90	10.2	9.9	4.3	10.7	34.6
1990-91	11.2	10.7	5.2	13.5	46.5

Note: Figures Computed;
Source: Columns 2,3,4,5: Same as Table 1, Column 6: Same as Table 5

In Figure 4, the return on net worth and the average one period return on stock (i.e., Columns 5 and 6 of Table 8) have been plotted showing the relative movements in the two ratios. From Table 8 and Figure 4, it is apparent that profitability as indicated through alternative measures stagnated during the eighties, while the possible capital gains on holding of stocks was far higher. A preliminary exercise carried out by us gives an indication that financial investments were more sensitive to changes in stock prices as compared to fixed investment.[8] In other words, there seems to have been a strong incentive to hold financial assets especially securities linked to the movements in the stock markets even for the corporate sector.

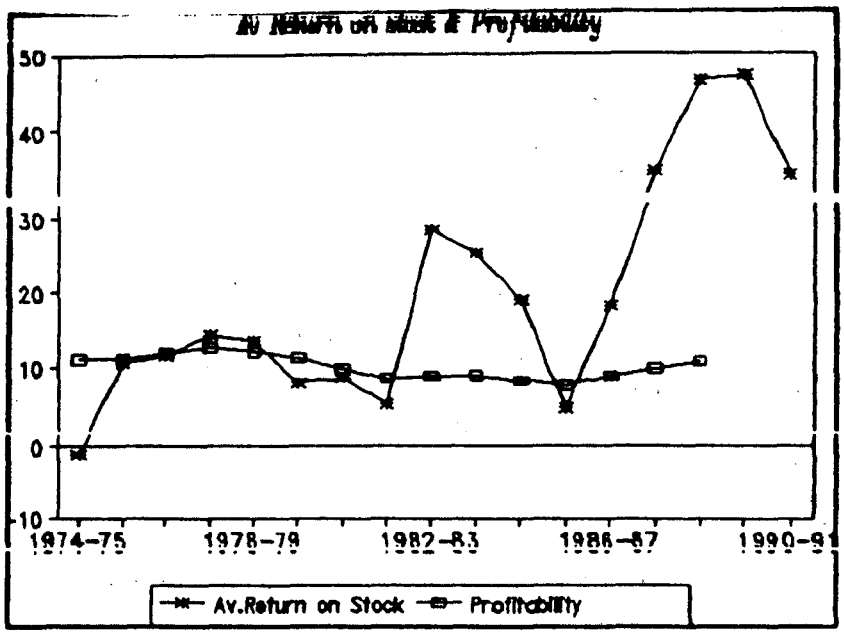

Figure 4

While examining macro-constraints on India's economic growth in the late eighties Lance Taylor 1988 noted: 'The obvious alternative forms of wealth are real estate and durable goods, with expected capital gains being the relevant rates of return. Such speculative assets dominate productive capital when profits on real investment are low and potential savings high'. Though we have not taken into account real estate and other such assets, the parallel in this context is obvious. This is in the light of the stagnant trend in corporate profits as compared to the increase in the returns on financial assets and the observed downward break in the trend rate of real fixed investment. This brings us to some other financial factors that could have further induced such tendencies.

Financial Factors

The structure of interest rates in India has been an administered one. While a detailed analysis of the financing pattern of the corporate sector is beyond the scope, we recognise that the link between the composition and cost of funds with the relative rates of return on different financial instruments may have been important. The left side of the Table 9 (Columns 2 to 5) shows key interest rates which may have had a bearing on the cost of borrowed funds. The right side (Columns 7 to 9) of the table shows the rates on certain financial instruments (other than shares) into which financial investments were channelled.

Interest rates in nominal (and in real terms) were higher during the eighties as compared to the later half of the seventies. However, during the eighties the cost of long term borrowed funds (in nominal terms) remained stable or declined (Refer to Table 9, Columns 2 to 5). Real rates on borrowing, though positive, also did not increase (not presented separately). The general increase in the statutory liquidity and the cash reserve ratios for the banks made lending to the corporate sector an attractive proposition. In fact, indirect form of finance even by the commercial banks to the private corporate sector increased significantly from the mid-eighties (Rajakumar, 1993, p. 55). Financial institutions also found indirect financing of the corporate sector through preferential allotment an attractive option to direct financing through term loans.

Table 9. Changes in Interest Rates, Returns on Financial Investments and Premium Collected on Equity Issues.
(per cent)

	Relevant to Cost of Funds				Returns on Financial Investments			
	L							R
Years	FIs Rate (ICICI)	Bank	Debentures		Premium on Equity	PSU Bonds	Tax-Free PSU bonds	UTI Div
			CD	NCD				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1980-81	14.0	19.4	13.5	13.5	*	*	*	11.50
1981-82	14.0	19.4	13.5	15.0	*	*	*	12.05
1982-83	14.0	19.5	13.5	15.0	*	*	*	13.05
1983-84	14.0	18.0	13.5	15.0	*	*	*	14.00
1984-85	14.0	18.0	13.5	15.0	*	*	*	14.25
1985-86	14.0	17.5	13.5	15.0	1.24	14.0	*	15.25
1986-87	14.0	17.5	13.5	15.0	3.51	14.0	10.0	16.00
1987-88	14.0	16.5	12.5	14.0	39.89	13.0	9.0	16.50
1988-89	14.0	16.0	12.5	14.0	10.66	13.0	9.0	18.00
1989-90	14.0	16.0	12.5	14.0	22.32	13.0	9.0	18.00
1990-91	14.5	16.0	12.5	14.0	9.66	13.0	9.0	19.50

Note: * Negligible.
Source: Same as Table 5.

At the same time, there was an increase in the rate of return accruing on certain other financial instruments that became a part of the corporate investment portfolio. Towards the later half of the eighties, public sector companies and corporations started to raise large volumes of debt capital through the issue of bonds that offered attractive rates of interest or had certain tax benefits. While the coupon rate on these bonds was only 9 per cent, the effective return was naturally higher, after considering the then prevailing average rate of corporate tax of 50 per cent and the tax-free status of the bonds.

Apart from the prospect of making short term capital gains through direct speculation in industrial securities in the stock market, the changes that occurred in the rates of interest and dividends on financial instruments issued by institutions other than the private corporate sector also played an important role. The schemes of the UTI such as the Units Scheme (US) 64 proved to be an attractive investment [*Economic Times*, 1994a] for gathering dividend income that was relatively high along with tax benefits (refer to Column 9, Table 9).

Finally, an important change was the rise in the level of premium gathered by the corporate sector on new capital raised through the stock market route. The figures mentioned under Column 6 of Table 9 shows the amount of premium as a percentage of the total new issue of equity. Though equity financing may have been a small proportion of the total use of funds, it appears to have played a significant role in bringing down the total cost of external funds. It also enabled the corporate sector to recycle funds back to the stock market either directly or through the purchase of securities of non-banking financial intermediaries.

The relative cost associated with different sources of funds thus got reflected in the composition of sources of funds. Table 10 shows that the capital market became a relatively more important source by the second half of the eighties. It accounted for approximately 19 per cent of the total sources of funds between 1987-88 to 1988-89 as compared to about 8 per cent in the beginning of the eighties (Refer to Table 10 Rows 2a plus 2b).

Table 10. Sources of Funds for Private Corporate Sector (Percentage Share)

Source of Funds	1981-82 1982-83	1983-84 1984-85	1985-86 1986-87	1987-88 1988-89	1989-90 1990-91
(1)	(2)	(3)	(4)	(5)	(6)
1) Internal Funds	29.69	39.46	32.08	32.29	32.75
2) External Funds	70.31	60.54	67.92	67.71	67.25
a. Paid-up capital	1.83	4.14	3.01	11.97	7.88
b. Debentures *	6.06	10.11	13.36	7.81	10.66
c. Borrowing	32.70	25.75	25.07	28.09	27.00
d. Others	29.72	20.54	26.48	19.84	21.71

Notes: Figures Computed.
* Includes privately placed debentures.
Source: Same as Table 1.

Given the fact that these developments created an opportunity for corporate entities to raise capital at a lower cost and to deploy the same (at least at the margin) into financial assets, one would normally expect the portfolio of financial assets to have been dominated by marketable industrial securities. Though this is true to some extent, the data on the composition of financial assets as indicated in Table 11 and financial investments shown in Table 12 provide some interesting information. Table 11 shows that in terms of percentage shares, the proportion (not value or volume) of industrial securities in the portfolio of the corporate securities gradually declined over the years. Similar is the story with regard to the proportion accounted for by securities of subsidiary companies.

Table 11. Composition of Financial Assets Held by Private Corporate Sector

(per cent)

Securities	1980-81 1981-82	1982-83 1983-84	1984-85 1985-86	1986-87 1987-88	1988-89 1990-91
(1)	(2)	(3)	(4)	(5)	(6)
Foreign	6.11	6.62	4.43	3.66	1.30
Govt/ Semi Govt	3.66	2.71	1.28	1.67	10.77
Industrial	50.63	45.06	27.31	36.44	28.54
Shares/Deb of Subs	30.27	27.94	18.94	12.25	9.96
Others	9.33	17.67	48.02	45.98	49.43
Total	100	100	100	100	100

Note: Percentage shares of financial assets are based on their book/purchase values. Appreciation in the market prices of some of these assets is not taken into account. Figures Computed.
Source: Same as Table 1.

A major change in the corporate portfolio was the emergence of the 'others' category. The RBI data source from which these figures have been computed do not throw any light on the composition of this 'others' category. This is presumably because this category was not important before the mid eighties. In subsequent studies of the RBI [RBI, 1994, p. 1,000] this 'others' category is reclassified as 'Securities of All India financial institutions'.[9] This category includes securities issued by the Unit Trust of India apart from other financial institutions. It is known that the corporate sector has until recently (until 1994-95) been a major investor in some of schemes of the UTI (such as US 64), although the exact share of this particular security is not known through publicly available sources. The point to note is that the UTI and other financial institutions, in turn, have always held substantial proportions of marketable corporate securities and have been active participants in the securities market.

By the end of the eighties we see that the private corporate sector portfolio started to include government and semi-government securities as well. This category includes bonds issued by the Railways, and other public sector units apart from dated securities of the government. Some of these securities also carried certain tax benefits. Thus, it appears that the pattern of financing of the public sector had a bearing on the way private sector deployed its funds.

Table 12. Composition of Investments (Changes in Financial Assets)

(per cent)

Securities	1980-81 1981-82	1982-83 1983-84	1984-85 1985-86	1986-87 1987-88	1988-89 1990-91
(1)	(2)	(3)	(4)	(5)	(6)
Foreign	14.59	5.94	1.29	1.20	-0.14
Govt/ Semi Govt	0.60	0.63	-0.28	3.73	20.63
Industrial	49.61	35.47	5.19	68.41	19.55
Shares/Deb of Subs	28.75	17.61	10.79	6.75	7.10
Others	6.45	40.34	83.01	19.91	52.85
Total	100	100	100	100	100

Note: Figures Computed; -ive sign indicates net disinvestment.
Source: Same as Table 1.

The year to year changes in the stock of different financial assets is given in Table 12. Unlike Table 11, Table 12 shows the composition of the fresh investment or disinvestment in different financial assets. It is seen that changes in the stock of industrial securities and financial assets in the 'others' category seem to fluctuate. Nevertheless, industrial securities and the 'others' category comprising mainly securities of financial institutions came to form more or less over 75 per cent of the additional investments made after about 1983.

Given that the financial institutions in turn have also been active participants in the stock markets, it would not be incorrect to infer that changes in the total financial asset holdings could themselves have had a bearing on stock price movements. To examine this aspect, the growth rates of financial investment and the stock price index have been plotted in Figure 5. It shows that increases in financial investments preceded increases in the stock price index and so have the declines.[10] This pattern of movement in the growth of financial investments suggests a profit taking behaviour of the corporate sector.

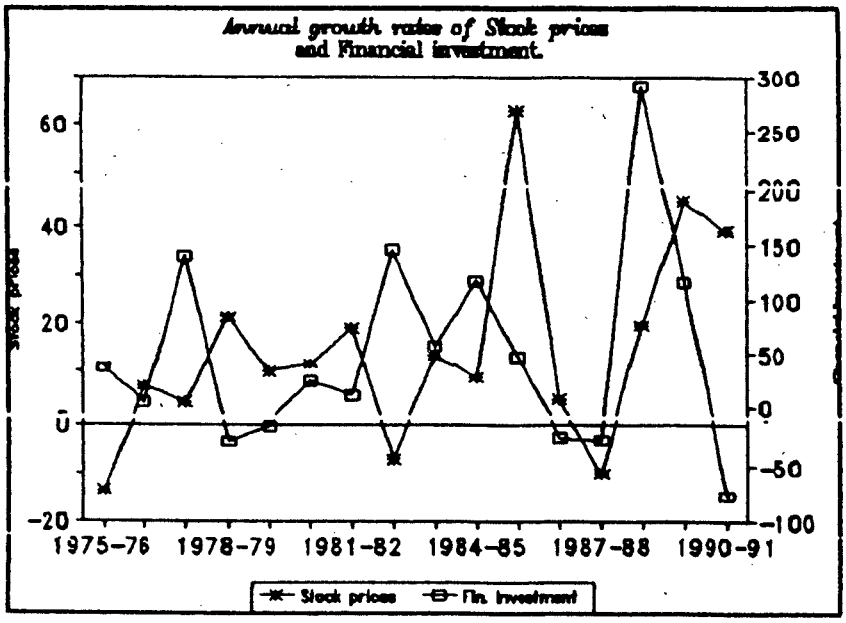

Figure 5

Since the corporate sector on the aggregate is itself a major holder of industrial securities (and other securities closely linked to stock prices) such behaviour may itself have influenced the movements of stock prices.

From the above analysis one could infer a two way causation between stock prices and the investment / disinvestment in financial assets by the corporate sector. Although beyond the scope of this study, this issue needs to be investigated in greater detail. Having analysed the financial factors we now turn to some of the real factors that may have been important.

Demand/Structural Constraints, Investment Lags: Some Observations

Regarding demand side factors, some authors like Patnaik [1987 and 1988] have broadly argued that the growth (of output) in the industrial sector during the eighties was possible primarily on account of rise in real incomes of the middle income categories in the organised work force. Such a demand was then not expected to be sustainable, leading therefore to stagnation in output levels in future. If this was indeed true, then the aforesaid argument could be logically extended to imply that expectations of stagnant demand may have encouraged entrepreneurs to prefer financial investments (at least on the margin) which were easily reversible rather than committing their capital into ventures where the prospects of demand in the future were more uncertain. In the above sense, demand constraints may have played an important role in impeding the rapid utilisation of financial capital into investment in productive assets.

The relative shift towards financial investment may have also been further influenced by the time-lag between the raising of resources from the market and its deployment in fixed investment. Whether this lag increased over time or firms faced difficulties in executing the projects due to infrastructural constraints, is an issue deserving further study. The stagnant trend in public investment in general, barring selected areas, may also have forced the private corporate sector to look for investment opportunities that were less dependent on the public sector. A related issue is that of availability of imported capital goods. While the import regime during the eighties was liberal as compared to the earlier decades, however, towards the end of the decade, the balance of payments difficulties became imminent. Finally, the political uncertainties that gripped the country towards the end of the decade and the imminent balance of payments crisis may have added to the overall uncertainty about the future viability of new projects on hand. These observations are no doubt tentative. A more detailed analysis though desirable is beyond the scope of the present study.

IV. THE EFFECTS

We now turn to the implications of the relative shift towards financial assets by the private corporate sector. The effects of the aforesaid pattern of investment can be viewed from the perspective of the private corporate sector itself and from the point of view of the economy in general. It was noted in the previous section that the relative returns on financial investments exceeded returns on investment in fixed assets. The differential between the yield on fixed and financial investments, as also the very increase in the share and level of financial investment seems to have had an effect on the composition of income of the private corporate sector.

The 'total income' of the private corporate sector includes 'sales' which is based on the core activities (i.e., manufacturing). Next we have, 'other income' which includes income from dividends, interest and rents. The third category is the 'non-operating surplus and deficits'. Unlike the other two, this category includes capital gains or losses from the sale of assets and, therefore, has a direct impact on the asset side of balance sheet as well (it includes gains/losses on both fixed and financial assets). For an individual company this is essentially a non-recurring item. That however, may not be true at the aggregate level with which we are concerned as Table 13 reveals.

Table 13. Total Income, Sales, Other Income and Non-Operating Surplus and deficits (Value Indices at Current Prices)

Year (1)	TI (2)	Sales (3)	OI (4)	NOSD (5)
1980-81	100	100	100	100
1981-82	120	119	111	129
1982-83	130	130	135	146
1983-84	139	140	174	159
1984-85	161	162	203	179
1985-86	185	185	239	145
1986-87	200	202	252	119
1987-88	220	222	285	232
1988-89	267	266	376	331
1989-90	326	325	481	354
1990-91	379	376	601	609

Note: Figures Computed.
Source: Same as Table 1.

It is seen from Table 13 that 'other income' and 'non-operating surplus/deficits' increased sharply during the latter half of the eighties as compared to sales of the private corporate sector. Table 14 shows 'other income' and 'non-operating surplus and deficits (NOSD) as a percentage of profits before taxes (PBT). The change in the ratios reinforces the conclusion that incomes and surpluses from outside the core production activities became very important during the later half of the eighties.[11]

Table 14. Non-Operating Surplus/Deficits and Other Income Expressed as Percentage of Profits before Taxes

Year	$\frac{NOSD+OI}{PBT}$	$\frac{OI}{PBT}$
(1)	(2)	(3)
1975-1976	43.2	32.6
1976-1977	47.0	42.4
1977-1978	49.8	44.1
1978-1979	38.6	35.3
1979-1980	34.6	29.6
1980-1981	40.6	32.0
1981-1982	42.8	34.7
1982-1983	58.8	48.3
1983-1984	85.1	71.1
1984-1985	76.3	64.1
1985-1986	68.9	61.2
1986-1987	85.3	77.8
1987-1988	121.2	104.1
1988-1989	82.2	70.9
1989-1990	75.4	67.6
1990-1991	67.3	58.1

Source: Same as Table 1.

Whether the increase in income from other sources led corporate entities to further increase financial investment and whether this fuelled the stock prices further through a feedback effect, is difficult to determine in this limited study. However, the answer to this question is likely to be of importance from the point of view of the economy as a whole. Given the serious income disparities in India, and the fact that holding of financial assets especially marketable assets is skewed, it is likely that developments of the eighties may have resulted in a net transfer of wealth in favour of the private corporate sector, especially large companies. In the light of the economic reforms initiated from 1991, particularly in the financial and external sector, investment behaviour of the corporate entities has become even more important.

Financial Investments in the Eighties, Was It a Passing Phase?

The specifics of economic reforms introduced since 1991 are by now well known and will not be recounted [see issues of the *Economic Survey* from 1991 to 1995; Bhagavati and Srinivasan, 1993]. We do not intend discussing the merits or the content of the reforms either. A more detailed analysis of the post 1990-91 period would necessarily have to consider the changes introduced in the external sector, especially those relating to exchange rates, foreign portfolio and direct investment, and the reforms relating to the financial sector. Our purpose here is to *merely* demonstrate that the tendency for 'treasury operations' to dominate has nevertheless carried on into the 1990s and was not simply a passing phenomenon of limited significance.

For this we need to rely on Centre for Monitoring Indian Economy (CMIE) data as it provides a continuous series of studies till 1995. Strict comparability with RBI data used earlier may be difficult, yet the CMIE data can give a clue to further developments. The sources of finance as given in Table 15 show clearly that from a low share of 13 per cent in 1990-91, capital market sources accounted for as much as 32 per cent by 1992-93 and 46 per cent by 1993-94 of the total sources of funds for the private corporate sector.

We had earlier noted that in 1990-91 there was a decline in the use of funds towards financial assets by the corporate sector. By the end of the eighties, the composition of financial assets portfolio also shifted in favour of securities of financial institutions and, to some extent, in favour of government securities. The position regarding the use of funds from 1990-91 onwards is given in Table 16.

Table 15. Sources of Funds for Private Corporate Sector (Percentage Shares)

Source (1)	1990-91 (2)	1991-92 (3)	1992-93 (4)	1993-94 (5)
Retained Earnings	16.20	14.17	11.30	17.76
Depreciation	20.12	15.33	17.47	11.06
Capital Market	13.20	17.84	31.65	46.00
Institutional Debt	24.90	28.54	27.07	4.22
Current Liabilities	25.28	24.12	12.51	20.96

Source: CMIE, *Corporate Finance, Industry Aggregates*, November 1994.

Table 16. Uses of Funds by Private Corporate Sector (Percentage Shares)

Use of funds (1)	1990-91 (2)	1991-92 (3)	1992-93 (4)	1993-94 (5)
Gross Fixed Assets	50.92	53.50	54.00	49.19
Investments	3.56	2.13	2.69	18.82
Inventories	19.82	14.00	15.19	5.62
Receivables	23.13	25.91	24.15	21.43
Cash and Bank	3.13	3.54	3.78	3.12

Source: Same as Table 15.

Table 17. Growth Rate of Total Income and Its Components for the Private Corporate Sector

(per cent)

(1)	1990-91 (2)	1991-92 (3)	1992-93 (4)	1993-94 (5)
Total Income	18.80	20.32	14.02	17.83
Main Income	18.54	20.37	13.25	15.87
Other Income	27.82	26.94	23.93	18.24
Non rec. Income	63.68	28.29	60.14	60.00

Source: Same as Table 15.

With the stock prices continuing to rise in 1990-91, there was a further decline in the proportions of funds used towards financial assets, probably due to booking of profits. During 1992, the contractionary monetary policy and liquidity problems in the stock markets may have been important factors in limiting fresh investment in financial assets. But from 1993-94 onwards, we find financial investments have again assumed a very significant proportion of the total uses of funds. While the deployment of funds into financial investment increased sharply only by 1993-94, 'other incomes' and 'non-recurring income' (earlier termed as non-operating surplus and deficit) continued to grow faster than sales and total income. This becomes evident from the growth rates of different components of total income presented under Table 17.

The fact that the share of other incomes in profits has been persistently on the high side right from 1991-92 also attracted media attention. A report by the Merrill Lynch quoted in the[*Economic Times*, 1994c] noted with concern the sustainability of such income and its growth compared to the core business of companies. While there has been a distinct shift in favour of capital markets as a source of finance it is also clear that financial investments by the private corporate sector have re-emerged to occupy a substantial share in the use of funds. The continued growth of incomes from other sources gives an indication that the tendency of the corporate sector to actively participate in financial investment was not just a passing phenomenon of the late eighties, but has continued into the 1990s.

While there seems to have been no systematic study or empirical evidence on the pattern of investment into fixed versus financial assets, the possibility, that speculative investments may have grown, has attracted attention. Divergent opinions have been expressed on this trend. Patnaik [1994] notes that 'the very profitability of speculation acts as a deterrent to all productive investment, i.e., while we wait for "liberalisation" to produce its bonanza, the economy actually retrogresses'. One may take a completely opposite view in this matter. It can be argued that combined financial statements do not take into account inter-corporate transactions and, therefore, aggregate analysis ignores the flow of funds. It could even be said that even if companies on the aggregate were diverting financial resources in favour of financial investments, some, or most of these resources would come back at some stage in the circle, and placed into primary securities which would, in turn, serve as an investible resource for another company.

The second argument is correct in an accounting sense. But, it ignores the time lags, the financial incomes generated *en-route* and, therefore, the distributional effects. Further, the composition of income of companies that are predominantly manufacturing clearly shows that the trend towards deployment of resources into financial assets is a matter of consequence. A flow of funds analysis may still be relevant but beyond the scope of this study. However, that by itself does not take away the merit of observing aggregate patterns. On the main, the tendency of non-financial companies to engage actively into financial investment activity is itself an interesting development. The short-term and the long-term consequences of the same therefore deserve further study.

Limitations

It must be kept in mind that the entire study is based on sample data at the aggregate level. This has its own limitations, inasmuch as it does not enable us to comment on the magnitudes at the aggregate level for the corporate sector as a whole. It is also recognised that only an analysis at the firm and sectoral level could help in pin-pointing as to which segment of the corporate sector exhibited the investment patterns revealed in this study. There are other limitations as well. Monetary, credit and fiscal policies in this context are no doubt important. While the study has gone into the structure of interest rates, the effects of changes in these policies have not been specifically addressed. Similarly, changes in the external sector have found only a passing mention though we recognise the importance. Finally, we recognise the fact that some of the conclusions arrived at are tentative and need further research.

V. CONCLUSIONS

The policy measures initiated during the eighties were aimed at allowing greater scope to the private sector to expand and to diversify. In that sense, the findings of the study can be considered to be relevant to an initial phase of liberalisation. The fact that the private corporate investment recorded a high growth during the period under review suggests that it is responsive to changes in the policy regime, particularly with regard to its investment and financing decisions. From around 1983-84, the private corporate sector started to raise increasing amounts of financial resources from the capital markets. This was accompanied by an increase in stock prices. Since public issues by companies were still subject to controls during the eighties, it is likely that the recourse to capital market for resources was, at least on the face of it, for funding fixed investment.

Fixed investment in the private corporate sector did grow between 1975 and 1990 but, from the mid-eighties, the private corporate sector started to deploy funds into financial investments. While the increase in the volume of funds raised, particularly from the capital markets was an enabling factor, it was the widening differential between the return on fixed and financial investment that appears to have been an important cause behind this trend. In fact, profitability of the corporate sector stagnated or declined during this period. The differential between the yield on financial securities issued by the financial institutions and public sector organisations, as compared to cost of finance, appears to have influenced the composition of the corporate portfolio of financial investments. Securities of financial institutions together with industrial securities came to account almost 75 per cent of the corporate investment portfolio by the late eighties. Thus a large proportion of financial investment by the corporate sector found its way back into the capital markets, in particular, the stock markets.

These findings, when linked together, enable us to draw some conclusions on the behaviour of the corporate sector and the role of public policy in a regime of liberalisation. The fact that financial investments and financial incomes became significant for non-financial companies (in the private corporate sector) is an interesting development in its own right, though it is difficult to predict whether this trend will continue or not.

The experience of industrialised countries point to the increasing tendency of manufacturing companies to engage in portfolio related activities. Future studies on the private corporate sector will need to take into account this added dimension.

It may also be pertinent to point out that in a growing economy it is but natural to expect time-lags in the deployment of financial resources. During the interregnum, firms have to prudently manage the surplus funds by investing them in financial assets. With the opening up of the economy, treasury operations of the corporate sector will continue to be important and perhaps indispensable. Nevertheless, there seems to be adequate reason for caution and manufacturing sector should keep this activity within limits. For, the possibility of achieving growth even in an open liberalised economy depends, crucially, on the extent to which financial resources are rapidly translated into productive investment. This leads us to some policy implications.

The possibility that financial investment/disinvestment activity of the corporate sector may have had a strong influence on the behaviour of stock prices seems to fly in the face of the belief that stock-prices reflect 'fundamentals'. The foregoing aspect has not been investigated in much detail in this study. Nevertheless, the extent to which large institutional investors (corporate and financial institutions) are able to influence stock prices needs to be probed since it may have an important bearing on the stability, or rather, the degree of volatility of the capital markets.

The earlier system, whereby the central government granted approval to companies for raising capital on a case by case basis, keeping in view the stated investment/project, was undoubtedly cumbersome and self-defeating. Yet, a monitoring mechanism on the use of funds seems necessary, even if it is only on a sample basis depending on the quantum of the public issue. The disclosure requirements presently in force under the Indian Companies Act also need to be re-examined in this context. Finally, disincentives or structural rigidities, particularly on account of inadequate infrastructure in implementing the projects, need to be addressed. On the whole, the findings in this study suggest that even in an economy where the private corporate sector is left to operate on the basis of market signals, public policy has still a role to play.

NOTES

1. Nagraj, R., [1996] makes a brief but a pointed observation on the relationship between capital raised by the private corporate sector and the rate of capital formation and notes that the hypothesis, that capital market resource mobilisation could have a favourably influenced corporate physical investment growth, does not seem valid. His observation is with particular reference to the eighties and early nineties.

2. Financial assets/investments include foreign and Indian securities. Indian securities comprise government/semi-government securities, industrial securities, shares and debentures of subsidiaries and 'others'. They excludes loans and advances and other debtor balances, loans to subsidiaries, cash and bank balances, fixed deposits with banks, etc. The words 'assets' and 'investments' will be used to denote stock and flows, respectively.

3. Refers to companies (and inter-connected undertakings) whose net total assets exceeded the limits prescribed under Section 20 (a) of the Monopolies and Restrictive Trade Practices (MRTP) Act, 1969. They were also popularly known as large houses. This provision now stands repeated after the MRTP Amendment Act of 1991.

4. Net fixed assets in financial accounts depend on the depreciation rate prescribed under the Companies Act. These rates do not necessarily reflect the economic life of assets. Revaluation can also influence the values of assets. Nevertheless, a simple crude way of getting an initial picture on the growth of fixed investment (in net terms) is to compare successive values of the ratio of net fixed assets to gross fixed assets. This ratio (computed from the combined balance sheet for successive years) has steadily moved up from 51 per cent in 1974-75 to 55 per cent in 1980-81, 58 per cent in 1985-86 to 62 per cent in 1990-91. This suggests that net investment in fixed assets went up during the period 1975 to 1990. At the very least, it implies that the rate of gross investment consistently exceeded the rate of depreciation.

5. The value index for gross fixed investment has been derived using the method presented in Appendix I. A weighted average of the unit value index for imported capital goods (machinery and transport equipment) and the implicit deflator from the national account statistics for machinery and transport equipment has been used for arriving at a deflator for GFI.

6. The growth rates (in real terms) in Gross Fixed Capital Formation and gross capital formation in plant and machinery for the private corporate sector using *National Accounts Statistics* work out to about 12.5 and 13 per cent, respectively,

during 1975 to 1990. They are lower than the growth rates in Table 7 of the text. It needs to be noted that national accounts data cover the entire private corporate sector, i.e., public limited companies, private limited companies and co-operatives. It can, nevertheless, be said that in terms of broad magnitudes, the two are comparable.

7. One period capital gains are computed by taking a three year moving average (centred) of the annual growth rates of the Index Numbers of Industrial Securities (All India) published by the RBI. Undeniably, the comparison of aggregate profitability ratios with the return based on stock price index is only a rough measure since financial investments also include debt instruments. Estimating a rate of return on financial assets giving weightage to debt instruments may be better but is unlikely to change the basic thrust of the argument.

8. Comparing regression 1 and 2, it appears that financial investment was more responsive to stock prices as compared to fixed investment.

1) LNGI = 0.67 + 1.43 LNSP R^2 0.79; DW = 0.95 @
(0.68) (7.12)*
2) LNFI = -8.96 + 2.74 LNSP R^2 0.78; DW = 2.22
(4.32)* (6.41)*

LNGI: ln (gross investment index), LNFI: Ln (financial investment index): SP: Stock Price index. Figures in brackets are 't' values; * Significant at 1 per cent level of significance. (@): DW test for autocorrelation inconclusive at 1 per cent significance.

9. Financial Institutions: Industrial Development Bank of India (IDBI), Unit Trust of India (UTI), Industrial Credit and Investment Corporation of India (ICICI), Industrial Finance Corporation of India (IFCI), Life Insurance Corporation (LIC) and other state level financial corporations (SFCs).

10. We recognise that use of annual data has limitations especially for comparing movements in stock prices and financial investment. Monthly comparison may be more interesting. While data on monthly movements of stock prices is readily available, the same is not true for financial investment.

11. Admittedly, 'other incomes' include rent on real estate and fixed assets. Non-operating surplus and deficit also include capital gains/losses from sale of land or other movable and immovable assets. These items cannot be separated. But the conclusions are unlikely to change given the fact that there were no major changes in legal restrictions on the sale of land by corporate bodies during the period.

ABBREVIATIONS

Bldg: Buildings.
CD/NCD: Convertible/Non Convertible Debentures.
Cos: Companies.
Cu-Asts: Current Assets.
CWP: Capital Works in Progress.
Deb: Debentures.
Dep: Depreciation.
Div: Dividend.
FF: Furniture and Fixtures.
FI: Financial Institutions.
Fin-Asts: Financial Assets.
Fin Gds: Finished Goods.
Fin Inv: Financial Investment.
GFA: Gross Fixed Assets.
GP: Gross Profits.
Invent: Inventories.
NFA: Net Fixed Assets.
Non-rec: Non-recurring.
NOSD: Non-Operating Surplus and Deficits.
NTA: Net Total Assets.
NW: Net Worth.
OP: Operating Profits.
OI: Other Income
Oth-Asts: Other Assets
OTH: Others
P&M: Plant And Machinery.
PAT: Profit after Tax.
PBT: Profit before Tax.
PSU: Public Sector Undertakings.
Ref: Reference.
Rt. Profit: Retained Profit.
Subs: Subsidiaries.
TI: Total Income.
UTI: Unit Trust of India.
WIP: Works in Progress.

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APPENDIX I

AN ALTERNATIVE APPROACH TO USING RBI DATA ON PUBLIC LIMITED COMPANIES

For analysing investment by the private corporate sector in India, researchers have often relied on the data on joint stock companies, published by the Reserve Bank of India (RBI). Publications of the Bombay stock exchange and the Centre for Monitoring of the Indian Economy, apart from annual reports of individual companies, are other useful sources. Choice of the source depends on the nature of the study and the required degree of aggregation. This note is limited to the data published by the RBI on combined financial accounts of non-government non-financial public limited companies.

The combined account published by the RBI is based on a sample which includes public limited companies falling in different size classes, defined in terms of the paid-up capital. Till 1975-76, data on small public limited companies (with paid-up capital of less than Rs 5 lakh) used to be published separately. From 1976-77 to 1981-82, small public limited companies were not studied. The sample period of the present study being 1975 to 1990, for 1976 to 1982 we have used data on medium and large companies. Thereafter, the RBI studies cover small, medium and large companies.

Table A1. Illustrative Data from the Combined Balance Sheet on Public Limited Companies

Ref * (1)	Year (2)	No of Cos. (3)	Paid-up Capital (4)	GFA (5)	P&M (6)
11/92	1987-88	1,908	5,561	43,999	31,553
	1988-89	1,908	6,094	49,663	35,380
	1989-90	1,908	6,703	56,724	40,975
12/93	1988-89	2,131	6,704	50,813	36,261
	1989-90	2,131	7,364	57,866	42,023
	1990-91	2,131	8,204	68,462	48,843

Note: * November 1992 and December 1993.
Source: *RBI Bulletin.*

The proportion of the RBI sample in terms of the total paid-up capital of the entire population of public limited companies was around 70 per cent between 1975-76 and 1984-85. Thereafter, it has been about 65 per cent down to about 60 per cent for 1990-91. Though the proportion of coverage for each of the size classes is not mentioned in all the studies, it seems clear that the extent of coverage for large / medium companies is high (about 80 per cent) whereas the coverage of small companies is lower. This is due to the skewed distribution of public limited companies according to paid-up capital. [For details on coverage see, Roy Chaudhary, 1992]. The study for any given year is accompanied by corresponding figures for the previous one or two years. An illustration of the same is given under Table AI. Therefore, for any given year, barring the most recent, aggregate information on different variables such as gross fixed assets (GFA), sales, etc., is available from two different samples.

In general, the size of the sample in terms of number of companies has been increasing over the years. As far as possible, most companies included in the previous sample are also included in the subsequent sample. For example, the combined balance sheet for non-government non-financial companies published in the *RBI Bulletin* of December 1993 provides data for the years 1988-89, 1989-90, and 1990-91 and is based on a sample of 2,131 companies. The *RBI Bulletin* for November, 1992 provides combined data on 1,908 companies for the years 1987-88, 1988-89 and 1989-90. The two studies have 1,647 companies in common. Almost 75 per cent of the companies in one sample thus get retained in the subsequent sample. Nevertheless, it can be expected that the composition of the samples would have changed over the years.

The main difficulty in using RBI data is the lack of a continuous time series arising from changes in the sample size. Alternative methods adopted for resolving this problem in various studies are discussed below :-

i) Separate Samples Method: Using data from each sample independently and restricting analysis to the period covered in each sample/study.

ii) Ratios Method: Computing financial or other ratios by normalizing sample aggregates, say, profits by a suitable divisor and observing the changes in the ratios through successive samples and years. This method does not need elaboration.

iii) Blow up Factor Method: The method involves using the proportion of paid-up capital of the sample companies to the paid-up capital of all public limited companies as a 'blow up factor' and multiplying all other variables such as gross assets, sales, etc., by the inverse of this ratio to arrive at estimates for all non-government, non-financial public limited companies. The blow up factor method using paid-up capital has been used (by RBI) to estimate population aggregates. This method assumes that the relationship between paid-up capital and a diverse set of stock and flow variables such as gross fixed

assets, sales, profits, etc., is invariant over time. This assumption has been criticised as being quite unrealistic leading to unreliable estimates [Roy Choudhary, 1992].

iv) Representative Firm Method: In this method sample aggregates are normalised by the number of companies in the sample thereby obtaining a per firm value for all variables. The analysis is carried out on the basis of a representative average firm and the results generalised for the corporate sector, e.g., [Mishra, 1989]. This method obviates the necessity of linking samples of varying sizes. Further, the RBI studies provide combined data for different size classes and industry groups. This method can be useful for making comparisons across size categories as well.

V) Method of Proportions: This method involves arriving at an adjustment factor for each variable separately from the results for the common year from every set of two consecutive surveys. The adjustment factor is then used to blow up the value of the same variable for the earlier year from the smaller sample thereby adjusting the smaller of the two samples to the larger one [Sarkar, 1970]. Such an exercise is carried out for each variable separately in an iterative manner till all variables for all the years are adjusted to a common sample size (i.e., a uniform number of companies). In case, Census data is available for any one of the intervening years, one could use the method to further adjust the data to arrive at aggregates for the entire population [Shanta, 1990].

The limitation of this procedure is that the repeated use of a ratio between values of a variable from two successive samples (for the same year) for adjusting previous samples, transforms the year to year fluctuations considerably. Since past data is transformed a bias of an almost indeterminate quantity gets introduced. This method assumes that the aggregates in the additional set of companies covered in a subsequent sample maintain a constant proportion *vis-a-vis* the aggregates in the previous sample. This method has been employed by some authors for arriving at a time series for aggregates such as gross fixed assets, sales, etc., for a constant sample of companies [Sarkar, 1970].

Given the serious limitations of all the methods mentioned, including the one we adopted, the criteria for devising and deciding upon any particular method should therefore be its appropriateness to the problem on hand.

Method of Indices

If the main object of a study is to draw some inferences on the change in, say, 'sales' based on sample data, then it is necessary to capture the year to year growth in any given variable. For the purpose of looking at the changes we construct value indices, the procedure for which is as follows: Simple growth rates are computed between successive years for each variable for each sample separately. For example, the study of November, 1992 provides combined accounts for 1,908 companies for the years 1987-88, 1988-89 and 1989-90. The study of December 1993, provides data on 2,131 companies for 1988-89, 1989-90, 1990-91. From the above data we obtain annual growth rates of each variable. The growth rate for 1988-89 over 1987-88 is computed from the first sample. Similarly, the growth rates for the year 1990-91 over 1989-90, and 1989-90 over 1988-89 are computed from the second sample. This procedure is repeated till the first year chosen in the data set, say 1973. We take the value index for a suitable year (in this case 1980-81) as equal to 100. The series of growth rates for the said variable are then linked to arrive at an index number for any given year. This procedure relies on the following features of RBI data. The sample proportion in terms of paid-up capital has been consistently large in relation to the total population. A majority of companies are retained in successive samples. Even if the composition changes from one sample to another, it is assumed that the aggregate growth pattern would not change due to the large sample size selected from across different industries and size classes. Based on these characteristics of RBI data it is assumed that even though sample aggregates for, say, gross fixed assets (GFA), for the year 1987-88 for 1,908 companies and GFA for 1988-89 for 2,131 companies cannot be compared, the growth rate of the sample aggregate for 1988-89 over 1987-88 from sample 1 and the growth rate for 1989-90 over 1988-89 from sample 2 can be used in a common series. On the basis of this series of growth rates, value indices can be generated by taking the value for a given year as equal to 100. Indices for different variables relating to the public limited companies in the private corporate sector have been generated and presented in the main text of this study. Constant price series for any given variable can be arrived at by deflating with an appropriate price index series.

Other limitations of RBI data arise from the fact that it is based on Annual reports of companies and the emphasis is mainly on financial variables defined in terms of accounting principles rather than economic meaning. This is a well-known limitation and some aspects of this have been discussed in the text of the study. Inter corporate transactions are not adjusted while arriving at the combined financial statements. In respect of financial flows (particularly financial investment) this is important. Additional insight can no doubt be obtained by doing a inter-sectoral flow of funds analysis. However, this limitation by itself does not take away the merits of doing an aggregate level study. RBI Data is not based on a purposive sample and not a random sample. The effort is to give adequate representation for companies belonging to different industry groups and size classes. However, this is compensated by virtue of the large sample size.

Annexure Tables

Table AX-1. Selected Data on Liabilities and Assets of Non-Government Non-Financial Public Ltd. Companies

(Rs crore)

Ref	Year	No of Cos.	Paid-up Capital	GFA	P&M	Land & Bldg	CWP	NFA	Invent Total	Fin Gds (Out of Col.10)	WIP	Fin Inv	NTA	Borrowing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1/74	1970-71	1,650	1,599.3	5,320.6	3,801.0	987.5	124.8	2,931.4	2,267.2	764.1	347.7	177.2	7,133.8	2,870.9
	1971-72	1,650	1,646.6	5,709.4	4,080.2	1,052.7	138.2	3,036.8	2,568.8	844.2	398.7	185.4	7,675.4	3,102.4
9/75	1972-73	1,650	1,651.9	6,023.3	4,307.5	1,108.4	157.1	3,150.2	2,693.3	786.9	427.2	199.3	8,005.8	2,750.7
	1973-74	1,650	1,711.3	6,569.3	4,703.2	1,172.1	204.1	3,385.2	3,105.1	897.1	509.4	208.9	8,980.0	2,884.3
7/76	1973-74	1,650	1,705.7	6,525.0	4,669.2	1,164.6	204.6	3,363.7	3,050.6	873.2	502.6	205.7	8,890.2	3,022.3
	1974-75	1,650	1,813.7	7,301.2	5,286.5	1,264.3	216.3	3,787.0	3,922.0	1,196.4	650.3	217.1	10,550.3	3,455.0
9/74	1974-75	1,650	1,809.1	7,274.8	5,268.8	1,262.5	214.8	3,771.4	3,922.6	1,187.5	654.9	217.5	10,532.1	3,445.9
	1975-76	1,650	1,900.4	8,043.7	5,863.3	1,350.9	254.5	4,170.4	4,098.9	1,363.4	720.4	233.0	11,479.3	3,883.4
5/80	1975-76	1,720	1,899.0	7,841.9	5,763.6	1,316.2	216.8	4,183.0	3,968.6	1,332.9	675.5	224.7	11,271.8	3,945.0
	1976-77	1,720	2,029.7	8,499.7	6,236.8	1,408.8	270.0	4,443.6	3,995.6	1,283.3	749.1	240.4	12,008.4	4,247.6
	1977-78	1,720	2,159.4	9,333.2	6,854.8	1,500.5	337.9	4,860.8	4,248.9	1,332.1	808.5	277.8	13,043.8	4,610.9
11/81	1977-78	1,720	2,147.4	9,304.3	6,841.9	1,489.4	337.0	4,852.5	4,296.2	1,329.8	854.0	275.3	13,064.5	4,576.4
	1978-79	1,720	2,269.1	10,212.6	7,557.6	1,591.8	370.4	5,294.8	4,900.9	1,535.9	945.2	302.4	14,460.1	5,051.7
7/83	1978-79	1,720	2,243.5	10,110.1	7,486.0	1,567.1	368.7	5,241.8	4,832.3	1,510.5	937.2	298.6	14,273.2	4,977.1
	1979-80	1,720	2,357.1	11,137.1	8,274.1	1,699.5	439.1	5,756.7	5,767.6	1,634.9	1,082.6	321.8	16,308.8	5,669.9
	1980-81	1,720	2,484.2	12,747.6	9,373.6	1,872.9	684.6	6,748.9	6,574.4	1,858.9	1,292.4	350.6	18,969.8	6,595.2
2/85	1980-81	1,651	2,710.8	13,658.6	9,998.6	2,030.2	798.5	7,551.0	6,749.0	1,964.3	1,263.4	352.9	20,203.8	7,220.4
	1981-82	1,651	2,885.8	15,904.4	11,490.6	2,299.7	1,173.3	9,087.8	8,051.3	2,442.7	1,555.9	384.7	24,179.9	8,876.2
	1982-83	1,651	3,057.9	18,958.0	13,724.6	2,696.5	1,395.6	11,285.2	8,833.7	3,853.1	1,741.6	462.8	28,398.1	10,765.8

(Concld.)

Table AX-1. (Concld.)

(Rs crore)

Ref	Year	No of Cos.	Paid-up Capital	GFA	P&M	Land & Bldg	CWP	NFA	Invent Total	Fin Gds (Out of Col.10)	WIP	Fin Inv	NTA	Borrowing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
6/87	1982-83	1,838	3,246.0	19,693.0	14,223.3	2,814.9	1,466.3	11,943.2	9,179.8	2,953.4	1,826.5	450.8	29,925.6	11,465.3
	1983-84	1,838	3,476.2	23,181.5	16,813.6	3,551.8	1,461.2	14,213.3	9,394.0	3,112.8	1,795.1	570.0	33,797.1	13,179.6
	1984-85	1,838	3,636.6	27,491.8	19,836.7	4,560.4	1,480.2	16,965.7	10,197.7	3,317.1	1,958.8	849.3	38,895.6	14,921.7
7/88	1983-84	1,867	3,587.0	23,825.8	17,428.6	3,533.7	1,496.1	14,847.9	9,448.9	3,115.8	1,781.9	587.7	34,572.9	13,627.7
	1984-85	1,867	3,768.8	28,152.0	20,602.8	4,501.4	1,454.1	17,583.0	10,253.0	3,318.3	1,963.5	854.5	39,689.0	15,337.8
	1985-86	1,867	3,975.3	34,138.0	24,616.0	6,138.9	1,573.0	21,565.2	11,935.2	3,978.1	2,225.8	1,249.1	47,825.1	18,243.8
9/89	1984-85	1,942	3,750.6	28,738.5	21,115.7	4,618.4	1,478.4	18,056.0	10,403.0	3,258.1	3,258.1	861.3	40,397.7	15,716.8
	1985-86	1,942	3,985.6	34,882.4	25,178.3	6,309.0	1,601.0	22,146.3	12,128.0	3,904.9	3,904.9	1,256.3	48,721.9	18,527.8
	1986-87	1,942	4,404.8	39,323.5	28,488.0	7,098.9	1,734.8	24,800.2	13,184.5	4,328.5	4,328.5	1,569.8	54,844.6	21,602.1
12/90	1985-86	1,953	4,242.5	34,718.6	24,991.5	6,314.7	1,621.3	22,292.6	12,206.0	3,434.1	4,012.9	1,253.4	48,745.8	18,556.3
	1986-87	1,953	4,650.7	39,183.2	28,344.7	7,115.9	1,721.7	24,958.1	13,322.9	3,608.4	4,458.9	1,558.0	54,980.9	21,703.4
	1987-88	1,953	5,244.8	44,009.6	31,598.5	7,753.9	2,394.7	27,340.5	14,370.5	3,971.8	4,663.5	1,786.1	60,090.1	24,210.1
11/92	1987-88	1,908	5,561.4	43,999.6	31,553.2	7,521.4	2,640.5	27,484.0	14,362.8	4,077.7	4,327.4	1,881.4	60,018.7	24,558.5
	1988-89	1,908	6,094.3	49,663.7	35,380.0	8,421.2	3,149.5	30,429.1	17,428.6	5,327.8	5,074.9	2,820.3	70,377.3	29,350.9
	1989-90	1,908	6,703.4	56,724.2	40,975.4	9,250.2	3,494.4	34,342.7	21,756.9	6,479.0	5,833.5	4,794.0	84,365.8	36,202.8
12/93	1988-89	2,131	6,704.8	50,813.4	36,261.7	8,743.1	3,188.4	31,547.2	17,698.7	5,369.8	3,633.5	2,761.7	72,496.3	30,748.8
	1989-90	2,131	7,364.2	57,866.1	42,023.5	9,514.6	3,412.8	35,294.2	20,997.2	6,208.4	4,342.1	4,745.7	86,513.4	37,857.7
	1990-91	2,131	8,204.7	68,462.4	48,843.1	11,010.6	5,212.3	42,113.7	24,738.5	7,293.4	5,163.3	5,215.6	101,961.3	44,009.6

Note: Col. 3 Gives the number of companies included in the sample.
Source: Compiled from *RBI Bulletin,* several issues mentioned in Col 1.

Table AX-2. Selected Data on Total Income and Sales Of Public Ltd Companies

(Rs Crores)

Ref (1)	Year (2)	No of Cos. (3)	TI (4)	Sales (5)	OI (6)	NOSD (7)	Dep (8)	GP (9)	OP (10)	PBT (11)	PAT (12)	Rt.Profit (13)
1/74	1970-71	1,650	7,394.4	7,077.1	129.6	23.5	298.0	730.4	450.7	504.5	284.9	134.2
	1971-72	1,650	8,191.7	7,912.6	148.0	26.0	312.2	785.7	503.9	522.5	273.3	116.6
9/75	1972-73	1,650	8,888.8	8,713.8	157.1	28.2	329.7	827.7	555.0	583.2	313.5	147.6
	1973-74	1,650	9,870.6	9,472.5	180.5	25.2	348.7	991.4	704.8	730.0	391.8	240.2
7/76	1973-74	1,650	9,747.0	9,355.6	178.7	22.1	349.4	997.4	718.1	740.2	385.7	228.5
	1974-75	1,650	12,553.8	11,832.7	206.0	44.1	389.4	1,346.3	968.7	1,012.8	521.2	368.5
9/74	1974-75	1,650	12,537.5	11,811.0	206.3	45.4	389.3	1,350.6	975.9	1,021.3	522.1	367.3
	1975-76	1,650	13,758.5	13,171.1	261.0	85.0	404.6	1,194.7	715.1	800.1	327.8	139.6
5/80	1975-76	1,720	13,535.4	12,949.1	257.0	67.8	408.7	1,192.5	709.7	777.5	322.6	138.9
	1976-77	1,720	14,989.9	14,581.1	344.8	38.0	432.4	1,315.2	775.7	813.7	321.4	112.1
	1977-78	1,720	16,503.9	15,948.5	394.9	51.3	468.0	1,435.8	845.0	896.3	381.4	153.8
11/81	1977-78	1,720	16,578.8	16,000.1	398.9	51.4	470.0	1,443.2	854.0	905.4	387.6	159.1
	1978-79	1,720	18,510.7	17,782.2	394.7	36.4	512.8	1,697.2	1,080.7	1,117.2	545.8	283.3
7/83	1978-79	1,720	18,275.9	17,563.9	387.5	38.4	510.3	1,671.9	1,063.2	1,101.6	538.3	279.3
	1979-80	1,720	21,026.5	20,267.9	422.1	70.1	579.9	2,050.5	1,354.3	1,424.4	759.4	472.3
	1980-81	1,720	24,792.0	23,736.1	488.1	130.0	671.6	2,278.1	1,393.9	1,523.9	873.7	556.5
2/85	1980-81	1,651	25,651.9	24,543.6	515.9	103.3	732.2	2,415.4	1,472.1	1,575.4	884.9	547.2
	1981-82	1,651	30,867.6	29,284.9	572.6	133.1	818.4	2,711.2	1,515.8	1,648.9	946.3	581.0
	1982-83	1,651	33,254.7	31,837.0	698.7	150.8	918.8	2,759.3	1,294.3	1,445.1	875.2	499.0

(Contd.)

Table AX-2. (Concld.)

(Rs Crore)

Ref (1)	Year (2)	No of Cos. (3)	TI (4)	Sales (5)	OI (6)	NOSD (7)	Dep (8)	GP (9)	OP (10)	PBT (11)	PAT (12)	Rt.Profit (13)
6/87	1982-83	1,838	34,633.8	33,111.7	718.4	166.9	998.2	2,961.3	1,462.4	1,599.3	1,009.7	628.3
	1983-84	1,838	37,130.6	35,722.5	922.2	181.6	1,358.5	2,828.7	1,114.8	1,296.4	656.6	258.5
	1984-85	1,838	42,864.8	41,222.3	1,083.2	182.7	1,586.5	3,356.6	1,391.2	1,573.8	817.5	364.7
7/88	1983-84	1,867	37,327.9	35,891.7	920.8	183.4	1,394.6	2,918.9	1,175.1	1,358.4	714.8	318.1
	1984-85	1,867	43,136.0	41,460.2	1,077.4	206.3	1,648.0	3,459.5	1,475.1	1,681.4	908.3	439.7
	1985-86	1,867	49,459.5	47,111.4	1,252.3	163.7	1,912.1	4,193.6	1,892.1	2,055.7	1,216.0	663.1
9/89	1984-85	1,942	43,492.9	41,715.1	1,112.4	203.0	1,686.5	3,546.2	1,532.4	1,735.4	948.1	471.2
	1985-86	1,942	50,213.0	47,801.9	1,308.0	164.4	1,963.7	4,299.2	1,973.5	2,137.9	1,285.7	719.6
	1986-87	1,942	53,771.3	51,588.1	1,341.5	134.7	2,074.5	4,325.7	1,496.1	1,630.8	906.1	296.9
12/90	1985-86	1,953	50,047.4	47,658.6	1,254.3	153.2	1,963.3	4,303.2	1,984.1	2,137.4	1,281.1	720.5
	1986-87	1,953	54,028.1	51,843.7	1,319.9	125.6	2,077.3	4,418.5	1,570.0	1,695.5	964.9	351.8
	1987-88	1,953	59,375.7	57,099.6	1,495.5	245.6	2,692.2	4,440.4	1,191.4	1,437.0	650.4	-72.8
11/92	1987-88	1,908	59,104.0	56,804.8	1,452.7	215.5	2,648.5	4,716.4	1,469.1	1,684.6	883.2	130.7
	1988-89	1,908	71,635.6	68,082.3	1,914.1	307.0	2,962.2	6,189.5	2,393.6	2,700.6	1,732.6	785.1
	1989-90	1,908	87,108.6	82,928.8	2,484.2	276.5	3,457.6	8,659.5	4,033.5	4,310.0	2,823.0	1,649.4
12/93	1988-89	2,131	72,475.2	68,796.3	2,121.8	292.6	3,041.1	6,134.0	2,152.8	2,445.4	1,488.0	550.5
	1989-90	2,131	88,593.6	84,016.4	2,716.4	313.6	3,615.7	8,561.0	3,705.0	4,018.6	2,573.8	1,410.4
	1990-91	2,131	103,152.2	97,314.6	3,392.9	538.7	3,982.3	10,943.3	5,299.5	5,838.1	3,945.5	2,476.2

Source : Same as Table A-1.

Table AX-3 Use of Funds by Non-government Non-financial Public Limited Companies in the Private Corporate Sector

(Rs Crore)

Ref ->	5/80		11/81		7/83		2/85		5/87		
Year ->	1976-77	77-78	77-78	78-79	78-79	79-80	80-81	81-82	82-83	83-84	84-85
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1. GFA	630.3	753.3	753.4	862.9	855.9	1,016.2	1,512.0	2,043.4	2,657.0	2,582.8	2,835.0
Land	7.6	4.4	4.1	8.2	7.9	11.9	15.2	16.7	24.5	34.4	48.1
Bldg	78.2	79.7	76.3	86.0	84.8	113.8	132.1	180.5	265.4	332.3	333.6
P&M	452.5	548.5	552.3	681.4	675.9	783.4	1,033.3	1,364.2	1,947.3	2,114.3	2,236.0
CWP	53.2	68.0	67.6	33.2	33.1	70.4	245.5	374.8	222.3	- 48.8	- 4.2
FF	17.5	22.9	23.1	27.0	25.8	34.0	37.1	48.1	68.4	57.4	56.3
OTH	21.5	29.8	30.1	27.1	28.4	2.7	48.8	59.1	129.1	93.2	165.2
2. Invent	27.0	253.3	273.1	604.6	590.2	935.3	806.8	1,302.1	744.3	213.0	777.1
3. Cu-Asts	363.6	251.1	232.7	297.0	280.0	497.8	691.4	984.0	997.4	1,062.1	1,105.1
4. Fin-Asts	15.6	37.4	37.9	27.1	27.4	23.3	28.8	31.8	78.1	118.5	299.5
5. Oth-Asts	11.3	- 3.1	- 4.0	12.7	12.7	37.0	39.3	-8.8	-25.9	17.2	9.0
6. Cash/bank	58.4	79.4	79.9	11.9	12.6	30.4	102.5	130.0	188.7	204.1	157.8
Total	1,106.2	1,371.4	1,373.0	1,816.1	1,778.8	2,539.9	3,180.8	4,482.5	4,639.6	4,197.6	5,183.6

(Contd.)

Table AX-3. *(Concld.)*

(Rs Crore)

Ref ->	7/88		9/89		12/90		9/92		12/93	
Year ->	1984-85	85-86	85-86	86-87	86-87	87-88	88-89	89-90	89-90	90-91
(1)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1. GFA	2,946.6	3,272.5	3,277.6	3,885.4	3,916.5	4,233.9	5,140.4	6,473.7	6,265.4	8,935.0
Land	38.9	36.7	-2.5	24.5	24.5	33.1	37.9	64.5	48.8	129.0
Bldg	352.1	380.7	367.8	452.0	474.5	403.9	641.3	575.1	570.6	865.8
P&M	2,395.8	2,545.0	2,548.3	3,088.8	3,126.0	2,865.1	3,535.5	5,202.7	5,331.9	5,668.6
CWP	- 47.0	108.8	112.2	136.7	103.8	672.1	504.6	343.2	22.7	1,796.3
FF	49.4	85.1	87.6	95.1	100.2	113.5	133.0	212.7	207.8	220.0
OTH	157.3	116.2	164.2	88.4	87.5	146.2	288.1	75.5	83.6	255.3
2. Invent	797.4	1,682.2	1,725.0	1,056.5	1,116.9	1,047.6	3,064.3	3,081.2	3,298.6	3,741.2
3. Cu-Asts.	1,132.8	1,729.9	1,756.3	1,607.5	1,668.8	1,801.9	3,065.9	4,330.0	4,193.8	3,891.0
4. Fin-Asts	267.1	403.9	404.9	271.2	262.3	226.0	926.8	2,033.5	2,044.7	468.2
5. Oth-Asts	15.1	-5.0	-8.1	40.2	37.1	27.0	137.5	37.3	74.6	54.5
6. Cash/bank	175.9	359.1	374.9	450.9	437.1	-372.8	208.4	652.7	721.5	476.1
Total	5,334.9	7,442.6	7,530.5	7,311.6	7,438.7	6,963.6	12,543.3	16,608.4	16,598.6	17,566.0

Source: Same as Table A-1.

Tables AX-4. Value Indices Computed and Used in The Study (1980-81=100)

Year	GFA	GFI	Deflator	GFI Const. Prices	Fin-Asts	Fin Inv	Total Income	Sales	Other Income	NOSD	SP Index
1	2	3	4	5	6	7	8	9	10	11	12
1973-74	49	(-)	(-)	(-)	55	(-)	38	38	36	15	71.76
1974-75	55	46	65	71	59	37	49	48	41	30	70.44
1975-76	61	46	74	62	63	51	54	54	52	55	60.93
1976-77	66	40	74	54	67	53	60	61	70	31	65.06
1977-78	72	51	72	71	78	127	66	67	80	42	67.25
1978-79	79	56	81	69	85	93	74	74	79	30	81.65
1979-80	87	64	95	67	92	81	85	85	86	54	89.67
1980-81	100	100	100	100	100	100	100	100	100	100	100.00
1981-82	116	130	107	122	109	110	120	119	111	129	118.90
1982-83	139	177	111	159	131	270	130	130	135	146	110.40
1983-84	163	195	113	173	166	422	139	140	174	159	125.30
1984-85	193	235	124	190	241	916	161	162	203	179	136.00
1985-86	234	327	137	238	352	1347	185	185	239	145	221.70
1986-87	264	239	148	161	437	1041	200	202	252	119	230.60
1987-88	297	258	153	168	501	779	220	222	285	232	207.30
1988-89	335	303	169	179	751	3045	267	266	376	331	247.50
1989-90	382	368	186	198	1291	6571	326	325	481	354	359.40
1990-91	452	553	202	275	1419	1556	379	376	601	609	500.30

Notes: a) Columns 1 to 11 (except Col. 4 and 5) have been computed from the RBI sample data given in the combined balance sheet and the income/ expenditure accounts (ref. sample data set in this Annexure), using the method indicated in the Appendix note. All the aforesaid series are at current prices. The index series on gross fixed investment 'GFI' is derived from the series on gross fixed assets (GFA) by computing an index of the first difference of the latter series.
b) Col.4 is used to deflate Col. 3 to arrive at Col.5 (i.e., the constant price series of gross investment). For details on deflator used, refer to text endnote No 5.
c) Col. 12 : Stock price index, Index of Industrial Securities, The *Report on Currency and Finance* Parts I and II several issues.

Cross reference between the indices used in various figures presented in the text and columns of the above table.

Figure 1 : Plot of the indices in Col. 1 and Col. 6 above.
Figure 2 : Plot of the indices in Col. 3 and Col. 7 above (Also presented in Table 3)
Figure 3 : Plot of the Annual Growth rates of indices in Col. 5 and Col. 12 above.
Figure 4 : Plot of the data presented in Col. 4 and Col. 5 of Table 8 in the main text of the paper.
Figure 5 : Plot of the Annual growth rate of indices in Col. 6 and Col. 12 above.

FEATURES AND DETERMINANTS OF RURAL NON-FARM SECTOR IN INDIA AND ORISSA - A SURVEY

Kishor C. Samal

The main focus of the paper is a detailed and critical review of literature on the Rural Non-Farm Sector (RNFS) and the main objectives of such a survey are (i) to identify the factors which are supposed to determine the level and growth of RNFS and the mechanism through which these factors operate, and (ii) to find out the characteristics of RNFS in developing countries including India. The first section of this paper describes the features of RNFS in developing countries, particularly in Asia and Africa. The second and third sections deal with three well-known hypotheses, as determinants of RNFS in India, viz., Inter-linkages hypothesis, urbanization hypothesis and residual sector hypothesis. The fourth portrays the characteristics of the RNFS in India and the fifth those in Orissa. The sixth section examines the determinants of the level of RNFS in Orissa and comes to the conclusion that equal distribution of land and rural assets including water for irrigation and common property resources (CPR), instead of subsidization of mechanisation of agriculture, and expansion of primary and secondary education rather than subsidization of higher education may help the growth and expansion of RNFS activities through consumption - expenditure linkages by increasing rural income and bringing more equal distribution of such income. Moreover, education and literacy help in increasing the productivity and skill of workers which, in turn, mostly stimulate the growth of modern informal RNFS with new technology. Therefore, to alleviate rural poverty and unemployment, the growth of RNFS is desirable which is possible by reducing both dispersion of land and rural assets by effective land reform measures and dispersion of rural income by expansion of primary and secondary education.

In the process of economic development, agriculture and the modern formal industrial sector are not able to absorb the growing labour force in the developing countries. Since the agricultural sector in the rural areas is oversaturated, the growth of rural non-farm sector (RNFS) is seen as a promising sector for creation of sustainable employment and as the solution to the problem of poverty in rural areas. Until recently, the commonly held view was that the RNFS was a non-productive sector which is expected to wither away with development. However, there is growth of RNFS in most of the developing countries including India. Recently much interest has been created in the nature, characteristics structure, operational problems, policies and factors affecting the growth of the RNFS. At present, it is argued that in a situation of rural workforce growing faster than the employment potential of agriculture, the RNFS has positive role to play in promoting growth and welfare. So, it is argued that the RNFS (i) can lower unemployment by absorbing growing labour force; (ii) reduce rural-urban migration and thereby contribute in easing urban congestion and lowering pressures on scarce urban infrastructure facilities; (iii) employ women and provide seasonal employment or residual employment for those left out of agriculture and for the poor who cannot find sustenance in agriculture since they are small landholders or landless; (iv) use more appropriate technology, particularly in small-scale rural manufacturing and thus generate greater income from available productive inputs; (v) improve household security through diversification; (vi) contribute to national economic growth; (vii) produce commonly consumed goods at lower prices which are mostly demanded by the poor; and (viii) promote a more equitable distribution of income [Lanjouw and Lanjouw,

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1995].

It is further argued that since redistribution of income through tax-transfer mechanism is politically and administratively difficult in all the developing countries there is a case for focusing on RNFS from the point of view of income distribution. Various organisations and scholars [ILO, 1983; Liedholm and Chuta, 1979; World Bank, 1978] have written on RNFS of developing countries.

In India, after Independence, the State had a declared policy of reducing or eradicating rural poverty by land reform measures. But this policy barring a few exceptions was a failure. Therefore, the Union Government started various rural development programmes such as Food and Work Programme (FWP), Integrated Rural Development Programme (IRDP) and others in the 1970s and 1980s to attack rural poverty, underemployment and unemployment. However, due to improper implementation and various leakages, these programmes are also not successful. Against the background of failure of land reforms and improper implementation of various rural development programmes, RNFS is seen as a sector with a potential to alleviate rural poverty and reduce unemployment.

The main focus of the paper is a detailed and critical review of literature on RNFS, the main objectives of which are: i) to identify the factors which are supposed to determine the level and growth of RNFS and mechanism through which these factors operate; ii) to find out the characteristics of RNFS in developing countries including India; iii) to examine whether it is appropriate to state the features of RNFS as a whole without taking into consideration the different sub-sectors within it; and iv) to consider whether, in terms of spatial focus, it is appropriate to carry out analysis at the state level rather than for more disaggregated subdivisional units.

The present paper is divided into seven sections. The first section describes the features of RNFS in developing countries, particularly in Asia and Africa. The second section deals with the appropriateness in India of the inter-linkages hypothesis. The third analyses other hypotheses, viz., urbanisation hypothesis and residual sector hypothesis as determinants of RNFS. The fourth portrays the features of RNFS in India and the fifth those in Orissa, an eastern coastal state of India on the Bay of Bengal. The sixth section examines the determinants of the level of RNFS in Orissa. The last section gives conclusions.

I
CONCEPT AND FEATURES OF RNFS: A GLOBAL SURVEY[1]

In the background paper for the *World Development Report 1995,* RNFS is defined as the sector which includes all economic activities in rural areas, except agriculture, livestock, fishing and hunting. It is not in any sense a homogeneous sector. RNFS may include: i) activities undertaken by farm households as independent producers in their home; ii) the subcontracting of work to farm families by urban-based firms; iii) non-farm activities in villages and rural town enterprises; and iv) commuting between rural residents and urban non-farm jobs [Lanjouw and Lanjouw, 1995].

Thus, RNFS includes a wide range of economic activities whose composition may vary from country to country. The most common convention is to include animal husbandry, hunting and trapping, forestry and logging, fishing, etc., in agriculture and, accordingly, all other economic activities in rural areas would constitute RNFS [Chadha, 1993, Pp. 296-327]. Thus, RNFS comprises all non-agricultural activities, mining and quarrying, household and non-household manufacturing, processing, repairs, construction, trade and hotelling, transport and communication, and community, personal and other services in rural areas.

Limitations of The Concept

There are certain limitations of the concept of RNFS [Lanjouw and Lanjouw, 1995]. These are stated briefly below.

1. Definition of 'Rural': Different definitions of 'rural' are used in the collection of census and survey information. The definition of rural settlement on the basis of size of population varies from a population of 5,000 to 20,000. Thus, a more limited definition of 'rural' lowers the percentage of employment in RNFS.

2. Underestimation: Various features of the data on RNFS imply that the percentage of rural employment in RNFS may be underestimated for all countries. First, the figures on RNFS in different countries refer only to primary employment (Table 1). But primary employment status underestimates the actual percentage of 'labour hours' engaged in RNFS since many workers work in RNFS in slack season of agriculture. For instance, in Africa, 15-65 per cent of farmers have secondary employment in RNFS and 15-40 per cent of total family labour hours are devoted to income-generating RNFS activities [Haggblade, *et al.,* 1989, Pp. 1173-1201]. Second, there is every possibility that RNFS enterprises may simply be missed in survey since they are very small and dispersed. In south African countries, under-emuneration has been as high as 40 per cent. In spite of underestimation, RNFS is substantial in many countries, both in terms of income and employment. It has also been growing over time.

Characteristics

RNFS is not a homogeneous sector. It is a heterogeneous sector having various sub-sectors. So, it possesses various interesting characteristics. Let us look into these.

1. Small Size: Across the countries, the size of the RNFS enterprises is very small on the whole [Haggblade, *et al.,* 1989, Pp. 1173-1201]. They are small in terms of employment, capital investment, cost of inputs, ownership of land, premises and tools, as is found, for example, in Kenya [Norcliff, 1983, Pp. 981-84]. In comparison to formal sector, the RNFS uses more labour-intensive methods of production.

2. Labour Productivity: RNFS comprises activities with a wide range of labour productivities. There are mainly two groups of RNFS activities: (i) low labour productivity activities serving as a residual source of employment, and (ii) high labour productivity activities [Lanjouw and Lanjouw, 1995].

There is wide variation in returns to labour in RNFS in Java (Indonesia), Uttar Pradesh (India), Thailand and Bangladesh [Alexander, *et al.,* 1991; Hossain, 1987; Papola, 1987; Romijn, 1987]. Labour productivity in RNFS activities in China is found to have improved substantially due to infrastructural support, education, etc. [Chadha, 1992].

3. Population Pressure: The intensity of participation in RNFS activities is associated with population pressure. For instance, it is found from the study of 36 Nigerian villages that involvement in RNFS activities by adults and children is common and the intensity of this involvement is positively correlated with seriousness of population pressure (Okafor, 1983, Pp. 226-39]. Around 40 per cent of the total rural labour input in Nigeria is engaged in RNFS activities.

4. Wage and Involuntary Unemployment: When the involuntarily unemployed do not find employment in agriculture at the prevailing wage rate, the agricultural wage is not the opportunity cost of labour. In this scenario, low wage employment outside agriculture is taken up by the involuntarily unemployed agricultural labourer, particularly those who do not have family to fall back on (Lanjouw and Lanjouw: 1995).

5. Women Participation: In many countries, the ability of women to work outside the home is limited. Males have a comparative advantage in RNFS activities because of their ability to travel away from home and to earn a higher wage rate, while women take household responsibilities relating to cooking, child care, etc. The opportunity cost of the time of women also bears little relation to the agricultural wage. Working in cottage industry is particularly useful for women from the point of view of combining it with

household work, an employment in cottage industry is most often a part-time occupation for women, as in Africa and Bangladesh [Bagachwa and Stewart, 1992; Hossain, 1987].

6. Income Distribution: Whether inequality in distribution of income increases or decreases due to participation in RNFS activities is not easy to say. However, it is presumed that if a large portion of the RNFS income goes to the higher income groups of society, then opportunity to engage in RNFS activities increases inequality in income distribution and vice versa [Lanjouw and Lanjouw, 1995].

The evidence from empirical studies is mixed. In some studies it is found that the poor and landless get a higher percentage of income from RNFS occupations in Japan, Taiwan and South Korea [White, 1992] and Kenya, Botswana, Nigeria and the Gambia [Bagachwa and Stewart, 1992]. These studies imply that RNFS plays some role in bringing equality in distribution of income and alleviating poverty. On the other hand, the studies in India, Kenya and Vietnam show that the relationship between RNFS income and total income or assets is U-shaped [Evans and Ngau, 1991, Pp. 519-45; Walle, 1994]. Here as the assets and income rise the tendency of seeking RNFS work decreases thereby reducing the share of RNFS income in the total income. But after a point as the total income and assets rise, there is a tendency to invest the surplus on RNFS activities thereby increasing the proportion of income from RNFS activities in the total income.

7. Seasonality: Many people in rural areas are seasonally unemployed. In slack season, a rural worker may not be able to find employment in the agricultural sector. So, even a low productivity occupation with low wage/income can be useful to raise and provide stable income over the year [Lanjouw and Lanjouw, 1995]. However, the types of RNFS employment which are available on a seasonal basis are limited. Capital intensive RNFS activities are not likely to be undertaken seasonally because capital is underutilised during the agricultural peak seasons.

The seasonality of employment in RNFS activities is found in various empirical studies. The incidence of seasonality in RNFS employment is observed in Thailand [Romijn, 1987; Shand, 1986], Bangladesh [Reza, 1986] and Philippines [Fabella, 1986]. But in Nigeria, the level of involvement in RNFS activities does not seem to be subject to seasonal fluctuation [Okafor, 1983, Pp. 226-39]. There are only minor seasonal variations in the share of RNFS workforce in rural areas in Philippines.

On the basis of seasonal variation, RNFS activities may be grouped into two categories: (i) those competing with agriculture for labour and run parallel to agricultural cycle, and (ii) those that are complementary to agriculture and are taken up during agricultural slack period and linked to agriculture through market demand [Fabella, 1986].

8. Risk Diversification: Most of the households earn income from multiple sources and have multiple jobs. RNFS income may stabilize income by spreading risk through diversification. Where agricultural output varies greatly over the year and across the years and where mechanism for stabilising income such as credit and transfer is absent, RNFS plays an important role in risk diversification [Lanjouw and Lanjouw, 1995].

II
INTER-LINKAGE HYPOTHESIS AND INDIA

The linkages between agriculture and the rest of the economy have drawn the attention of the economists from the time of physiocrats. Hirschman [1958] advocated unbalanced growth in his theory of 'big push' with particular reference to industries. While Hirschman analysed two types of linkages between industries, Watanabe [1983] classified linkages between industries into five categories. But to Hirschman [1958], compared to industry, agriculture is a weaker stimulant to the starting of new economic activities through linkage effects.

However, some studies [e.g., Mellor, 1976] show that agriculture has the capacity to stimulate new economic activities in the rural non-farm sector (RNFS) through consumption-expenditure

linkages. Various other types of growth linkages such as (i) backward linkages, (ii) forward linkages, (iii) capital flow linkages, and (iv) labour flow linkages of agriculture are also recognised [Haggblade *et al.*, 1989, Pp. 1173-1201; Harriss, 1987, Pp. 31-46].

In the mid-1970s, John Mellor [1976] stated the role of RNFS in a set of proposals for India. The growth of farm and non-farm sector would be mutually reinforcing with employment and income increasing in a dispersed pattern. In his view, geographic isolation and tastes of rural population combined to make demand for locally produced goods increase with income. It is argued by Mellor that due to growth in productivity in agriculture, income from agricultural sector rises which consequently expands the consumption demand of farmers for labour-intensive goods and hence stimulates the growth of RNFS.

According to the argument of Mellor [1976], technological innovation which brings increased food supply normally distributes the initial benefits largely to the already more wealthy and prosperous class. This initial increase in rural income sets in motion a sequence of multiplier effects which can stimulate expanded production and employment in other sectors of the economy including consumer goods industries and small-scale units in RNFS which are likely to be labour - intensive. The expanded income due to higher employment of lower-income labouring class, who spend larger portion of their increased income on food, provides the demand for additional foodgrains production. In this way, the inter-sectoral linkages between farm and non-farm sectors in rural areas are established which are beneficial to each other and stimulate both the sectors. So, the focal theme of Mellor's argument (the inter-sectoral linkage hypothesis) is that without having any equal distribution of rural income and assets, there can be growth through inter-sectoral linkages between farm and non-farm sectors in rural areas which can only be achieved by development of capitalist agriculture through introduction of technological advance.

Agricultural Development As a Stimulant?

Some studies in India suggest that the growth in agricultural production is likely to stimulate the growth and development of RNFS [Bhalla, 1990, 1993, Pp. 428-39; Dev, 1990, Pp. 1526-36; Papola, 1987, 1992, Pp. 238-48; Shukla, 1992, Pp. 1477-88; Unni, 1991, 1994]. In his study on India, Papola finds that in different states the performance of rural industrial sector, a sub-sector of RNFS is associated, with agricultural productivity and has higher correlation with the growth rate of agricultural output. Agricultural growth has influenced RNFS directly by supplying raw materials and creating demand for inputs and allied services and indirectly through raising consumption demand and generating surplus for investment [Papola, 1987, 1992, Pp. 238-48).

Papola [1987] also argues that the major part of the rural industrial activity in different states has continued mainly as a part of the tradition without being necessarily differentiated on the basis of linkages and integration with the local resources and changing demand pattern. Due to this reason, most of the industrial enterprises in RNFS in India are carried out as a means of family subsistence rather than as business [Papola, 1987]. There was a significant growth in RNFS activities in the agriculturally developed state of Haryana during the period 1970-71 to 1993-94 [Sardana, *et al.*, 1995, Pp. 417-21]. It was observed that the share of RNFS employment was the highest in the agriculturally developed districts, Ambala followed by Rohtak in both the years 1981 and 1991. But simultaneously, the RNFS employment has also increased significantly in a majority of districts of Haryana which are not agriculturally developed [Sardana, et al. 1995].

On the other hand, the assumption that the growth of RNFS is led by agricultural development is not observed in various empirical studies in India. The linkages and relationship between farm and non-farm sectors in rural areas are mixed and complex. It is observed that the level and

growth of land productivity, per capita agricultural output, non-food crops, etc., are not significantly related to RNFS in taluk and district levels in Gujarat [Basant, 1994, Pp. A.107-16]. Similarly, in West Bengal, it is found that in the districts where agricultural output grew at a rate greater than the state average, the proportion of male RNFS workers has declined during the period 1961-81 [Chandrasekhar, 1993, Pp. 205-70]. This study does not find any significant relationship between the shares in total rural employment in RNFS activities and the rate of growth of agricultural output and its components in 1981. The agriculturally more developed western Uttar Pradesh has experienced a shift away from the RNFS due to continued ability to absorb more labour in agriculture [Singh, 1994]. Thus, it is difficult to say whether RNFS expands or contracts due to rise in agricultural productivity.

Other Factors Along with Agricultural Growth

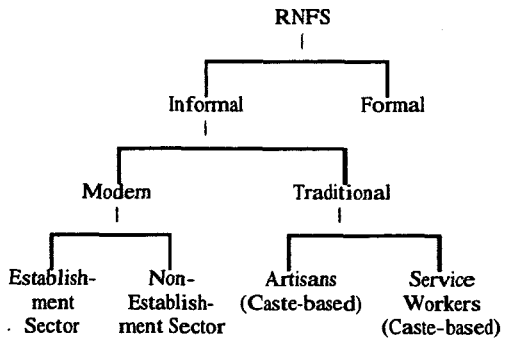
It is sometimes observed that the growth of RNFS is due to various factors including agricultural growth [Eapen, 1994, 1995, Pp. 634-53; Shukla V., 1989, 1992, Pp. 1477-88; Singh, 1994; Unni, 1991, Pp. 109-22]. In Kerala a high degree of commercialisation of agriculture, close rural-urban linkages, rapidly declining land-man ratio, increase in the proportion of marginal holding, overall rural prosperity, flow of remittance into rural areas, and growing level of literacy have historically played an important role in generating a high level of employment in RNFS [Eapen, 1994, 1995, Pp. 634-53].

In Uttar Pradesh (U.P.) as a whole, the level of agricultural prosperity, inequalities in income/expenditure and land distribution, mechanisation of irrigation and other agricultural operations are found to exercise a positive influence on the growth of RNFS activities [Singh, 1994]. A large size of landless labourers and limited possibility of further absorption of labour in agriculture are associated with a higher level of RNFS employment in U.P. However, it is not necessarily a distress employment phenomenon since poverty levels show a strong negative association with RNFS employment [Singh, 1994].

Thus, the stimulants to the growth of RNFS can come both from agriculture or outside it. However, agricultural development may improve the efficiency of RNFS enterprises without necessarily increasing their number [Papola, 1982; Papola and Mishra, 1980, Pp. 1733-46].

Traditional RNFS

While discussing or analysing the RNFS and its linkages with farm sector, the dichotomy in it should be recognised. The RNFS can be classified as follows:



If we classify in this manner, the growth pattern will be different for different sub-sectors. It is more likely that agricultural development may have an adverse effect on traditional RNFS, particularly on artisans. Traditional service workers (e.g., barbers, washermen, etc.) may not be adversely affected, though *jajmani* system is more likely to be replaced by market mechanism.

Of course, one theoretical study [Mukhopadhyay, 1985, Pp. 966-73] has recognised the bimodal nature of RNFS, such as (i) Rural Non-Agricultural (RNA) sub-sector-I, and (ii) RNA sub-sector-II. The first group comprises products and/or activities which are run on more or less stable basis with an eye on surplus generation and growth, using primarily hired labour and a certain degree of technological sophistication. The second group comprises

products and/or services which often, though not always, seasonal are run with the help, primarily of unpaid family labourers, using rather primitive technology, catering mostly to the local market and responding more to the supply side of the labour market than the market demand for the product. Kumar [1993, Pp. 440-54] has also recognised that both traditional and non-traditional components of RNFS may have different kinds of interlinkages with agriculture.

It is to be pointed out that traditional agriculture uses mostly locally produced inputs. The large part of these locally produced inputs are supplied by agriculture and animal husbandry. The dependence of agriculture using modern technology on non-local inputs is comparatively more. Thus, while growth of agricultural production generally accounts in a more than proportionate increase in demand for non-agricultural inputs, it does not necessarily lead to an increase in demand for locally made inputs as a whole [Vaidyanathan, 1994, Pp. 3147-56]. Perhaps, for this reason, the number of workers employed in traditional RNFS in India has declined or remained stagnant while there is a corresponding expansion in the non-traditional sector. It is found that though small-scale traditional manufacturing mostly in rural households has been protected and subsidised in India, it has declined relatively [Little, 1987, Pp. 203-35]. Similarly, traditional industries in RNFS diminished rapidly in importance in other developing countries such as Malaysia, Philippines, Taiwan, Pakistan, Colombia, etc. [Lanjouw and Lanjouw, 1995; Little, 1987]. Of course, in some rural areas in India, traditional RNFS still continues to cater to local consumption needs and to small production requirement of agriculture [Papola, 1987].

The same declining trend of traditional RNFS as well as presence of disguised unemployment and declining output per worker in it are also observed in empirical studies on various states like Gujarat, Himachal Pradesh, Haryana, Uttar Pradesh and the eastern region of India [Basant, 1994, Pp. A-107-16; Sardana, *et al.*, 1995, Pp. 417-21; Sarswat, *et al.*, 1995, Pp. 430-36; Singh, 1994; Verma and Verma, 1995, Pp. 422-29].

In our study [Samal, 1989] of village Pahadasigida, one of the eight villages having concentration of artisans of the most prosperous agriculturally developed block of Orissa, viz., Attabira, it is observed that there is a fall in the sale of products of traditional RNFS consisting of three categories of artisans, viz., blacksmith, carpenter and potter, which is either due to the availability of substitutes produced by modern formal industry, mostly located in urban areas (40 per cent of cases) or due to availability of similar products of big formal industry at cheaper price (30 per cent of cases). Moreover in the past, a sizeable portion of the demand for the products of artisans (traditional RNFS) in the block was coming from large farmers but it has come down sharply (from 60 per cent to 37 per cent) at present. The main portion of the demand (46 per cent) for artisans' products at present is from small farmers. But none of the respondent artisans has changed his occupation over the last 30 years. Thus, though there may be a rise in the number of people engaged in traditional informal RNFS, the sale and income of this sector have declined over time validating the inference that there is rise in disguisedly unemployed in traditional RNFS. But it is not correct to presume that the disguisedly unemployed of the agricultural sector have moved out of it and joined as disguisedly unemployed in the traditional RNFS.

On the other hand, in our study on displacement and socio-economic impact of National Aluminium Company Limited (NALCO) Angul sector[2] in the industrial belt of Talcher-Angul of Orissa, we found that income from agriculture and allied sector as a percentage of total income has declined from 44.56 per cent in 1983 (pre-displacement period) to only 19.87 per cent in 1994 (post-displacement period), while the importance of RNFS as a source of household income has been growing, the proportion of this income increasing from 55.49 per cent in 1983 to 70.54 per cent in 1994. However, most of these incomes are from modern formal sector. This is

because of the rise in number of service holders in public sector undertakings and government sector, particularly in NALCO, since the affected persons of these villages are employed in NALCO under rehabilitation policy.

Inequitable Distribution of Land: A Constraint

We have observed that the growth of agricultural development has led to decline in traditional RNFS, particularly in manufacturing, in most of the rural areas of India. That does not necessarily imply that it led to the growth of modern RNFS everywhere. However, the growth of labour-intensive RNFS is seen as the solution to the problem of rural unemployment and poverty. So, it is argued that inter-sectoral linkages between agricultural sector and RNFS would generate the growth of RNFS by generating productive employment [e.g., Mellor, 1976].

But this argument does not realise that the inequitable structure of rural economy and inequitable distribution of land and rural assets are constraints to the growth of RNFS. It is empirically found that in the green revolution belt of Punjab, large farmers are not the major source of demand for labour-intensive RNFS goods and services [Ray, 1994, Pp. A.171-74]. Technological development in agriculture led to rise in production expenditure on non-local inputs, rather than in consumption expenditure. In general, rising income due to growth in agriculture generates demand for non-local goods.

Even modern technology in agriculture and commercialisation of agriculture accentuate the inequality in income distribution of rural society by adversely affecting the subgroup rural poor and this inequality, in turn, hardly stimulates RNFS as a whole through consumption-expenditure linkages. A general equilibrium model shows that income gains from green revolution in India initially accrued to the wealthier rural groups, but that after 1972-73 they were transferred to consumers mostly in urban areas, and that by 1980-81 real per capita income of rural population was barely above their 1960-61 level (Table 2) [Quizon and Binswanger, 1986, Pp. 103-48]. In the early green revolution period, large farmers gained the most while the rural poor gained very little. But the sub-group of rural poor including the landless agricultural workers suffered severely.

Thus, the gains in agricultural production during the late 1970s were not reflected in further advances in rural income because the prices of agricultural products fell. Instead, the productivity gains were transferred to consumers mostly in urban areas by way of declining prices. Thus the increased production expenditure of the rich farmers and gains in productivity in terms of lower food prices accrue to the urban centres. In this sense, the rise in agricultural productivity may have little impact on RNFS.

In reality, technological innovation and commercialisation of agriculture have accentuated the inequality in rural society which, in turn, may not facilitate the growth of RNFS. In the real world instances, the poor have failed to reap the benefits or even lost from the technological change or commercialisation. Where these effects have occurred, it is found that they are mostly attributable to inelastic demand or adverse institutional features [Binswanger and Braun, 1991, Pp. 57-80].

Even the income of the wealthier farmers who gained from the rise in agricultural production may not help in the growth of RNFS. The consumer products such as cosmetics and toiletries, etc., and agricultural inputs like fertilisers, pesticides, implements, etc., are produced by large industrial firms including multinationals in the formal sector mostly situated in urban centres. Even if these goods are produced by the non-traditional RNFS, they may not find market among the rural wealthier class who have a psychological preference for products produced in big cities by formal sector units. Thus the rise in consumption demand for these products emanating from the increased income arising out of the agricultural sector generates demand for the products of mostly urban-based, capital-intensive

formal manufacturing sector including multinationals. Hence, the surplus generated in agricultural sector, instead of being spent on RNFS goods, is siphoned off to large industries in urban centres and, in some cases, to foreign countries through large dividends and frequent issue of bonus shares by multinationals.

As mentioned earlier, similar is the case with the traditional RNFS. Due to rise in agricultural income, the tastes of the people change and they prefer the substitutes for these RNFS products produced in urban centres such as cement, iron rods, corrugated iron sheets, plastic pots, aluminium and stainless steel utensils, factory-produced synthetic and cotton clothes, cycles, wristwatches, etc., in place of *Khaparali* and tiles, pottery and bell-metal utensils, handlooms, bullock carts, etc. Thus, the competition from the formal sector mostly situated in urban areas may lead to decline of traditional RNFS whose products may not get a ready market with large capitalist farmers in agriculturally developed region

Thus, the benefit of the production-expenditure linkages and consumption-expenditure linkages of agricultural development as well as the gain in productivity in the form of lower price of foodgrains mostly accrue to urban centres in India.

It is pertinent to mention that in Taiwan, agriculture gave the initial impetus to the development of rural industry and this development was stimulated by a fairly equitable distribution of rural income, land and assets and investment which in turn contributed to an annual growth of 11.5 per cent in RNFS income over the period 1962-80 [Lanjouw and Lanjouw, 1995; Ranis and Stewart, 1993, Pp. 75-101]. Perhaps due to comparatively more equal distribution of land by vigorous implementation of land reform measures, the percentage of RNFS workers among Rural Main Worker (RMW) was highest in Kerala in India (36.9) followed by West Bengal (26.4) during 1983 (Table 3). In one study relating to rural Karnataka (India), it is found that the distribution of agricultural land and assets are positively associated with participation in RNFS activities [Rayappa, 1986].

Liberalisation and Neo-Colonialisation

Mellor's [1976] assumption that both geographic isolation and the unchanged tastes of the rural people will stimulate the demand for locally produced goods may not be fully correct in this age of globalisation and liberalisation.

Under liberalisation and globalisation some of the RNFS activities in developing countries may decline. The entry of multinationals and the liberalisation of imports in India, might lead to neo-colonialistic tendency. In this sense, the model formulated by Hymer and Resnick in the 1960s and recent extension of the model by Ranis and Stewart to explain the purported decline of RNFS activities under colonialism are very much appropriate for India [Hymer and Resnick, 1969, Pp. 493-500; Ranis and Stewart, 1993, Pp. 75-101].

With the advent of either direct colonial links or neo-colonialism through entry of multinationals and liberalisation of imports and exports, two trends are observed: (i) emergence of new opportunities for exporting cash crops and natural resources, and (ii) availability of cheap and higher quality manufactured goods from foreign countries. Both, the competition from imports and drawing off of labour into the growing cash crop sector, would stifle RNFS activities.

When heterogeneity of the RNFS is recognised, we may find that some parts of RNFS will be dynamic while others will be declining [Ranis and Stewart, 1993, Pp. 75-101]. Colonialism stifled RNFS in Philippines. The imported goods under colonialism in Java (Indonesia) had a detrimental impact on some subsectors of RNFS [Ranis and Stewart, 1993, Pp. 75-101].

Similar is the case in India. The traditional RNFS and the rural economy in India are, at present, being shaped by uncertainty and transience which are further fuelled by the process of liberalisation and increased reliance on market forces. In the past, during the British colonial period, there was disruption of the traditional RNFS activities brought about by a combination of merchant power and state power [Balkrishna and Gopalkumar, 1995, Pp. 61-68]. There was also simultaneous transformation of social ethos and shift in tastes and preferences of the consumers.

Similarly, at present, as a result of liberalisation and transition to market-determined economy and the consequent entry of multinationals and transnationals in India, there will certainly be a very dampening impact on traditional RNFS due to flooding of cheap substitutes and similar products and change in tastes and preferences of both the rural and urban consumers on account of aggressive advertisement in both print and multi-channel electronic media of their products.

Thus, the rise in agricultural productivity, if any, may not expand RNFS activities under the regime of liberalisation and implementation of the Dunkel agreement.

III
OTHER HYPOTHESES ON DETERMINANTS OF RNFS

Another view is that RNFS is a residual sector since the workers in the rural areas who are not able to find employment in the agricultural sector are forced to join the RNFS. It is also argued that factors responsible for the growth of RNFS do not lie wholly in agriculture or in rural areas. The process of urbanisation also influences the growth of RNFS and sometimes exercises a positive impact on RNFS employment [Basant, 1994, Pp. A.107-16; Jayaraj, 1994, Pp. 153-85; Kundu, 1991; Shukla, 1992, Pp. 1477-88; Singh, 1994; Unni, 1991, Pp. 109-22; Visaria and Basant, 1994, Chapter 1]. Besides the residual sector hypothesis and urbanisation hypothesis, there are also other arguments which mention various factors that influence the RNFS activities (as observed by the various empirical studies in India) such as:

(i) change in the tastes of the rural consumers,
(ii) competition from factory sector [Visaria and Basant, 1994, Chapter 1],
(iii) administrative, development and social services,
(iv) rural electrification [Singh, 1994],
(v) flow of remittance to rural areas,
(vi) growth in consumer demand [Eapen, 1994, 1995, Pp. 634-53],
(vii) literacy rate of the population [Basant, 1993, Pp. 361-86; Jayaraj, 1994, Pp. 153-85; Rayappa, 1986],
(viii) Proximity of rural areas to urban areas [Basant, 1993, Pp. 361-86; Jayaraj, 1994, Pp. 153-85],
(ix) level of development of transport system [Jayaraj, 1994, Pp. 153-85],
(x) the level of rural and extra-local demand [Vaidyanathan, 1994, Pp. 3147-56],
(xi) caste [Rayappa, 1986], and
(xii) landlessness [Basant, 1993, Pp. 361-86].

Residual Sector Hypothesis

It is argued that the growth of RNFS is caused by agricultural distress rather than by overall development. It is stated that the rural workers who are not able to find employment in the agricultural sector are forced to join the RNFS. So, the RNFS is regarded as the residual sector.

However, some empirical studies in India strongly belie the residual sector hypothesis while others support it. Bhalla [1990] has identified two kinds of distress situation in which RNFS becomes residual labour force. The first is supplementary workers who have no main occupation but engage in subsidiary work to supplement household income. The second refers to persons with a main occupation who also engage in secondary activity. The RNFS activities in the case of eastern region of India and eastern U.P. appear to be residual activities in rural areas [Singh, 1994; Verma and Verma, 1995, Pp. 422-29]. It is argued that excess labour pushed out of agriculture has no alternative but to turn to RNFS in search of job. But the assumption that the disguisedly unemployed of agricultural sector

join traditional RNFS as disguisedly unemployed, which is mostly caste-related skill-based, and are unable to join the urban informal sector, may not be a reality.

On the other hand, the rise in rural real wage rates across the board taken together with the rapid expansion of RNFS employment in India does not validate the residual sector hypothesis [Vaidyanathan, 1986, 1994, Pp. 3147-56]. Similarly, at the state level also, the growth of RNFS employment is not necessarily due to distress condition [Basant, 1994, Pp. A.107-16; Dev, 1990, Pp. 1526-36; Unni, 1991, Pp. 109-22].

Rural-Urban Migration

The most important effect of distress condition in the rural areas is neglected by the residual sector hypothesis. Due to unfavourable condition in rural areas, such as prevalence of capitalist production in agriculture, decline of rural handicrafts, inadequate income, poverty, unemployment, underemployment, seasonal employment, loss of property and sources of income due to natural calamities, etc., the landless agricultural labourers, small marginal farmers and artisans are pushed out of the rural areas and move mainly to urban centres in search of jobs in the informal sector. In contrast to the Lewis - Ranis - Fei model of one-way migration [Lewis, 1954, Pp. 139-91; Fei and Ranis, 1967], the rural urban migration is regarded as two-stage phenomenon in Todaro model [Todaro, 1969, Pp. 138-48]. Lewis model postulates that the capitalist sector expands, if the capitalist surplus is invested taking more people out of the subsistence sector into capitalist employment at constant real wage of subsistence level. This process will continue until the labour surplus disappears. An elaboration of one aspect of Lewis model was provided by Fei and Ranis [1967] who assume co-existence of two sectors in labour surplus type of underdeveloped economy: subsistence agricultural sector and commercialised industrial sector. Levis-Ranis-Fei model assumes one-way migration from subsistence sector mostly in rural areas to capitalist industrial sector mostly in urban areas.

In contrast to this, Todaro [1969] recognised a dichotomy in our urban economy. The migration is regarded as two-stage phenomenon in Todaro's model. In the first stage, the unskilled rural worker migrates to an urban area and initially spends a certain period of time in the socalled urban traditional sector. In the second stage, after a certain period of job search, he eventually attains a job in more permanent modern sector.

While Todaro gives importance to 'pull' factors in the process of rural-urban migration, others [e.g., Amin, 1974] emphasize 'push' factor - a force of expulsion from the rural areas. Thus, due to distress condition or 'push effect', the workers who are pushed out of the agricultural sector may not be able to start any RNFS enterprises due to lack of capital or may not find year-round employment in RNFS. They may move to join the urban informal sector for year-round employment, higher rural-urban current earning differential and other social and economic advantages [Papola, 1981; Samal, 1990, Pp. 30-38].

Of course, a study of a semi-arid village (of Gujarat) has taken the aspect of migration into consideration by bringing out distinction between two categories of RNFS activities [Shylendra and Thomas, 1995, Pp. 410-16]. One is the non-farm proper (NFP) which includes (i) artisans/service, (ii) trade/business, and (iii) white collar and other jobs, movement towards which is largely due to increased local demand for different goods and services or the expansion of government activities. The second is that of non-farm migratory (NFM) activities. Most of the households in the village have been compelled to migrate during lean-periods as a result of distress.

Thus, though the study has taken the seasonal migration into account, it has not dealt with the rural - to - urban migration in general and joining the urban informal sector by rural migrants for their year-round work and livelihood which is what is observed in other areas.

IV
FEATURES OF RNFS IN INDIA: A REVIEW

The size of RNFS in India is measured in terms of employment using Census of India and NSS data.[3] RNFS includes all economic activities other than crop production and allied agricultural activities such as animal husbandry, plantation, fishing, etc. It includes both principal and marginal workers. Table 3 presents data on the percentage of non-farm workers in the rural workforce at the state level [Unni, 1989, 1991, 1994]. The following features of RNFS in India are observed by various studies:

1. Growth: The RNFS workers as a percentage of rural workforce in India increased from 14.3 per cent in 1961 to 18.6 per cent in 1983 (Table 3). The share of RNFS workers in the rural workforce in India ranged from 9.0 per cent in Madhya Pradesh and Rajasthan to 39.7 per cent in Kerala in 1961 and from 10.0 per cent in Madhya Pradesh to 36.9 per cent in Kerala in 1983.

The RNFS employment among rural males of India has expanded at an average annual rate of 4.7 per cent while farm employment expanded at an average annual rate of only 1 per cent. The corresponding rates of growth of rural female employment were 4.6 and 1.5 per cent, respectively [Visaria, 1995, Pp. 398-409]. In rural areas, the RNFS incomes have also been rising steadily [Chadha, 1993, Pp. 296-327]. It is observed that some of the RNFS activities rise with the size class of the village [Visaria, 1995, Pp. 398-409].

2. Sub-Sector Growth: Within the RNFS in India, the increase in tertiary sector seems to be higher than that in the secondary sector [Basant and Kumar, 1994]. The growth in employment in manufacturing sector of RNFS is modest because of continuing decline of the household industry and the substitution of capital for labour, particularly in food processing and flour preparation [Visaria, 1995, Pp. 398-409].

In the rural industrial sector of RNFS, household production is more prominent in most consumer goods industries while non-household mode of organisation is dominant in capital and intermediate goods industries [Mathur and Pani, 1993, Pp. 328-60]. Attainment of higher level of rural development tends to promote expansion of non-household component of rural industrialisation but a relative shrinkage of the traditional household industries. The degree of spatial spread is more in non-household segment than within the household segment for most rural industries.

The public utilities in RNFS have been a very dynamic sub-sector with an average annual growth rate of around 11 per cent followed by construction sub-sector (Table 4). The growth of employment in the construction sub-sector of RNFS in India was partly a result of scarcity relief work initiated in states [Visaria, 1995, Pp. 398-409].

3. Seasonality and Casuality: Most of the increase in RNFS is explained by the increase in proportion of casual RNFS workers, and the casual agricultural labourers report a much higher incidence of RNFS work in a secondary or subsidiary capacity [Basant and Kumar, 1989]. Most of the seasonal fluctuation in RNFS employment can be explained by the change in employment structure of rural casual labourers who shift back and forth between farm and non-farm sectors.

4. Scattered in Space: The sources of RNFS employment are far too scattered in space [Chadha, 1993, Pp. 296-327]. This type of employment is available to workers in their own village, nearby villages or in the nearby towns.

5. Cross-engagements and Diversification: In rural areas, there are no watertight compartments of employment activities. Some households whose declared principal occupation is agriculture do engage in other activities. Cross-engagements are common. The important features of this cross-engagements are: (i) The household whose declared principal occupation is in any sub-sector of RNFS does also report involvement in agriculture, (ii) The cross engagement is largely in the form of wage-paid employment [Chadha, 1993, Pp. 296-327].

6. Size of Land Holding and RNFS: The extent of participation in RNFS activities of the members of the household is determined by the size of holding, besides ownership of land [Rayappa, 1986]. As the size of the holding goes up, the tendency of seeking RNFS work decreases. The landless and marginal holding households spend a higher proportion of their employment time in RNFS jobs [Chadha, 1993, Pp. 296-327]. It is observed by a study that as the size of the land holding becomes smaller, the proportion of RNFS households increases consistently, as for example, from 8.00 per cent for larger-sized land holders to 51.50 per cent for the landless in 1987-88 [Thorat, 1993, Pp. 470-91]. That is, an inverse relationship between farm size and the proportion of rural households engaged in RNFS in the years 1987-88, 1983-84 and 1977-78 is observed in India (Table 5).

7. Women's Participation: There has been now considerable rise in the proportion of women to men workers over 1980 in manufacturing activities of RNFS in India. This is not necessarily due to replacement of male workers by female workers leading to rise in male unemployment nor a reflection of substitution of low-paid female workers for male workers [Mitra, 1993, Pp. 455-69].

8. Educational Attainments: Education is regarded as a crucial input for employment in RNFS in India. Proportion of illiterate workers in RNFS is much less than that in agriculture [Chadha, 1993, Pp. 296-327]. Educational attainment facilitates a shift from agriculture to RNFS since educational qualification is helpful to get RNFS jobs.

9. Plan Allocation for RNFS: The allocation made towards rural/village small industry promotion, ostensibly in RNFS, accounted for a meagre 1.5 per cent to 2.1 per cent of the total public sector investment in India during the plan periods (Table 6). Small scale orientation of rural industrialisation policies has benefited the small scale industries (SSI) units, large majority of which are concentrated in large towns and cities [Durgaprasad, 1995, Pp. 69-82]. For instance, 'small-scale industries' usually urban oriented, have attracted the largest outlay (Table 7).

V
RNFS IN ORISSA: SOME TENTATIVE FEATURES[4]

The growth, structure and distribution of RNFS activities in Orissa, an eastern coastal state of India on the Bay of Bengal, are presented in Tables 8 to 14. It is to be pointed out that the total population of Orissa is 31.5 million as per the Census of India, 1991. The rural population accounts for 87 per cent of the total population of the state. Out of 11.8 million workers in the state, 10.6 million are rural workers. Among rural workers, 9.1 million are main workers.[5] Eighty per cent of these main workers are engaged in agriculture and allied sectors. Though, there is predominance of agriculture and allied sector, there has been growth of RNFS in the state. The RNFS workers as a percentage of rural main workers grew from 15.8 per cent in 1981 to 17.5 per cent in 1991 (Table 8). Employment in RNFS in the state grew at the rate of 2.8 per cent per annum during 1981 to 1991 (Table 9), while the number of rural main workers grew by 1.7 per cent per annum (Tables 8 and 12). The decadal compound growth rate per annum of RNFS is highest at 4.3 per cent in Balasore district followed by Kalahandi (3.7 per cent) and Puri (3.4 per cent) (Table 9).

A study group appointed by NABARD has observed certain interesting features of RNFS in Orissa. According to their definition 'RNFS comprises all non-agricultural activities: mining and quarrying, household and non-household manufacturing, processing, repairs, construction, trade, transport and other services in villages and rural towns upto 20,000 population, undertaken by enterprises varying in size from household "own-account enterprise" all the way to "factories"'. On the basis of this definition, the following features of RNFS of Orissa are observed.

1. Regional Variation and Clustering: There are regional variations in the importance of RNFS to the local economy within Orissa. The percentage share of RNFS workers to rural main workers of

the district is the highest in Cuttack at 25.6 per cent followed by Puri (22.1 per cent), Dhenkanal (21.6 per cent) and Sundergarh (21.5 per cent) (Table 10).

There is also an element of sub-sector-specific clustering in RNFS. Around two-thirds of paddy processing units of the state are located in Sambalpur only, cotton textiles in Cuttack, Sambalpur and Ganjam area, spice processing in Ganjam district, fibre products and stoneware in coastal districts, non-timber forest products collection in Koraput and Kalahandi and mineral-based industries in Dhenkanal, Keonjhar and parts of Sundergarh district. Thus, the specific clustering is mainly due to the availability of raw materials and inputs. However, cotton textile concentration in Ganjam, Cuttack and Sambalpur is on account of long strong handloom tradition in the region.

2. Sub-Sector Growth: The percentage of RNFS workers of the state engaged in mining is 4.6 per cent, in household manufacturing 18.2 per cent, and in other services 38.6 per cent (Table 11). The percentage of total RNFS workers engaged in household manufacturing is highest in Sambalpur at 35.1 per cent followed by Mayurbhanj (34.4 per cent) and Bolangir (30.8 per cent). Thus, major portion of RNFS workers are engaged in household manufacturing and other services (Table 11). There is increase of rural main workers in household manufacturing sub-sector of RNFS in Orissa at an annual rate of 1.5 per cent, But manufacturing in the non-household sector increased slowly at 1.2 per cent per annum (Table 12).

Some of the high growth RNFS sub-sectors of Orissa are: (i) services, (ii) electricity and water, and (iii) jute/hemp products (Table 13).

3. Technology and Credit: A large number of artisans and cottage level producers in traditional RNFS use traditional technology while a small number of larger units like rice mills use modern technology.

Availability of credit for both fixed capital and assets and for working capital is the major problem for most of the sub-sectors of RNFS in Orissa. A large majority of RNFS producers had to rely on informal credit sector due to inadequacy of loan amount, unnecessary delay and excessive paper work in getting a loan from formal sector financial institutions [NABARD, 1994].

4. Demand for RNFS Products: The sustained growth in both domestic and export demand is found to be an important factor determining the growth of a sub-sector of RNFS in Orissa. The domestic demand seems to have helped the growth of sub-sectors such as spice processing, cotton textiles, minor mineral processing, handicrafts, repairs and rural transport. On the other hand, the growth of textile products, cut-flowers, handicrafts and handloom products is influenced by the export demand. But there is constraint in the growth of sub-sectors like pottery and wood products due to lack of demand [NABARD, 1994].

5. Employment Pattern: In working population of Orissa, the percentage of the self-employed, wage employed and casual labourers of RNFS was 14.4, 5.1 and 5.0, respectively, during 1987-88. The respective decadal growth rate of these groups was 6.2, 5.1 and 4.6, respectively (Table 14).

6. Traditional RNFS: There is dominance of artisan-based units like filigree, bell-metal, stoneware, sawai-rope making in the industrial profile of Orissa. The state government has been trying to protect these traditional RNFS enterprises through a number of promotional measures.

In the traditional RNFS, the government policy in protecting the employment of handloom weavers is quite prominent. The number of persons engaged in handloom industry is around 2.1 lakh. But most of these workers are part-time and do not get gainful employment round the year. The demand for handlooms is declining. Most of the traditional RNFS industries are facing the same challenge.

VI
DETERMINANTS OF RNFS IN ORISSA: A STATIC VIEW

It is observed that though the percentage of rural families living below poverty line is the highest (90.77 per cent) in Mayurbhanj district (Table 15), the district ranks ninth after Cuttack, Puri, Dhenkanal, Sundergarh, Keonjhar, Sambalpur, Balasore and Ganjam in terms of percentage of rural main workers of the district engaged in RNFS in 1991 (Table 10). Hence, the presumption of residual sector hypothesis that the poverty of the people due to agricultural distress forces them to join RNFS may be open to question.

Land Distribution

Land holding and percentage of land owned by different categories of holding are depicted in Tables 16 and 17. The percentage of '4 hectares and above holdings' to total holdings is higher in Koraput, Sambalpur and Kalahandi and lower in Puri, Cuttack, Dhenkanal and Ganjam. The districts where '4 hectares and above holdings' as a percentage of total holdings is lower are regarded as having comparatively more equal distribution of land and vice versa. The districts in Orissa are ranked in a descending order from comparatively more equal distribution to less equal distribution of land. Similarly, the districts are also ranked in descending order on the basis of percentage share of RNFS workers in rural main workers (RMW) in the district (Table 17). Larger is the percentage share of RNFS workers, higher is the rank of the district. The rank correlation coefficient between the percentage share of RNFS workers (RNFSW) in RMW and equal distribution of land is positive (0.71) and significant. This implies that more is the equal distribution of land, larger is the percentage share of RNFSW in RMW of the district. This may be due to the fact that a more equitable distribution of land and rural assets, say, under an effective land reform policy, imply the transfer of rural assets and thereby the income and purchasing power from the wealthier peasants to landless and marginal farmers. This, in turn, may transfer the rural consumption demand from non-local products, produced by large industrial houses including multinationals mostly in the urban formal sector, to local products produced in RNFS, considering that the wealthier, capitalist farmers gaining from agricultural productivity due to improved technology and commercialisation of agriculture are not the major source of demand for RNFS products.

Thus, equal distribution of land and rural assets including common property resources and water for irrigation and RNFS activities are positively related through consumption expenditure linkages. However, whether inequality in distribution of income increases or decreases due to participation in RNFS activities is not easy to say.

Literacy Rate and Education

Various economic indicators of Orissa and their coefficient matrix is shown in Tables 18 and 19. It is found that coefficient of correlation between the percentage share of RNFS workers (RNFSW) in RMW (X_6) and the percentage of rural families below the poverty line (X_1) are negative and significant (Table 19). It implies that districts having lower percentage of families below poverty line have higher percentage share of RNFSW in RMW. Thus, the RNFS in Orissa is not a residual sector. On the other hand, RNFS activities might have helped in alleviating poverty in the rural areas.

It is also observed that there is negative correlation between kharif yield per hectare (X_2) and percentage share of RNFSW in RMW (X_6) and positive correlation between rabi yield per hectare (X_3) and the latter (X_6) but such relationship is not at all significant in both the cases (Table 19). In Orissa, major portion of foodgrain production is in kharif and hence the agricultural productivity has little to do with RNFS activities. Thus, it is not possible to predict *a priori* whether RNFS employment expands or contracts with agricultural productivity.

However, there is positive correlation between the percentage of urban population (X_4) and the percentage share of RNFSW in RMW (X_6) and the correlation is significant, though not definitely

significant (Table 19). It implies that the percentage of urban population/urbanisation in the district positively affects the share of RNFSW in RMW.

Most important observation from the coefficient matrix is that there is a positive and definitely significant correlation between the literacy rate (X_5) and the percentage share of RNFSW (X_6) (Table 19). This implies that the districts with high literacy rate have comparatively larger percentage share of RNFSW in RMW.

There is also positive correlation between the percentage of urban population (X_4) and the literacy rate (X_5) which is significant (Table 19). Except some extreme cases, the districts with high percentage of urban population have high literacy rate. This may be due to comparatively better availability of educational facilities in urban centres, the benefit of which accrues to both urban and nearby rural areas. Thus, urbanisation may positively influence the literacy rate and educational attainment, which in turn may positively influence the share of RNFSW in RMW. On the other hand, there is negative correlation between X_1 and X_4 as well as between the percentage of rural families below poverty line (X_1) and the literacy rate (X_5). That is, the districts with higher percentage of rural families below poverty line have lower literacy rate.

Thus literacy rate is positively influenced by the level of urbanisation and negatively by poverty. However, the RNFS is strongly influenced by literacy rate and educational attainment. The positive relationship between RNFS and literacy is also observed in other states [Basant, 1993, Pp. 361-86; Jayaraj, 1994, Pp. 153-85; Rayappa, 1986]. Literacy rate and percentage of RNFSW in RMW in different states are also positively related. Moreover, both the literacy rate at 89.8 (Table 20) and the percentage of RNFSW in RMW at 36.9 (Table 3) are highest in Kerala among the states. Thus literacy rate has a role to play in the level and growth of RNFS.

Education, Income Distribution and Employment

Education and literacy might help in growth of RNFS since it improves the skill of a person which is required to start a modern RNFS enterprise with new technology or high labour productivity activities. Moreover, any education, at least beyond seventh standard may discourage a person to work as agricultural worker or owner-operator cultivator, since agriculture is regarded as a dull, monotonous and low-status job by the educated in Orissa - to plough as bullock driver or transplant in muddy water. So, an educated person after completion of his education joins RNFS, rather than working in agriculture, after his waiting period, during which he searches for a better job in RNFS, either as self-employed or wage worker or in a traditional activity under market mechanism.

Education has a large and significant impact on productivity growth. That is, literacy and educational attainment help in skill formation which, in turn, expands the growth of RNFS, particularly non-traditional RNFS. Moreover, educated and literate men have more access to information and available facilities including inputs and assistance from public institutional systems which help to start and expand a RNFS enterprise. The RNFS enterprise requiring modern technology is easily adopted by the educated and literate. It is also observed from the study of 25 of the world's largest countries that spread of technology depended on the learning potential and motivation that were linked to the development of formal schooling [Psacharopoulos, 1988, Pp. 99-116]. It is to be pointed out that no nation with uneducated and illiterate citizens is developed. However, the rate of return is the highest in primary education followed by secondary and then university level (Tables 21 and 22). Educational attainment and literacy also affect positively efficiency in resource allocation leading to higher income and more equitable distribution of such income [Psacharopoulos, 1988].

Since education has strong impact on an individual's earnings, the net effect of the expansion of schooling has been a reduction in the dispersion of earnings and hence a more even distribution of income. However, this equity effect depends on the level of schooling expansion. The basic and primary education has the highest impact on distribution of income favourable to equity while equity impact of expansion of post-graduation may actually be negative [Psacharopoulos, 1988, Pp. 99-116]. This is because low level of earnings of otherwise illiterate workers are raised to the overall mean by imparting to them primary education while post-graduate education received mostly by high-income groups in society will raise their incomes further away from the mean.

Thus, reduction in both, the dispersion of landholding even by direct measures like land reform and in the dispersion of earnings through spread of primary education will bring about less unequal distribution of income and may help to boost rural income and assets and thereby RNFS activities through consumption-expenditure linkages.

Thus, education (primary and secondary) not only helps directly in the growth of RNFS activities by diverting workers from farm to non-farm sector and helping in skill formation but also helps indirectly through consumption-expenditure linkages by bringing about less unequal distribution of income in rural society.

VII
CONCLUSION

The three existing well-known hypotheses argue that the level of RNFS is either determined by agricultural development, or urbanisation or forced expulsion of labourer out of agriculture. But is it correct to presume that coming up of a large-scale non-agro-based industry or mining activities or public services in a rural area is determined by these factors?

It is imperative to think of dualism in RNFS. RNFS can be classified as formal and informal, and a further distinction can be made between traditional and modern within informal RNFS. If at all, the factors mentioned in the hypotheses determine the level of RNFS, these may influence the informal sub-sector rather than formal component of RNFS, except of course agro-based industrial units.

Moreover, the analysis of RNFS with reference to specific regions may give more insights than talking in terms of rural areas of a state as a whole. If an area, though not in the vicinity of a town, is situated in an industrial belt, the RNFS is more likely to be vibrant. On the other hand, the proportion of RNFS workers to the main workers in an agriculturally and industrially underdeveloped region may be higher due to some historical reasons and strong tradition. The level and pattern of growth of various sub-sectors of RNFS are also expected to be different in different regions.

Sometimes, the level and location of RNFS, particularly service sub-sector including public administration, education and modern health services, may be determined by exogenous factors such as state policy on administration and social sector.

It is difficult to estimate the exact number of workers in RNFS due to multi-occupational status, different definitions of 'rural' and underenumeration of RNFS enterprises. The extent of secondary employment in RNFS is quite extensive. So, it is more scientific to calculate labour-hours spent in RNFS or percentage of RNFS income in total income of a family.

In spite of these limitations and difficulties in the methodology, it is observed from our field study that income from RNFS as a percentage of total household income has increased rapidly in the industrially developed region of Orissa. On the other hand, agricultural development in a region has adversely affected the sale and income of the traditional informal RNFS, though the number of persons engaged in this sub-sector have increased implying the incidence of disguised unemployment in it.

In our analysis of RNFS as a whole in Orissa, we come to the conclusion that more even distribution of land and rural assets including water from irrigation and common property resources as distinct from subsidisation of mechanisation of agriculture, and expansion of primary and secondary education rather than subsidisation of higher education, may help the growth and expansion of RNFS activities by increasing rural income and improving distribution of such income. Moreover, education and literacy help in increasing the productivity and skill of workers which in turn mostly stimulate the growth of modern informal RNFS with new technology.

Thus, more even distribution of land and rural assets, as also literacy and education are the two most important factors determining the level and growth of RNFS activities, particularly the informal component of it.

Thus, to alleviate rural poverty and unemployment, the growth of RNFS is desirable which is possible by reducing both dispersion of land and rural assets by land reforms and dispersion in rural income by expansion of primary and secondary education.

NOTES

1. For a comprehensive global survey, see, Lanjouw and Lanjouw [1995] who prepared the background paper for *World Development Report 1995.*

2. This was not undertaken particularly to study the RNFS but to assess the socio-economic impact of NALCO Angul sector in the affected villages. The percentage of RNFS income in the family income is a part of this study. The sample villages are Kholua, Tentoloi, Balaram Prasad and Gotamara which have been affected by the establishment of NALCO Angul sector.

3. The information on farm and RNFS employment is available both in population Census and NSS survey. But many definition - and conceptual modifications are effected in one Census after the other so that there are bound to be diverse conceptual absurdities. Similarly, NSS estimates on employment are computed under three different approaches, viz., (i) the usual status, (ii) the current weekly status, and (iii) the current daily status approach.

4. These features of RNFS in Orissa have been observed by a study group on the Rural Non-Farm Sector appointed by NABARD in their report, *The Rural Non-Farm Sector in Orissa,* 1994.

5. Rural main workers are those engaged in work over half the year in rural areas.

ABBREVIATION

CPR	- Common Property Resources
ERRP	- Economic Rehabilitation of Rural Poor
FWP	- Food for Work Programme
ILO	- International Labour Organisation
IRDP	- Integrated Rural Development Programme
NABARD	- National Bank for Agriculture and Rural Development
NALCO	- National Aluminium Company, Limited
NFM	- Non-Farm Migratory
NFP	- Non-Farm Proper
NSS	- National Sample Survey
RMW	- Rural Main Worker
RNA	- Rural Non-Agriculture
RNFS	- Rural Non-Farm Sector
RNFSW	- Rural Non-Farm Sector Workers
SAM	- Social Account Matrices
SEEUY	- Self Employment of Educated Unemployed Youth
SSI	- Small Scale Industries
TRYSEM	- Training of Rural Youth for Self Employment

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Table 1. Percentage of Employment in RNFS in Selected Countries

Sl. No.	Country	Year	Per cent of Total Rural Employment in RNFS
(1)	(2)	(3)	(4)
I.	ASIA		
	1. Bangladesh	1982	4
	2. China	1986	20
	3. India	1991	20*
	4. Indonesia (Central Java)	1985	37
	5. Malaysia	1980	49
	6. Pakistan	1982-83	32
	7. Philippines	1985	33
	8. Sri Lanka	1981	46
	9. Taiwan	1980	67
	10. Thailand	1985	31
II.	AFRICA		
	11. Cameroon	1976	8
	12. Malawi	1977	9
	13. Mali	1976	6
	14. Mauritania	1977	21
	15. Rwanda	1978	5
	16. Senegal	1970-71	18
	17. Sierra Leone	1974	14
	18. Zimbabwe	1982	19
	19. Zambia	1985	24
III.	OTHERS		
	20. Colombia	1974	43
	21. El Salvador	1975	32

Note: * Per cent of rural *male* employment in RNFS.
Source: Lanjouw and Lanjouw, 1995, Pp. 65-66.

Table 2. Simulated Indexes of Income Distribution and Income Sources in India for Selected Crop Years, 1960-81

(1970-71 = 100)

Sl. No.	Endogenous Variables	1960-61	1965-66	1970-71	1973-74	1975-76	1980-81
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Total Actual Agricultural Output	79.3	81.2	100.0	99.4	107.1	119.6
2.	Actual Prices (Agricultural/Non-agricultural Goods)	89.8	97.2	100.0	97.7	91.6	76.3
3.	Real Residual Farm Profit	64.2	67.9	100.0	86.0	85.1	76.4
4.	Agricultural Employment	98.2	100.0	100.0	112.3	118.8	118.5
5.	Real Agricultural Wage Bill	91.2	95.3	100.0	101.4	104.9	105.4
6.	Rural Income (Aggregate)	92.9	92.4	100.0	93.6	92.9	94.9
	A) Poorest	101.0	99.0	100.0	95.9	97.4	107.0
	B) Richest	88.5	88.6	100.0	92.4	90.7	88.8
7.	Urban Income (Aggregate)	89.4	102.3	100.0	99.4	102.2	136.7
	A) Poorest	91.9	100.4	100.0	98.1	100.7	136.0
	B) Richest	97.6	102.3	100.0	99.8	102.2	133.5

Note: In the original table both rural and urban income are categorised as first (poorest) second, third and fourth (richest) quartiles. In this table only figures for first and fourth are taken.

Source: Quizon and Binswanger, 1986.

Table 3. Percentage of Non-Farm Workers in Rural Workforce in India

(Per cent)

Sl. No.	State	1961	1971	1977-78	1981	1983
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Andhra Pradesh	17.8	17.3	17.6	17.0	22.8
2.	Bihar	13.1	10.4	15.3	12.6	16.5
3.	Gujarat	11.8	14.1	13.0	17.4	15.4
4.	Haryana	16.3	21.5	18.3	21.2	22.3
5.	Himachal Pradesh	10.0	17.8	12.2	17.7	12.9
6.	Karnataka	11.7	15.5	15.2	15.4	15.8
7.	Kerala	39.7	38.0	34.6	42.3	36.9
8.	Madhya Pradesh	9.0	9.4	8.6	10.4	10.0
9.	Maharashtra	10.1	12.7	14.2	13.6	14.3
10.	Orissa	12.9	14.9	15.0	14.9	20.9
11.	Punjab	23.9	20.5	18.5	21.1	17.5
12.	Rajasthan	9.0	12.6	11.6	12.9	13.3
13.	Tamil Nadu	17.9	19.1	22.0	18.3	25.4
14.	Uttar Pradesh	12.8	12.3	17.3	12.9	18.0
15.	West Bengal	20.3	18.2	24.4	21.8	26.4
	All India	14.3	15.2	16.7	15.8	18.6

Source: Unni, 1994.

Table 4. Percentage Distribution of Workers (Usual Status) in Rural India, 1972-73 to 1987-88

(Per cent)

Sl. No.	Sector	1972-73	1977-78	1983	1987-88	Average Annual Growth Rate over the 15-year period
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Agriculture	85.6	83.4	81.5	78.3	1.2
2.	Mining & Quarrying	0.3	0.4	0.5	0.6	6.4
3.	Manufacturing	5.4	6.2	6.8	7.2	3.9
4.	Electricity, Gas and	0.1	0.1	0.1	0.2	11.5
5.	Water	1.4	1.3	1.6	3.3	7.9
6.	Construction	2.5	3.3	3.4	4.0	5.0
7.	Trade, Hotel, etc.	0.6	0.8	1.1	1.3	6.7
8.	Transport and Storage Services	4.1	4.5	4.9	5.1	3.3
	All	100	100	100	100	1.8

Source: Visaria, 1995.

Table 5. Farm Size and RNFS Employment of Rural Households: India

(Per cent of Rural Households Mainly Engaged in RNFS)

Sl. No.	Size Class of Land Cultivated (in Acres)	Total Non-Farm Households			Annual Compound Growth Rate 1977-78
		1977-78	1983-84	1987-88	
(1)	(2)	(3)	(4)	(5)	(6)
1.	Landless	49.30	51.80	51.50	27.98*
2.	0.02 - 0.99	41.40	43.30	33.50	-7.99*
3.	1.00 - 2.49	16.90	20.40	20.20	2.95
4.	2.50 - 4.99	9.10	12.00	13.60	3.36
5.	5.00 - 9.99	5.60	12.20	10.20	3.96
6.	10.00 and above	3.70	6.20	8.00	2.66
	Total	24.6	28.57	31.40	3.99

Note: * This extremely high growth rate for landless households and negative growth rate for 0.02 - 0.99 acre size category seems to be the result of change in the definition of landless households in 1987-88.
Source: Thorat, 1993.

Table 6. Plan Allocation Towards Village and Small Industries Sector in India

Sl. No.	Five Year Plans/Annual Plans	Rs Crore	Percentage to Total Public Sector Investment
(1)	(2)	(3)	(4)
1.	First (1951-56)	48.00	2.1
2.	Second (1956-61)	187.00	4.0
3.	Third (1961-66)	240.80	2.8
4.	Annual Plans (1966-69)	126.10	1.9
5.	Fourth (1969-74)	242.60	1.5
6.	Fifth (1974-79)	592.50	1.5
7.	Annual/Rolling Plans (1979-80)	255.70	2.1
8.	Sixth (1980-85)	1,780.50	1.8
9.	Seventh (1985-90)	2,752.74	1.5

Source: Durgaprasad, 1995.

Table 7. Total Plan Outlays and Expenditure on Village and Small Industries in India (Both Centre and States/UTs)

(Rs Crore)

Sl. No.	Sector	1987-88 (Actual)	1988-89 (RE)	1989-90 (Approved)
(1)	(2)	(3)	(4)	(5)
1.	Khadi and Village Industries	140.76	161.22	204.62
2.	Handloom	91.17	122.27	145.18
3.	Sericulture	58.60	80.19	89.60
4.	Handicrafts	22.31	23.22	29.71
5.	Coir	5.76	9.44	10.25
6.	Small-Scale Industries	298.51	332.98	318.03
7.	Powerlooms	1.69	2.95	2.79
	Total	618.80	732.77	800.16

Source: Durgaprasad, 1995.

Table 8. Rural Main Workers and Rural Non-Farm Workers in Orissa (1981 and 1991)

Year	Total Rural Main Workers (Nos.)	Total Rural Non-Farm Workers (Nos.)	RNFSW as Per cent of RMW
(1)	(2)	(3)	(4)
1981	77,00,962	12,17,879	15.8
1991	91,52,526	16,03,821	17.5

Table 9. Rural Non-Farm Workers in Orissa by Districts

Sl. No.	District	RNFS Workers (in thousand)		Decadal Compound Growth of RNFS (Percentage)
		1981	1991	
(1)	(2)	(3)	(4)	(5)
1.	Sambalpur	119(9.8)	152(9.5)	2.49
2.	Sundargarh	70(5.7)	77(4.8)	1.01
3.	Keonjhar	63(5.1)	75(4.7)	1.81
4.	Mayurbhanj	85(7.0)	104(6.5)	2.09
5.	Balasore	79(6.5)	120(7.5)	4.30
6.	Cuttack	244(20.0)	325(20.2)	2.89
7.	Dhenkanal	87(7.1)	118(7.3)	3.11
8.	Phulbani	34(2.8)	39(2.4)	1.59
9.	Bolangir	54(4.5)	73(4.6)	3.06
10.	Kalahandi	45(3.7)	65(4.0)	3.74
11.	Koraput	85(7.0)	107(6.7)	2.26
12.	Ganjam	128(10.5)	165(10.3)	2.58
13.	Puri	131(10.8)	183(11.4)	3.41
	Orissa	1,218(100)	1,604(100)	2.71

Notes: i) Figures in parentheses show percentage share of RNFS workers in total state RNFS workers.
ii) All the districts refer to undivided districts of Orissa.
Source: i) *Census of India, 1981, 1991*; ii) NABARD, 1994.

Table 10. Percentage Share of RNFS Workers in Rural Main Workers of Districts in Orissa (1991)

(in thousand)

Sl. No. (1)	District (2)	Total Rural Population (3)	Rural Main Workers (4)	Rural Non-Farm Sector Workers (RNFSW) (5)
1.	Sambalpur	2,235	856	152(17.8)
2.	Sundargarh	1,049	361	77(21.5)
3.	Keonjhar	1,170	391	75(19.2)
4.	Mayurbhanj	17,683	669	104(15.6)
5.	Balasore	2,538	686	120(17.6)
6.	Cuttack	4,844	1,268	325(25.6)
7.	Dhenkanal	1,721	545	118(21.6)
8.	Phulbani	813	319	39(12.3)
9.	Bolangir	1,543	550	73(13.4)
10.	Kalahandi	1,496	569	65(11.3)
11.	Koraput	2,675	1,102	107(9.7)
12.	Ganjam	2,688	1,009	165(16.3)
13.	Puri	2,884	828	183(22.1)
	Orissa	27,425	9,153	1,604(17.5)

Notes: i) Figures in parentheses show percentage share of RNFS workers in rural main workers. ii) RNFS workers exclude cultivators, agricultural labourers and workers in allied categories. (iii) All the districts refer to undivided districts of Orissa.
Source: i) *Census of India, 1991*; ii) NABARD, 1994.

Table 11. Distribution of RNFS Workers by Industrial Categories in Orissa (1991)

(As Per cent of RNFS)

Sl. No. (1)	District (2)	Mining (3)	Household Manufacturing (4)	Non-household Manufacturing (5)	Construction (6)	Trade (7)	Transport (8)	Other Services (9)	Total RNFS (10)
1.	Sambalpur	3.9	35.1	12.2	1.1	13.3	2.5	31.9	100
2.	Sundargarh	19.0	12.6	16.8	1.6	10.2	4.6	35.2	100
3.	Keonjhar	30.6	11.9	7.6	2.3	11.6	4.3	31.6	100
4.	Mayurbhanj	1.4	34.4	8.3	1.9	14.6	4.7	34.7	100
5.	Balasore	2.4	8.5	11.2	1.9	19.7	7.2	49.1	100
6.	Cuttack	1.8	11.4	12.8	2.9	22.9	6.6	41.6	100
7.	Dhenkanal	6.7	19.5	11.7	5.1	15.3	3.2	38.5	100
8.	Phulbani	0.2	24.4	6.2	2.2	18.9	2.9	45.3	100
9.	Bolangir	1.9	30.8	10.3	2.1	16.3	3.8	34.8	100
10.	Kalahandi	0.5	24.8	8.7	2.8	21.4	3.0	38.9	100
11.	Koraput	1.2	14.4	6.9	4.5	24.5	4.0	44.4	100
12.	Ganjam	3.5	15.2	12.9	3.0	24.8	4.6	36.0	100
13.	Puri	1.5	14.2	13.1	3.3	24.4	6.5	37.1	100
	Orissa	4.6	18.2	11.4	2.8	19.5	4.9	38.6	100

Note: All the districts refer to undivided districts of Orissa.
Source: i) *Census of India, 1991*; ii) NABARD, 1994.

Table 12. Distribution of Rural Main Workers in Orissa

Sl. No.	Category	Rural Main Workers (RMW) in Orissa (in thousand)		Percentage Change from 1981 to 1991	Annual Compound Growth Rate (per cent)
		1991	1981		
(1)	(2)	(3)	(4)	(5)	(6)
1.	Cultivators	4,520(49.38)	3,987(51.78)	13.4	1.3
2.	Agricultural Labourers	2,877(31.43)	2,320(30.13)	24.0	2.2
3.	Allied	152(1.66)	174(2.26)	-12.5	-1.3
4.	Mining	73(0.80)	540(7.01)	36.0	3.1
5.	Household Manufacturing	293(3.20)	251(3.26)	16.5	1.5
6.	Non-household Manufacturing	183(2.00)	162(2.10)	12.5	1.2
7.	Construction	45(0.49)	55(0.71)	-18.8	-2.1
8.	Trade	313(3.42)	194(2.52)	61.7	4.9
9.	Transport	79(0.86)	59(0.77)	33.7	2.9
10.	Other Services	619(6.76)	443(5.75)	39.7	3.4
	Total RMW	9,153(100)	7,700(100)	18.8	1.7
	Total RNFSW	1,604	1,218	31.7	2.79

Note: Figures in parentheses show percentage to total Rural Main Workers.
Source: i) *Census of India, 1981, 1991*; ii) NABARD, 1994.

Table 13. High Growth RNFS Sub-Sectors in Orissa

(Annual Compound Growth Rate over 5 Years from 1982-83 to 1987-88)

Sl. No.	Description	Growth Rate (Per cent)
(1)	(2)	(3)
1.	Cotton Textiles	14.87
2.	Jute/hemp products	43.99
3.	Textile products	10.25
4.	Electricity/Water	43.99
5.	Construction	20.70
6.	Communication	20.87
7.	Medical Service	11.45
8.	Services	59.48

Source: NABARD, 1994.

Table 14. Employment Pattern of RNFS Workers (Usual Status) in Orissa

(in thousand)

Year	Self-Employment		Wage Employment		Casual Labour		Overall Working Population
	Farm	Non-Farm	Farm	Non-Farm	Farm	Non-Farm	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1977-78	3,964	758	493	301	3,158	306	9,014
	(44.0)	(8.4)	(5.5)	(3.3)	(35.0)	(3.4)	(99.6)
1987-88	3,785	1,390	245	494	3,200	481	9,667
	(39.2)	(14.4)	(2.5)	(5.1)	(33.1)	(5.0)	(99.3)
Growth Rate (%)	-0.5	6.2	-6.8	5.1	0.1	4.6	0.7

Note: Figures in parentheses show percentage share in working population.
Source: i) NSS, 32nd and 43rd Rounds; ii) NABARD, 1994.

Table 15. Rural Families Living Below Poverty Line (of Rs 11,000) in Orissa as per 1992 Survey

Sl. No.	Name of the Undivided District	Total Rural Families (Nos.)	No. of Rural Families Below Poverty Line (Nos.)	Percentage of Rural Families Below Poverty Line
(1)	(2)	(3)	(4)	(5)
1.	Balasore	5,06,365	3,41,163	67.37
2.	Bolangir	2,81,999	2,38,399	84.54
3.	Cuttack	8,11,354	5,74,510	70.81
4.	Dhenkanal	3,13,615	2,64,232	84.25
5.	Ganjam	5,40,416	4,20,675	77.84
6.	Kalahandi	3,22,014	2,79,033	86.65
7.	Keonjhar	2,11,610	1,75,533	82.95
8.	Koraput	5,52,555	4,81,851	87.20
9.	Mayurbhanj	3,32,060	3,01,411	90.77
10.	Phulbani	1,76,999	1,59,275	89.99
11.	Puri	5,49,227	4,26,410	77.64
12.	Sambalpur	4,26,111	2,87,054	67.37
13.	Sundargarh	1,98,799	1,60,888	80.93
	Orissa	52,23,124	41,10,434	78.70

Note: Poverty line of a family is fixed at Rs 11,000 per annum in Orissa, as per 1992 Survey by Panchayat Raj Department, Government of Orissa.
Source: Panchayat Raj Department, Government of Orissa.

Table 16. Land Holding and Percentage of Land Owned by Different Categories of Holding in Orissa, 1980-81

Sl. No.	Name of Undivided District	Below 1 Hectare		1 to 3.99 Hectare		4 to 9.99 Hectare		10 Hectare and above	
		Percentage of Total Holdings	Percentage of Total Area	Percentage of Total Holdings	Percentage of Total Area	Percentage of Total Holdings	Percentage of Total Area	Percentage of Total Holdings	Percentage of Total Area
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	Balasore	50.62	16.20	42.84	56.09	6.02	22.86	0.51	4.83
2.	Bolangir	40.79	11.23	49.91	52.30	7.65	23.50	1.63	12.94
3.	Cuttack	54.84	21.38	40.37	56.40	4.50	19.31	0.27	2.90
4.	Dhenkanal	42.96	15.70	51.82	62.75	4.84	18.02	0.37	3.51
5.	Ganjam	60.47	23.76	34.25	48.75	4.68	20.31	0.58	7.19
6.	Kalahandi	29.64	8.37	58.50	53.93	10.23	27.41	1.61	10.27
7.	Keonjhar	43.82	15.33	50.11	62.19	5.70	20.32	0.34	3.03
8.	Koraput	35.29	9.52	49.24	44.68	13.86	36.09	1.59	9.69
9.	Mayurbhanj	49.13	18.80	44.10	54.31	6.38	23.27	0.38	3.60
10.	Phulbani	43.88	14.61	48.09	55.59	7.14	22.80	0.86	6.98
11.	Puri	63.31	25.87	32.27	50.10	4.06	19.69	0.34	4.32
12.	Sambalpur	36.63	10.03	50.27	46.22	11.16	30.37	1.91	13.35
13.	Sundargarh	30.33	8.50	58.57	56.14	9.91	27.60	1.81	7.74
	Orissa	46.86	15.05	45.11	52.56	7.17	24.93	0.85	7.44

Source: *Statistical Abstract of Orissa, 1985,* Bureau of Statistics and Economics, Government of Orissa, Bhubaneswar.

Table 17. RNFS and Percentage of Land Holdings in Orissa: Rank

Sl. No. (1)	Undivided District (2)	Percentage Share of RNFS Workers in RMW in the District (3)	4 Hectares and Above: Percentage of Total Holdings (4)
1.	Balasore	17.6 (7)	6.53 (6)
2.	Bolangir	13.4 (10)	9.28 (9)
3.	Cuttack	25.6 (1)	4.77 (2)
4.	Dhenkanal	21.6 (3)	5.21 (3)
5.	Ganjam	16.3 (8)	5.26 (4)
6.	Kalahandi	11.3 (12)	11.84 (11)
7.	Keonjhar	19.2 (5)	6.04 (5)
8.	Koraput	9.7 (13)	15.45 (13)
9.	Mayurbhanj	15.6 (9)	6.76 (7)
10.	Phulbani	12.3 (11)	8.00 (8)
11.	Puri	22.1 (2)	4.40 (1)
12.	Sambalpur	17.8 (6)	13.07 (12)
13.	Sundargarh	21.5 (4)	11.72 (10)
	Orissa	17.5	8.02

Note: Figures in parentheses show the ranks of the districts.

Table 18. Select Economic Indicators of Undivided Districts in Orissa

Sl. No.	District	Percentage of Rural Families Below Poverty Line (1992 Survey)	Yield per Hectare (kg) in 1990-91		Urban Population in 1991 (Percentage)	Literacy Rate 1991 (per cent)	Percentage Share of RNFS Workers in Rural Main Workers (1991)
			Kharif	Rabi			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Balasore	67.37	777	960	9.42	58.78	17.6
2.	Bolangir	84.54	1,252	833	9.61	39.74	13.4
3.	Cuttack	70.81	1,100	666	12.28	63.28	25.6
4.	Dhenkanal	84.25	930	734	9.86	53.22	21.6
5.	Ganjam	77.84	1,273	526	14.89	44.26	16.3
6.	Kalahandi	86.65	872	680	6.49	30.05	11.3
7.	Keonjhar	82.95	983	703	12.48	44.73	19.2
8.	Koraput	87.20	1,172	524	11.20	22.26	9.7
9.	Mayurbhanj	91.77	998	769	6.16	37.88	15.6
10.	Phulbani	89.99	891	288	5.91	38.64	12.3
11.	Puri	77.64	1,107	556	19.66	63.82	22.1
12.	Sambalpur	67.37	1,332	1694	17.55	49.38	17.8
13.	Sundargarh	80.93	895	725	33.36	52.97	21.5
	Orissa	78.70	1,074	725	13.37	49.09	17.5

Source: Directorate of Economics and Statistics, Government of Orissa, Bhubaneswar.

Table 19. Coefficient Matrices of Percentage Shares of RNFSW in RMW and Others

(1)	(2)	X_1 (3)	X_2 (4)	X_3 (5)	X_4 (6)	X_5 (7)	X_6 (8)
X_1	Percentage of Rural Families Below Poverty Line (1992)	1	-	-	-	-	-
X_2	Kharif Yield Per Hectare (kg) in 1990-91	-0.2103	1	-	-	-	-
X_3	Rabi Yield Per Hectare (kg) in 1990-91	-0.604	0.329	1	-	-	-
X_4	Percentage of Urban Population in 1991	-0.326	0.122	0.163	1	-	-
X_5	Literacy Rate (percentage) in 1991	-0.695	-0.100	0.208	0.477	1	-
X_6	Percentage Share of RNFS Workers in Rural Main Workers (1991)	-0.544	-0.054	0.157	0.575	0.907	1

Table 20. Literacy Rate in Different States in India (1991)

Sl. No. (1)	State (2)	Literacy Rate (3)
1.	Andhra Pradesh	44.1
2.	Bihar	38.5
3.	Gujarat	61.3
4.	Haryana	55.9
5.	Himachal Pradesh	63.9
6.	Karnataka	56.0
7.	Kerala	89.8
8.	Madhya Pradesh	44.2
9.	Maharashtra	64.9
10.	Orissa	49.1
11.	Punjab	58.5
12.	Rajasthan	38.6
13.	Tamil Nadu	54.6
14.	Uttar Pradesh	41.6
15.	West Bengal	57.7

Source: Government of India, *Selected Socio-Economic Statistics for India, 1993*, Table 37(b), p. 57, C.S.O., New Delhi.

Table 21. Returns to Investment in Education by Country Group and Level of Schooling

(Per cent)

Sl. No.	Country Group	Social Return			Private Return		
		Primary	Secondary	Higher	Primary	Secondary	Higher
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Africa	26	17	13	45	26	32
2.	Asia	27	15	13	31	15	18
3.	Latin America	26	18	16	32	23	23
4.	Intermediate (South European and Middle East)	13	10	8	17	13	13
5.	Industrial*	-	11	9	-	12	12

Source: Psacharopoulos, 1988.
* Industrially advanced countries.

Table 22. Contribution of Education to Economic Growth by Region (1950s and 1960s)

Sl. No. (1)	Region (2)	Percentage of Growth Rate Explained by Education (3)
1.	Africa	17.2
2.	Asia	11.1
3.	Latin America	5.1
4.	North America and Europe	8.6

Source: Psacharopoulos, 1988.

AN ANATOMICAL INVESTIGATION INTO THE ECONOMETRIC FEATURES OF KEY FISCAL VARIABLES: AN EXERCISE IN FISCAL MARKSMANSHIP

Abhay Pethe and Mala Lalvani

This paper - which is in a macro vein - looks at the key fiscal variables, viz., Revenue, Expenditure and the resulting Deficits. There has been an ongoing debate about the forecasting accuracy of especially the deficits in the general context of credible policy announcements. These issues - always important - have assumed even greater importance, now with the onset of liberalisation in the Indian economy. In this paper, we look at the econometric (unit root, co-integration) properties of the relevant series and estimate the Error Correction Model (ECM) to test the improvement in forecasts. We also carry out rolling regression to ascertain the coefficient behavior and finally use the tool of stochastic control to study whether the character of uncertainty is such as to facilitate learning and hence help to improve fiscal marksmanship. The paper ends with suggestions for further research in this rather interesting area.

I. INTRODUCTION

Budget announcement is typically a most important date in the Indian economic calendar. Though the magnitudes involved cannot be termed as colossal, they are large enough to considerably spoil the 'best laid plans'. The rather more important aspect of a policy announcement (budget included) has to do with the signals it gives to the agents in the economy, who then use it to formulate their expectations about the relevant variables. Of crucial importance is also the credibility aspect of policy pronouncements. Thus, it is not exactly a happy state to find that the announcements and actuals are at a variance, as a rule rather than as an exception. In the context of budgetary processes, there are several questions of importance that follow. First, is the divergence between the announced and the actual values due to the inherent nature of the fiscal process which defies prediction or forecasting? Second, is the nature and the structure of underlying uncertainty such that it can be exploited? That is, can 'learning' take place in the system? Third, is there a stable relationship between the actuals and announcements of the variable values? Can we discern any evidence which may throw some light on whether the divergence between the announcements and actuals constitutes: (a) a genuine 'mistake' that as a rule cannot be rectified, (b) a mistake that can be set right, (c) an indulgence in political gamesmanship rendering the effort at fiscal marksmanship irrelevant.

In what follows, we attempt to provide a methodological framework to assess or judge these issues. The paper has eight sections including the introduction. In the second section we provide a brief glimpse of the work done in this area. The third section comprises of comments on data sources. In the next, i.e., the fourth section, we look at the various econometric features of the time-series involved, beginning with a very brief explanation of the theory and computation of unit roots and co-integration. In the fifth section we present a brief report on the estimates of equations used in conducting control experiments. In the sixth section we present a brief note on the theory of stochastic control, followed by the results of the experiments we have conducted with interpretations in the seventh section. In the final section we sum up our conclusions and make suggestions for further research.

II. A BRIEF GLIMPSE OF EARLIER WORK

Studies in fiscal marksmanship can be traced back to Prest [1961] and Allan [1965] who examined the accuracy of budgetary forecasts in the United Kingdom. They found that the budgets underestimated revenues and expenditures with expenditures being underestimated to a greater

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extent. A breakthrough in fiscal marksmanship literature is attributed to Theil [1966, 1971] who gave the concept of an inequality coefficient. Systematic and random errors were quantified in his examination of macroeconomic forecasts for Netherlands for the period spanning from 1952 to 1963. This led to a spate of articles applying this inequality coefficient to check for accuracy of budgetary forecasts in countries all over the world. Amongst them are Auld [1970] who looked at the situation in Canada, Davis [1980] who studied the case of U.K. and Morrison [1986] who examined fiscal marksmanship in the U.S.A.

In the Indian context too, a few economists have concerned themselves with looking at fiscal marksmanship. Mahesh Chand [1962] found that for the period 1950 to 1959, both expenditures and revenues were underestimated, with revenues being underestimated to a greater extent. Paul and Rangarajan [1974] compared the budget forecasts with actual capital expenditure for the period 1951-52 to 1964-65 both, at the central and state levels and found that forecasting errors were relatively larger in some components of capital expenditure. Madhur, Nayak and Ray [1982] listed a few reasons to explain the deviation of actual magnitudes from budgeted ones. They are: (i) the 'fudge factor', i.e. a systematic and deliberate mis-representation on the part of the government; (ii) government's inability to accurately forecast inflation and real growth of the economy; (iii) random occurrences; (iv) a combination of all the above mentioned factors. Bhattacharya and Anita Kumari [1988] examined the central government budget forecast from 1962 to 1985. The authors have summed up their findings in five statements: (i) actual receipts and expenditures are generally higher than budget estimates but lower than revised estimates; (ii) budget tends to underestimate expenditures more than receipts and consequently underestimate overall deficit financing; (iii) neither the budget nor the revised estimates are based on rational expectations and forecasting; (iv) bias in budget estimates seem to have worsened in the 1970s and 1980s; and (v) there is little evidence of any improvement in the budgeting efficiency over time. We may mention here that our study indicates that the actual revenues are marginally lower and the actual expenditures are on the higher side, as compared to the estimates. The two ways that have been suggested to improve the efficiency of the budget forecasts of the government revenue and expenditure are (a) having better forecasts of basic inputs of budgeting, like national income, price level, etc., and (b) having better estimates of key parameters, like tax and expenditure elasticities, and both these would require an assessment of the stochastic errors of the budget forecasts periodically.

A more recent attempt at studying fiscal marksmanship in India has been made by Pattnaik [1990]. His study covering the period from 1950-51 to 1988-89 has been sub-divided into four sub periods: 1950-51 to 1959-60; 1960-61 to 1969-70; 1970-71 to 1979-80 and 1980-81 to 1988-89. The author has employed Theil's inequality coefficient or U statistic and its decomposition, and arrived at the conclusion that the size of forecast error of fiscal variables is large in the budget and revised estimates, although it is considerably reduced in the case of the revised estimate. The study shows that systematic errors are largely responsible for inefficient budget forecasts. The readers have been cautioned as these systematic errors are the consequence of improper estimation and could render the entire budgetary exercise futile. These errors have been attributed to improper estimation of key budgetary parameters, i.e., tax and expenditure elasticities and inaccurate forecast of key macro variables like national income, savings and inflation rate.

III. DATA AND DATA SOURCES

The Union Budget which mirrors the intentions of the government regarding the management of finances in the forthcoming financial year has two sides to it. It speaks of the receipts which the government proposes to procure from the various sources and the expenditures which it intends to incur in the forthcoming financial year.

The statistics on receipts and expenditures of the central government are available to us in three sets for each financial year.

(i) The Budget Estimate: These are the announcements which the government makes and may be regarded as the blueprint of how the government intends to tackle the financial situation in the forthcoming financial year.

(ii) The Revised Estimate: These are the mid-year revisions which government makes in the statistics, having taken into account unforeseen circumstances which have so far cropped up.

(iii) The Accounts Figures: These are the actual figures or what may be termed as hard core facts about the receipts and expenditures of the government. They appear at the end of a financial year.

The primary sources of data used in the present study are the figures published by the Reserve Bank of India in various issues of the *RBI Bulletins*. However, some adjustments have been made in the data series using the Budget Documents. While the data from 1950-51 to 1988-89 were obtained from Pattnaik [1990], 'Fiscal Marksmanship in India', we updated the series upto 1992-93 for the purpose of the present study.

Following were the adjustments made to the RBI figures using the Budget Documents to maintain a consistency with the data upto 1988-89 taken from Pattnaik [1990]:

(i) From 1987-88 certain contra items (i.e., those appearing on the receipts and expenditure sides of the budget) listed below were deducted from both the receipts and expenditure sides of the capital Budget. To restore continuity in the time series we added these items to both, receipts and expenditures on capital account. These contra items were:

a. Internal repayment,
b. External repayment,
c. Ways and means advances,
d. Short term loans for agricultural inputs,
e. Loans to states against net collection (this item was added only if the RBI figure explicitly stated that the state share was excluded), and
f. Securities issued to International Monetary Fund (IMF).

(ii) Prior to 1984-85, the receipts and expenditure figures were given gross of repayment and on the expenditure side of the capital Budget, 'Discharge of Permanent Debt' formed a separate head of expenditure. However, from 1884-85 this practice was discontinued and receipts were shown net of repayments.

In order to establish comparability over the entire series, we added the repayments on internal and external borrowings to both the receipts and expenditure sides of the capital budget.

IV. METHODOLOGY FOR UNIT ROOT TESTING AND COINTEGRATION

(A) Estimation Gap

At the first instance, the estimation gap that exists between the actual figures and the budget announcements of expenditures, receipts and deficits were computed to trace the extent and direction of discrepancy that existed.

(B) Testing for Unit Root and Cointegration

The dangers of working with non-stationary time series is something that econometricians today are well aware. Testing for unit roots and cointegration prior to undertaking any kind of regression exercise with the time series. The present study performed these tests on three pairs of variables:
(i) Actual and budget estimates of deficits (ATD and BED), (ii) Actual and budget estimates of expenditures (ATE and BEE), (iii) Actual and budget estimates of receipts (ATR and BER).

The importance of testing for unit roots and cointegration and the procedure followed in performing these tests have been elaborated upon below.

Testing Procedure

A linear regression with two deterministically trended variables (i.e., when the mean of the process increases over time) or with two variables subject to a stochastic trend (i.e., when the variance of the process increases over time) will in all probability give us evidence of a spurious relationship when none exists [Granger and Newbold, 1974; Newbold and Davies, 1978]. Transforming a non-stationary series to a stationary one by differencing 'd' times makes it a series integrated of order 'd', denoted by:

$$x_t \sim I(d)$$

When two series x_t and y_t are integrated of order d and there exists a linear combination of these two variables integrated of order 'd-b', then the two series are said to be *cointegrated.* Symbolically,

$$x_t, y_t \sim CI(d,b)$$

where, $d > 0$; $b > 0$

Intuitively, if two or more non-stationary variables have a long run relationship but the deviations from this long run path are stationary then the variables are said to be cointegrated. Cointegration theory addresses itself to the testing and specification problems associated with long run equilibrium relationships [Charemza and Deadman, 1993]. The testing procedure for unit roots proceeds in two steps:

Step 1: We test for the order of integration of each of the variables involved in the long run relationship given by:

$$y_t = bx_t + u_t \qquad \ldots.(1)$$

First, consider the dependent variable y_t. If we wish to test the hypothesis that it is integrated of order one, we must test for p=1 in the following equation:

$$y_t = py_{t-1} + \epsilon_t \qquad \ldots.(2)$$

If p=1 when ϵ_t are identically and independently distributed, Equation (2) would be a representation of a 'random walk' where the variance of the process is a linear function of time and the stochastic process y_t is non-stationary. In such a case, the error term follows a negatively skewed distribution as against a normal distribution, an assumption critical to the nice properties of Ordinary Least Squares (OLS) estimation. Hence it is the Dickey Fuller (DF) or the Augmented Dickey Fuller (ADF) tests which are resorted to.

The DF test is a test of the hypothesis that p=1, hence the name *unit root test.* Consider the following equations:

$$y_t = py_{t-1} + \epsilon_t$$

$$\text{or,} \quad dy_t = (p-1)\, y_{t-1} + \epsilon_t \qquad (3)$$

where, $dy_t = y_t - y_{t-1}$.

If the null hypothesis of a unit root is correct then $(p-1) = 0$ or $p = 1$. On the other hand, if the alternative of no unit root is true then $(p-1) < 0$. This then is the basic idea behind the Dickey Fuller test. Testing for $(p-1) < 0$ can be accomplished by regressing y_t on y_{t-1}. However, since the coefficient of y_{t-1} does not follow the student's t distribution under the null hypothesis of a random walk, critical values given in Fuller [1976] have to be used. A rejection of the null of $p = 1$ in favour of $(p-1) < 0$ implies that y_t is an I(0) process. Failure to reject the null causes the DF equation to become:

$$d^2 y_t = bdy_{t-1} + v_t \qquad \ldots.(4)$$

where, $b = (p-1)$;

here, d indicates the first difference and d^2 indicates the second difference of the variable. Now if $b < 0$ is accepted, the series dy_t is stationary and $y_t \sim I(1)$.

To overcome a shortcoming of the DF test which does not take care of autocorrelation in ϵ_t, Dickey and Fuller [1981] suggested the Augmented Dickey Fuller (ADF) test. The ADF test

uses lagged dependent variables as additional explanatory variables. The ADF equivalent of (2) is:

$$y_t = py_{t-1} + \sum_{i=1}^{k} p_i \cdot y_{t-i} + \epsilon_t \quad \ldots.(5)$$

Here too the coefficient is checked against the critical values given for the DF test in Fuller [1976].

Step 2: If, and only if, the dependent and the independent variables are integrated of the same order does one proceed to unit root testing of the residuals, using DF and ADF tests.

DF: $du_t = \delta u_{t-1} + e_t \quad \ldots.(6)$

ADF: $du_t = \delta u_{t-1} + \sum_{i=1}^{k} \delta_i \cdot u_{t-i} + e_t \quad \ldots.(7)$

where, u_t are the OLS residuals obtained from Equation (1). The critical value for δ is checked in Fuller [1976]. Stationarity of residuals would imply that the series are cointegrated.

(C) Rolling Regressions

This technique allows you to estimate the coefficients of a linear regression equation by the OLS method over successive rolling periods of fixed length.

Empirical Results

The estimation gap between the actuals and budget announcements of expenditures, receipts and deficits were computed by deducting the budget announcements of each of the variables from their respective actuals or, what is referred to as, the accounts figures. The study of the gaps revealed that budget announcements of deficits were generally underestimated. The case of receipts is not completely clear from a look at the gaps. In most years the extent of mis-estimation is higher in the case of expenditures than in receipts. This then provides us with an explanation of the budget announcements underestimating the deficits.

Tabulated below are the estimation gaps in receipts, expenditures and deficits.

Table 1. Estimation Gaps

Year (1)	ATD-BED (2)	ATE-BEE (3)	ATR-BER (4)
1956	147	-115	-288
1957	184	-100	-204
1958	177	-42	-219
1959	21	-74	-95
1960	-62	-165	-103
1961	-37	-141	130
1962	42	-56	-98
1963	66	130	64
1964	-15	-56	-41
1965	75	-20	-95
1966	64	73	-211
1967	264	928	664
1968	206	108	-100
1969	-26	-83	-57
1970	-217	38	255
1971	-202	366	307
1972	287	1,050	763
1973	618	1,090	472
1974	240	604	364
1975	595	1,211	616
1976	119	1,848	1,729
1977	-330	649	979
1978	318	-597	-915
1979	-31	136	167
1980	1,051	679	-372
1981	-1,188	1,188	56
1982	-147	1,543	1,690
1983	281	2,995	2,714
1984	-169	2,937	3,106
1985	1,971	3,376	1,405
1986	1,621	5,500	3,879
1987	4,558	7,457	2,899
1988	128	905	777
1989	-1,842	1,994	3,836
1990	3,255	11,998	8,743
1991	-633	1,381	2,014
1992	-864	-7,428	-6,564
1993	6,923	-1,350	-8,273
Mean Gap		1,080	540

The higher mean gap in case of expenditures as compared to receipts reinforces our point that relatively, the extent of underestimation is higher in expenditures than in receipts. The unit root tests showed actual and budget estimate of deficits to be I(1) processes. However, the actuals and estimates of both, expenditures and receipts were I(2). The unit root tests on residuals provided us with evidence of cointegration between the three pairs of variables under study:

(i) ATD and BED,
(ii) ATR and BER, and
(iii) ATE and BEE

Tabulated below are the results of unit root test on residuals

Table 2. Results of Unit Root Test for Residuals

Function (1)	Values (2)
ATD = f(BED)	DF = -7.33
	ADF = -6.07
ATR = f(BER)	DF = -2.08
	ADF = -4.24
ATE = f(BEE)	DF = -4.31
	ADF = -5.88

Note: Critical values (5 per cent) significance are DF = -3.5 ADF(1) = -3.51.

Having established the existence of a long run relationship between the accounts and the budget estimates for deficits, expenditures and receipts, we proceeded to check on the stability of the coefficients using the technique of rolling regressions. This 'long run' relationship has to be interpreted in a rather restricted sense. What it denotes is that, after establishing cointegration, there is no way that the regression results can be of a spurious nature, especially in the sense of arising from the trend or stochastic non-stationarity. Thus the cointegration literature suggests that on this count at least (non-stationarity) it may be safe to hold that there is an inherent long run equilibrium relationship between the economic variables represented by the data series. Plots of rolling regression coefficients given in Figure 1 indicate stability of the coefficients from mid-70s. Incidentally, all the graphs reported in this paper are clubbed together at the end and reported as Appendix I. It can be seen that the coefficient behavior roughly falls into three categories: (i) the initial period, upto mid-60s, where the variance is high, and there is a trend discernible in their values, (ii) the next decade where there is no trend, but there is considerable variance and hence uncertainty surrounding the estimated values, and finally (iii) the last years in the sample where there is a stationarity as well as stability (low variance) in the estimated coefficient values. Our hunch is, therefore, that whereas in the first two periods the incorporation of uncertainty and hence the use of stochastic control may be fruitful, in the last period it may not be so. Indeed, as we shall report later in this paper, this hunch is borne out by the test results. The vital statistics for these rolling regression coefficients are as given below:

Table 3. Vital Statistics of Rolling Regression Coefficients

Variables (1)	MEAN (2)	VARIANCE (3)	COEFF. OF VARIATION (4)
BEECOEF	1.04	0.005	0.06
BERCOEF	1.01	0.005	0.07
BEDCOEF	1.34	7.56	2.06

V. THE ESTIMATED EQUATIONS

We now report the estimates of the equations to be used in the control experiments. The sample used for the estimation procedure is 1984-93. The variable values (reported in Appendix III) were suitably scaled down to suit the DUAL code. DUAL is the software developed by Amman and Kendrick [1992] for conducting stochastic control experiments and it cannot handle numerical values that are too large (i.e., more than 5 digits before the decimal). In each case we used the budget estimates of Deficits, Expenditures and Revenues, to explain the actuals of the corresponding variables. The regression equations estimated, were forced through the origin, i.e., there was no constant term involved in the equation. The estimated values were as follows:

Deficits

$$ATD = 1.3091\ BED$$
$$(7.908)$$

Adj $R^2 = 0.303$
D.W. = 2.216

Here, ATD stands for the actual deficits and BED stands for the budget estimates of the same.

Expenditures

$$ATE = 1.0246\ BEE$$
$$(48.6)$$

Adj R2 = 0.968
D.W. = 1.379

Here, ATE stands for the actuals of the expenditures and BEE stands for the budget estimates of the expenditures.

Revenues

$$ATR = 0.999\ BER \quad (49.76)$$

Adj R2 = 0.969
D.W. = 0.6986

Here, ATR stands for the actual values of revenues and BER stands for the budget estimates of the revenues. The value of Durbin-Watson (D.W.) in this case does indicate an autocorrelation problem; thus we have done an exercise in error correction method.

Error Correction Mechanism

That variables are cointegrated implies that there is some adjustment process which prevents the errors from becoming very large in the long run. The concept of error correction which is now standard fare was first clarified by Enders using the theory relating to the term structure of interest rates. The theory, as is well known, implies that a long run relationship exists between the short run and the long run rates of interest. The gap can be closed by (i) increase in the short run rate, and/or (ii) increase in the long run rate but a larger increase in the short run rate, or (iii) a fall in the long run rate but a smaller fall in the short run rate. Without the full dynamic specification of the model, it is not possible to determine which of these alternatives would actually occur. The point to be understood is that the short run dynamics must be influenced by the deviation from the long run relationship. Such is a dynamic model where the short run dynamics of the variables in the system are influenced by the deviation from the long run equilibrium relationship.

The Granger Representation Theorem [Engle and Granger, 1987] establishes that for any set of I(1) variables error correction and cointegration are equivalent representations. However, the error correction mechanism could be applied when the dependent variable is I(1) and the explanatory variables are CI(d+1, d), where d>0. The last expression could be interpreted to mean that explanatory variables are both integrated of order d+1, i.e., greater than one but there must exist a linear combination of theirs which is integrated of order one. In other words the Granger Representation Theorem would hold even when the dependent variable is I(1) and the explanatory variables are integrated of order greater than one, provided there exists a linear combination which is integrated of order one. The two step procedure put forward by Engle and Granger [1987] is as follows:

Step 1

First estimate the long run relationship:

$$y_t = bx_t + u_t \qquad \ldots.(8)$$

Next test for the stationarity of the residuals: If and only if both the variables are I(1) or a linear combination of the independent variables is I(1) and if the variables are seen to be cointegrated, proceed to step two.

Step 2

Estimate the relationship given by :

$$dy_t = a_1\, dx_t + a_2[y_{t-1} - \hat{b}x_{t-1}] + e_t \qquad \ldots.(9)$$

Here $\hat{b}$ is obtained from the previously performed OLS in equation (8). The variable u_{t-1} which is also obtained from Equation (8) is now treated as an exogenous variable. As is evident in Equation (9), the dependent and the independent variables are all I(0), hence the possibility of estimating a spurious regression as a result of stochastic or deterministic trend being present in the data may be ruled out.

The short run dynamics of the ECM are obtained by rewriting Equation (9) as follows:

$$y_t = (1 + a_2)\, y_{t-1} + a_1 x_t - (a_1 + a_2 b)\, x_{t-1} + e_t \qquad \ldots.(10)$$

It was pointed out earlier that the Engle-Granger two step procedure for error correction requires the variables to be I(1) processes. Hence in the present study, the error correction mechanism could be applied only to the case of Deficits.

The Engle-Granger two step error correction procedure could be used to check for Granger causality. The formal representation of the procedure would be:

$$\text{step 1:} \quad ATD = \mu_o BED + \epsilon_t \qquad \ldots.(11)$$

$$\text{step 2:} \quad DATD = \alpha_o \sum_{i=1}^{p1} DATD_{t-i} + \theta_o \sum_{i=1}^{q1} DBED_{t-i} + \tau_o RESDEF_{t-1} + u_1 \qquad \ldots.(12)$$

$$\text{step 3:} \quad DBED = \alpha_1 \sum_{i=1}^{p2} DBED_{t-i} + \theta_1 \sum_{i=1}^{q2} DATD_{t-i} + \tau_1 RESDEF_{t-1} + u_2 \qquad \ldots.(13)$$

where, DATD = ATD - ATD(-1)
DBED = BED - BED(-1)
RESDEF = is ϵ_{t-1} obtained from Equation (11),
u_1 and u_2 are white noise series,
p1 p2 q1 q2 are lag lengths chosen using the Hannan-Quinn procedure*.

* The Hannan-Quinn (HQ) procedure for lag selection is to minimize $HQ = \ln(\sigma_m^2) + \frac{(2m)\ln\ln(n)}{n}$

where: n is the number of observations, m is the number of lags and σ^2 the sum of squared residuals. It has been pointed out by Nachane, et al., [1989] that this procedure even though strongly consistent has been seen to be less likely to the true order than strongly consistent procedures. If the variables are cointegrated it is imperative that either τ_o or τ_1 or both be significantly different from zero.

Equation (11) represents the long run relationship between actual (ATD) and announced (BED) deficits. The residuals obtained from this equation appear as the exogenous variable RESDEF in the relationship estimated in both, steps 2 and 3 above. The error correction term $RESDEF_{t-1}$ represents the proportion of disequilibrium in one period that can be corrected in the next period. The coefficients τ_o and τ_1 represent the speed of adjustment. Focusing on Equation (12), for any given value of RESDEF(-1), a large value of τ_o is associated with a large value of DATD. If τ_o is zero the change in ATD does not respond to the deviation from long run equilibrium in (t-1). If τ_o is equal to zero then it can be said that DBED does not Granger cause DATD.

In carrying out this exercise we have closely followed Mohasin, et al., [1995], specifically Equations A.3, A.4 and A.5 on page 245, Appendix I of that paper. In the first step, the long run relationship obtained for the period 1955-56 to 1992-93 was:

$$ATD = 1.3089\ BED + ut \qquad \ldots. (14)$$

In the second step we obtained the lagged residuals from Equation (14) and incorporated it as an exogenous variable as in Equations (12) and (13) above. The coefficients of the error correction term obtained from Equations (12) and (13) have been tabulated below:

Table 4.

Dependent Variable (1)	Coefficient for Error Correction Term (2)
DATD	-3.97 * (t = 4.6)
DBED	2.77 * (t = 3.68)

Note: * denotes significance at 5 per cent level.

Existence of a significant coefficient for the error correction term for both, Equations (12) and (13) indicates the presence of bi-directional causality from BED to ATD and from ATD to BED. We were looking for causation from BED to ATD which does exist. This, prima facie, allows us to assume that there is something to be

learnt. The other way causation is to be put down as a purely statistical quirk as no meaningful interpretation can be given to it.

However, we had a hunch that bringing uncertainty into the picture might give us additional insight. Also, Engle-Granger procedure has been questioned regarding the viability of running an OLS in step 1 when the two variables under study are non-stationary. With the intention of bringing in uncertainty we made an attempt at formulating our problem as one in optimal control.

We now turn to a discussion on control theory, after which we report the results of our control experiments.

VI. BRIEF NOTE ON OPTIMAL CONTROL

Recently there has been a resurgence of interest in the applications of optimal control in general, and stochastic control in particular, in Economics. There indeed are substantial gains to be made by using the techniques, especially in the wake of advances in the area of computational techniques. Here, we give a brief description of the simplest kind of control problems.

The Optimal Control Problem

A typical formulation of an optimal control problem consists of:

(a) a set of difference or differential equations, representing the system to be controlled,
(b) a set of constraints on the variables of the system,
(c) a set of boundary conditions on the variables, and
(d) a cost functional or a performance index, which is to be minimised.

We can define a discrete dynamical system as one possessing the following:

(1) An ordered subset T of non-negative integers called the time set, i.e., $T = \{1,2,3,... N\}$.
(2) A set of states X which is a subset of n dimensional Euclidean space, called the state space, where an element of X is an n-dimensional state vector.
(3) A set of controllable inputs U which is a subset of r dimensional Euclidean space, called the control space, where an element of U is the r-dimensional control vector.
(4) A set of pure exogenous variables Z, which is a subset of k-dimensional Euclidean space, where any element of Z is a vector of pure exogenous variables.
(5) A first order vector difference equation which takes the form: $X_t = AX_{t-1} + BU_t + CZ_t$, where the coefficient matrices are assumed to time invariant.

Given such a linear dynamical system, we assume that we have specified cost functional which may be rather general. However, here we assume that it is in the simplest form, viz., the Quadratic Linear Problem (QLP). Thus here, the objective functional is of the form:

$$\text{Min } J = \{(Y_t - a_t)' \, K \, (Y_t - a_t)\}$$

where, the sum goes over all the time periods and Ys refer to the solution values of the variables (state, control or exogenous) and the a's refer to the targets we have set, K refers to an appropriate dimensioned penalty matrix which in our simple case has non-zero elements only along the principal diagonal. The elements here are called weights and reflect the penalty to be imposed on the deviation in the solution path from the set target values. Thus, a low relative weight assigned to the first state variable *vis-a-vis* the second would imply that from the controller's point of view, a deviation in the solution value of the first variable from its set target path is more tolerable compared to a similar deviation in the second variable's path. Similarly, a zero assignment of weight for a control variable implies that the corresponding instrument may be costlessly manipulated.

Thus, given a linear dynamical control system (estimated macro-model, say) and a cost functional, the solution to the optimal control problem involves finding a sequence of $\{U_t^*\}$ called the optimal policy path and $\{X_t^*\}$ called the optimal state trajectories, over the time periods $t = 1, ., N$, such that the constraints are satisfied and the cost functional minimised.

Even the deterministic models can be used with three types of learning. First, where the decision maker solves the deterministic model for a number of periods and then uses the solution over this time horizon without solving the model again, i.e., the solution for the entire time horizon is obtained in the first instance and not revised (by conducting simulation exercise for the remaining periods) in the light of possible subsequent information that may become available. The second case is where the model is solved for many time periods but uses the policy variables only for the first period. Then after the policy is applied and new values of the state variables emerge, he solves the problem again with the new values as the initial conditions. The third case is the same as the second case, except that new state observations become available which are used for estimating the parameter values. Thus, here uncertainty is taken into account only in a marginal way. The last method may be termed as sequential certainty equivalence.

We now turn to proper stochastic control methods. There are various sources of uncertainty, such as the additive errors, unknown parameters and measurement errors. For the standard mathematical statement of the problem the reader is referred to any of the standard references such as Kendrick [1981, 1992]. Passive learning refers to the fact that data are collected periodically and used to re-estimate the parameters in an economic model. When measurement errors are present, this concept can be extended - in a single step predictor/corrector mode, à la Kalman filter - to include the re-estimation of the system state. What is done here is that the relation between budget estimates and actuals or the final estimates, provides the basis for the estimation of the observation system which helps to get the Kalman gain matrix (in our case here, it is a single number). The Kalman filter estimates can be made to enter into the determination of the optimal control actions. The filter weighs the latest and the previous data in a particular fashion so that all the information is appropriately incorporated. The great advantage of Kalman filter lies in its efficiency of estimation, rather than restart the estimation of state variables *ab-initio* [for greater details, see Pethe, 1986]. As distinct from this, active learning not only involves the idea of re-estimation but also the notion that in choosing the control paths, one must bear in mind the possible effects on future values of variables essentially dependent on the very choice of controls. Thus, the active learning algorithm anticipates future learning when choosing the control for each period, and thus perturbs the system early in time in order to reduce the variance of the parameter estimates (of those treated as uncertain) later in time. This is not unlike a driver who deliberately perturbs the car controls (brake, accelerator) at the beginning of embarking on a long drive. The passive learning algorithm takes account of the uncertainty in the parameter estimates, but does not take into account the possibility of future learning (i.e., in the later time periods within the time horizon of the problem). Certainty equivalence method ignores the parameter uncertainty when choosing the controls, but does learn in a passive way, by re-estimating the parameters each period considering only the system noise [see Kendrick 1981 and Amman and Kendrick 1994].

We need to throw in some concepts to make the underlying ideas a bit clearer. Consider a model with the system equations given by:

$$x_k = f_k (x_k\text{-}1, u_k, e_k) \qquad k = 1,2, \ldots N$$

where x's, u's and e's refer to the state vector, control vector and the process noise, respectively. Suppose the measurements are taken on the state of the system and there is an error in measurement given by:

$$y_k = h_k (x_k, z_k) \qquad k = 0,1,2, \ldots N$$

where y's and z's are the measurement vector and the measurement noise, respectively. Now define variables representing the collection of state and control variables, for all time periods in the model, respectively by:

$$X = (x_j) \quad j = 0,1,\ldots N \text{ and } U = (u_j)\ j = 1,2,\ldots N.$$

Also define the set of all observations between 0 and k, by:

$$Y^k = (y_j) \quad j = 0,1,2,\ldots k.$$

Next the notation, $M^k = (h_j(x_j, z_j)\ j = 0,1,...k$, is used to represent the knowledge that measurement is made. Note that whilst Y represents actual measurement, M represents the knowledge that the measurement will be made without specifying what it actually is. This means that the distribution of these measurements is assumed and in the computational algorithm which incorporates this assumption, this knowledge is used to generate random numbers based on the distributional characteristics. Finally, by S^k we represent the probability distributions of the initial state vector, the system error terms and the measurement error terms. A subset of these data excluding the measurement error terms is denoted by S^*. The various control policies may now be defined as follows:

$$U_k^{OL} = g_k(S^*)$$

which is the Open Loop Feedback control and ignores all the measurement errors. This may be extended to include the measurement errors - in the passive learning mode - through the period k. This marks an extension of the Kalman filter mentioned earlier and involves rather complicated though not complex mathematics of Riccati equations, plus the distributions in the errors of measurement equation are also used [for details of the mathematics involved see Kendrick 1981]. This policy makes use of both the actual measurement and the knowledge that the measurements are made through period k. Finally, there is the Closed Loop or the active learning (DUAL), which not only uses the state observation through the time period k, but also takes into account the fact that the system will be measured in future time periods as well. Active learning stochastic control, which is also termed as DUAL control, has two facets as the name suggests. On the one hand, the choice of control takes the system closer to the desired path and, on the other, it decreases the uncertainty about the system response, thus leading as it were to better estimation.

It is encouraging to note that computer codes have recently become available (for desk top machines) and soon we may be able to treat problems even with time varying parameters in the DUAL code. We now understand, that with an updated DUAL version, it is possible to do just that; however, the version used by us can only handle the time varying character in a limited way. Thus we have assumed that the parameters treated by us as uncertain have true constant values and have normal distributions associated around them.

VII. THE CONTROL EXPERIMENTS

Setting up of meaningful control experiments is partly an 'art' and partly a 'science' [see Pethe and Pethe, 1990]. Basically, as should be clear, one requires the objective function which, in the QLP case, requires setting penalties attached to squared deviations of the solution path from the target path (which needs to be specified). This objective function is to be minimised subject to the state equations. The purpose here was to try out deterministic control (QLP) as well as stochastic control (DUAL) algorithm. The budget announcements were treated as 'control' variables; as such the relative penalties in the objective function were set at ten times the penalties for the 'actuals' which were the state variables of the system. This was done since we wanted the solution of the control path yielded by the optimal control algorithm to track the announcements close to the historical values. In setting the target trajectories for both the control as well as state variable paths (which in the standard control literature are termed as desired or nominal paths), historical values were employed. This is because in setting up the control experiment, we wished to see how close we could get to the 'actuals' given the announced values. The state equations were obviously the ones reported in the section on 'estimated equations', i.e., the long run relations. This was done because firstly, the actual observed data is reflected in those. Secondly, the equation estimates could be used for conducting control experiment at different time periods (as we have done) and, finally, Equations 12 and 13 were primarily used for ECM involving co-integration and causality which we thought could be treated separately from control experiments. We might also note here that whilst setting up the control experiments we ignored the evidence from the bi-directional causality between BED and ATD. After all, it does not make any sense to set up an experiment with 'actuals' as control and 'announced' as state variables, because the latter clearly are logically and chronologically prior to the former.

The various statistics such as the system noise (additive uncertainty), or the estimate variance (multiplicative uncertainty), or the measurement error were obtained directly from the estimation procedure done with TSP (Time Series Package - Student Version) or were easily obtainable using the Microfit software employed for the cointegration analysis. The additive noise was simply characterised by the Regression Error Squares (RES) obtained from the respective regressions. The estimate variance was taken to stand for the multiplicative uncertainty, with the actual value being the mean of the distribution involved. This is the standard practice in control literature [see, e.g., Kendrick, 1981]. The measurement error was obtained by using the regression relation between the Revised Estimates and the Budget Estimates or announcements. The explanation of the control problem as set out in the last section is admittedly textbookish and does not do much to show a researcher how to go about actually solving a problem. The computational algorithm requires creating an input file in a particular format. This has been explained in the DUAL Manual from which we have taken relevant portion and given in Appendix II. Also in the same appendix, as an example, the INPUT and the OUTPUT files used in one of our control experiments are reproduced. Hopefully, this should clarify the actual working.

We conducted two sets of control experiments, one with and one without the measurement error. Each set consisted of three experiments, for Deficit, Revenue and Expenditure. The time period chosen was exactly the same as in the case of ECM, viz., 1985-93. In the set of experiments we conducted, each of the (state) equations for ATD, ATE, and ATR reported earlier and the corresponding statistics were used. The objective function, the state equations and the target paths were specified as explained in the earlier paragraph. What was found was, that the structure, the nature, and the magnitude of the uncertainty, whether we consider additive, multiplicative or the measurement noise, are such that it could not be usefully exploited by the use of stochastic control technique, in tracking the actual or the desired values of the concerned variables. We have already explained how we identified the values of the three types of uncertainty. By the structure we simply mean the combination of the three variances involved taken together and by nature is meant how this structure varies over time. The above assertion holds true whether we experiment with or without the measurement error. This can be seen, in the case of deficits, from Figures 2A and 2B, in Appendix I. The UDES refers to the announcements path and the XDES refers to the actuals path. The rest refers to the control solutions and are self explanatory. It is clear from the graph that whereas, the stochastic control does not help much to predict the actuals (indeed, it goes a bit awry, the typical Root Mean Squared Error (RMSE) is 15 per cent), the more mundane deterministic control (QLP, RMSE 8 per cent) does much better! This, perhaps was to be expected. For, if one looks at the stability of the coefficient values (Figure 1) obtained from the rolling regression, or at the 't' values of the equations in the earlier section (indicating the significance of the coefficient estimates) then the indications are clear that: (a) there exists a stable relationship between the announcements and the corresponding actuals of the variables under study, and (b) that the underlying uncertainty is not large enough to be usefully exploited, for the time period under consideration. Now, it is true that if the uncertainty is small, it can be safely ignored without affecting the results too much, and then the additional effort involved in using sophisticated techniques does not result in commensurate improvement in (say) forecasting. It is only when the uncertainty is large or of a nature where 'learning' is possible, that the use of a sophisticated technique to take it into account is warranted. It is in this sense that the above statement is made.

The next thing that suggested itself to us was that, since we had the control solutions for revenues and expenditures gotten from the experiments conducted as a part of the set of experiments, we may be able to indirectly compute the deficits by simply subtracting revenues from the expenditures. This would imply that instead of doing a structureless exercise, we add some structure as well as achieving segregation of underlying uncertainties. The solutions thus obtained indeed are better in tracking the actuals, as compared to the ones obtained directly. We have illustrated this in Figures 3A and 3B, for the case of deficits only. In the figures, ADEF

refers to the actual deficits; DDEF to the DUAL solution of directly computed deficits and IDEF to the solution of the indirectly computed deficits, obtained from the corresponding solutions for the Revenue and Expenditure.

So it would appear that our 'investment' in the stochastic control comes to a nought. However, our hunch was that in the earlier period, this would not be so (the intuition for this comes from looking at graph obtained from the rolling regression). We decided on the sample period, 1971-76. This, needless to underline, is an extremely important period in the political economy of India. At the beginning was the Bangladesh war, in the middle was the oil shock and towards the end, the clamping of the emergency. The choice was also prompted by two other reasons, one, we did not want to go too far back in time and, two, for the period 1976-83, when a similar exercise had been conducted - using Kalman filter, though not full-fledged stochastic control - we got a result similar to our 1984-93 case [see Pethe, A. 1986], viz, that taking uncertainty into account and using the one step predictor corrector mechanism (combination of optimal control and Kalman filter) did not help in improving the tracking performance by much! In the case of 1971-76, we found that the stochastic control did help!. The RMSE for deficit tracking using DUAL is 12 per cent, whereas that using QLP is 16 per cent. For the illustration of this in the case of deficits, again (notation self explanatory), see Figure 4. The stochastic control algorithm (DUAL) did outperform the deterministic control even in terms of RMSE.

We may thus hazard a guess that the *nature* as well as *magnitude* of uncertainty have changed over the period. By 'magnitude' we simply mean the variance of the proxy we are using to consider a particular type of uncertainty. By 'nature,' however, we mean not only how the magnitude changes with time but also how the different types of uncertainties that we are considering are juxtaposed *vis-a-vis* each other to form a pattern. Our hunch is that this too affects the performance of the stochastic control technique being used. There is nothing in the literature to give us a lead here and the empirical evidence is rather scarce and till we have more evidence in terms of Monte Carlo experiments as well as different models being used this is likely to remain a rather fuzzy area. Thus, whereas in the earlier case, the magnitude of uncertainty was higher as may be inferred from the greater variance of coefficient estimates (again refer to Figure 1) it was of a nature that could lend itself to some system learning and hence an improvement in fiscal marksmanship. In the latter case the nature of uncertainty is such that computational efforts at exploiting it fruitfully are not successful. Thus, if one links the inherent complexity of the fiscal process to our capability to 'learn' and hence predict better, the fiscal process seems to have become more complex.

Fiscal marksmanship is simply interpreted here as the possibility - based on available information and techniques - of predicting the actuals on the basis of announcements of some key fiscal variables. Now, if it can be shown using fairly well known techniques that it is possible to provide good forecasts for actuals using announcements, then the conclusion is inescapable that the government as a rational agent is deliberately not doing so (i.e., making more reliable announcements). Further, as a corollary, unless it is convenient for the government and there is some political gain to be made, the continuation of such a wedge or divergence between the actuals and announcements, year after year, becomes difficult to rationalise. It is in this rough sense that we term the government as indulging in political gamesmanship. On the other hand, if there is a noise in the system which does not allow a good forecast to be made over a period of time, then we would have to put it down as a measure of inherent complexity of the process and absolve the government of political gamesmanship. At the cost of facing the charge of repeating ourselves, let us elaborate a little more. It is true that we have taken a somewhat narrow view of the budgetary process. But given the macro-statistical - computational tenor of the paper, we feel it is inevitable, given the 'state of the art'. Of course, the entire magnitude of divergence between announcements and actuals cannot be seen to emanate from 'political gamesmanship'. There indeed are unforeseen events. Further, unforeseen events have deterministic as well as stochastic dimension. Using deterministic as well as stochastic techniques it might be possible to reduce the gap between announced and actual values of the

variables. If this can be seen to be not possible then the government cannot be said to indulge in political gamesmanship on the basis of existing wedge. If, however, it can be shown that a reduction in the divergence is possible and the government is not seen to be, in fact, doing so, then surely, short of irrationality, the needle of suspicion must strongly point to political gamesmanship. In such a case it becomes incumbent on the government to take on the burden of proof to convince the public to the contrary. Otherwise, credibility will suffer. It is well known that credibility and reputational considerations are very important because non-credible environment makes the policy maker's job even more difficult in the 'self-fulfilling prophecy' vein. Thus, non-credible regime feeds on itself. Admittedly, this is all very rough and 'informal' but, the issues here are rather difficult with very little guidance in the existing literature and, given what may be attempted in a single paper, formalisation in this area, although important, must await another day (and another paper!). In any case such a treatment would be deemed beyond the scope of this paper which (to repeat) is mainly computational. Quite apart from a formal treatment of the 'pattern of uncertainty' there isn't, as yet, enough empirical evidence about the ranking of the various control algorithms, so that this is as yet nascent area of research [see Amman and Kendrick, 1994].

The obverse side of the observation we made at the beginning of the last paragraph is that in the earlier period, there was a greater element of political gamesmanship involved. Of course, it needs to be remembered that this refers to the political gamesmanship element as regards the uncertainty. What this means, in other words, is that for the earlier period (for which control experiment was conducted, refer to Figure 4) the divergence between announced and actuals was much reduced when stochastic control was used. A large measure of the 'gamesmanship' has been present in a more sustained and a substantial form emanating from deterministic sources. This can be seen from the stability of the coefficients (which basically means that there is a stable relation between announced and actual values and hence easier to learn from) throughout the period of the study as well as the fact that deterministic control algorithm (QLP) uniformly does well in the prediction of the 'actuals' and thus reducing the 'divergence'. Thus, to sum up the argument: the ability to track the actuals on the basis of announcements, clearly indicates a possibility to 'learn'. The fact, that it is not done and to the extent that a systematic and stable divergence continues, may be construed as being indicative of attempt on the part of the government to deliberately 'not learn', perhaps for political gain at the cost of fiscal marksmanship - an exercise in political gamesmanship. Of course, this assumes that the government is a rational agent with considerable computational skills. If one were to assume bounded rationality, (and not assume the government to be a super rational automata) then perhaps one could absolve the government of gamesmanship as far as ECM or stochastic algorithms are concerned. But we do believe that the improvement in tracking due to deterministic control must provide a measure of government's gamesmanship.

VIII. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Let us begin by tentatively noting that we find that the fiscal process is complex, with its complexity increasing (in the sense of computational tractability, as already explained above) over the period, as may be seen from the fact that whichever method one uses, there seems to be a large gap between the forecast and actuals. As far as political gamesmanship goes, it is clear that at the deterministic level its presence is undeniable, i.e., using QLP (deterministic technique) the 'gap' could have been reduced. It is of course possible to rationalise this by arguing that the policy maker always chooses the most 'optimistic' estimates, however, the fact remains that these are also politically convenient. The 'nature' of uncertainty shows clear indications of having undergone a change. This may be inferred from either the rolling regression graph or looking at the signs of gaps between actuals and announced deficits. Finally, it is also seen that adding structure helps in the exercise of fiscal marksmanship.

As far as the different methods tried to track the actuals on the basis of announcements, we find that for the particular period (1985-93), the ECM does better than the stochastic control algorithm, but not as well as the deterministic QLP. This may be observed from Figure 2 and the relevant

RMSEs reported in the text. This may be, as we have noted, specific to the particular time period we have worked with, and it is quite possible for the ranking to change in the context of other sample periods.

One of the limitations of the paper is that it has dealt with the issues at a rather macro level. A deeper and a more disaggregative approach will surely add greater insights into the economic processes being studied.

Let us now turn to some suggestions for further research. The problem that we have attempted to solve is admittedly at a macro - indeed, an uncomfortably aggregative - level. It thus might be a good idea to try out a similar exercise, using a larger (and hence a more dis-aggregated) macro-model. This will enable the inclusion of such variables as the National Income, Price Level, et al., and hence add more structure to the whole exercise, making it more meaningful. Similarly, as is quite well known, when uncertainty is being modeled - especially in the early exploratory research in an area - it is always a good idea to conduct Monte Carlo simulation. Incidentally something like this was done by Pethe [1994]. However, here we are faced with computability constraints. The DUAL code which we worked with and the 386 with co-processor which we used are both incapable of handling realistically dimensioned models. Fortunately, given the rapid advance in computational technology, very soon that research agenda will become feasible.

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Appendix - I

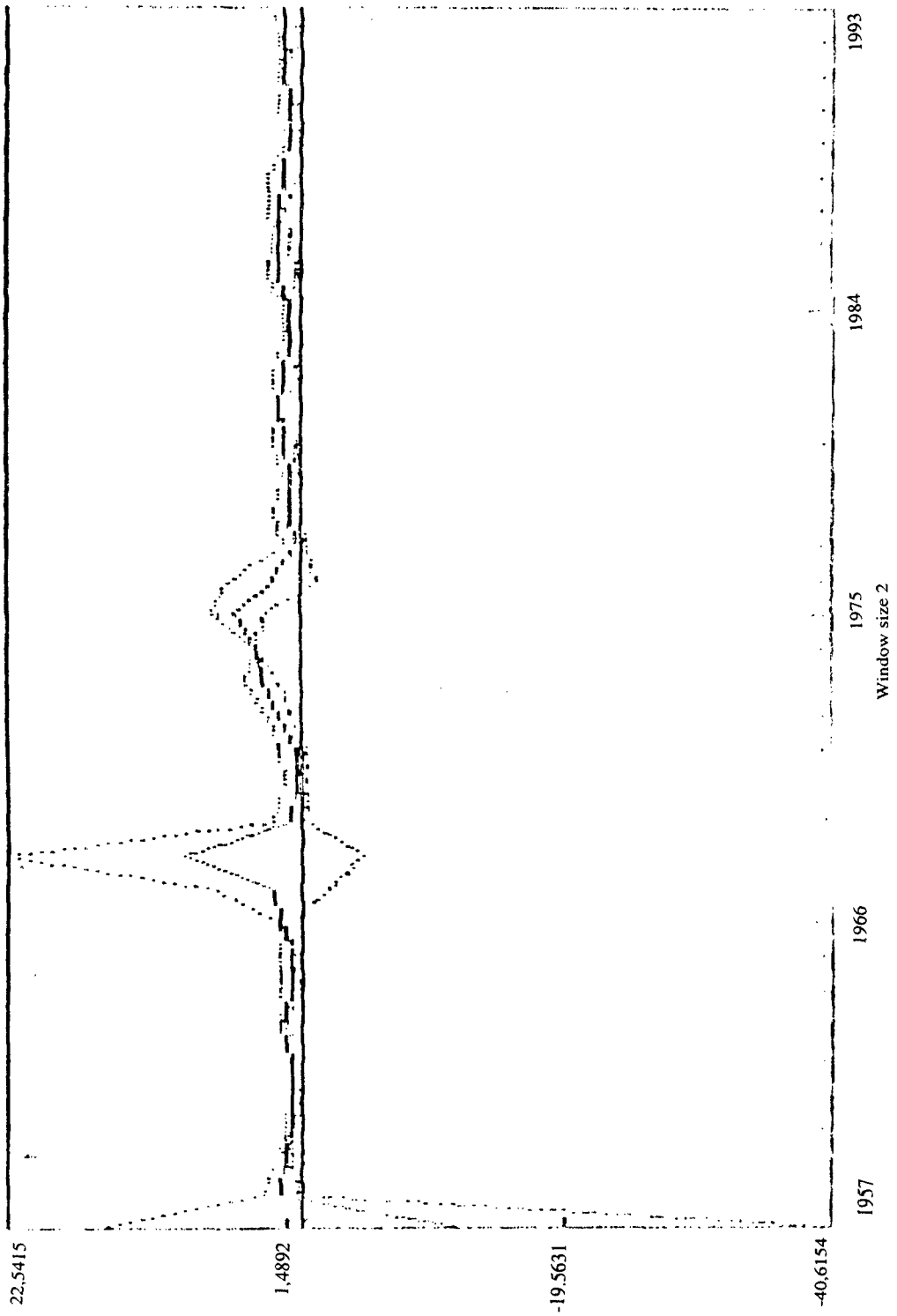


Figure No. 1: Coefficient of BED and its two*S.E. bands based on rolling OLS

FIGURE NO. 2A

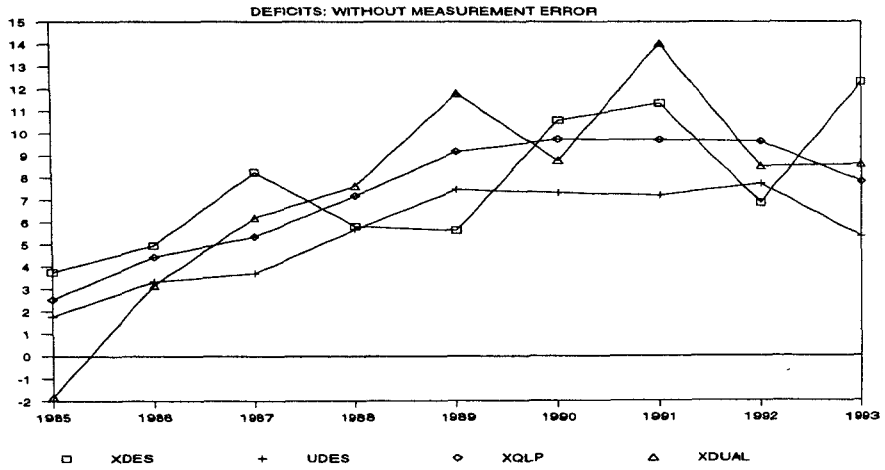


FIGURE NO. 2B

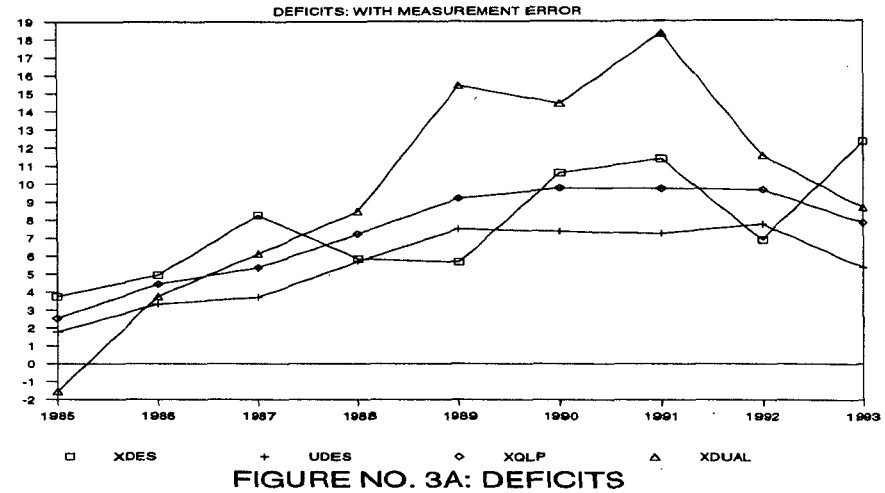


FIGURE NO. 3A: DEFICITS

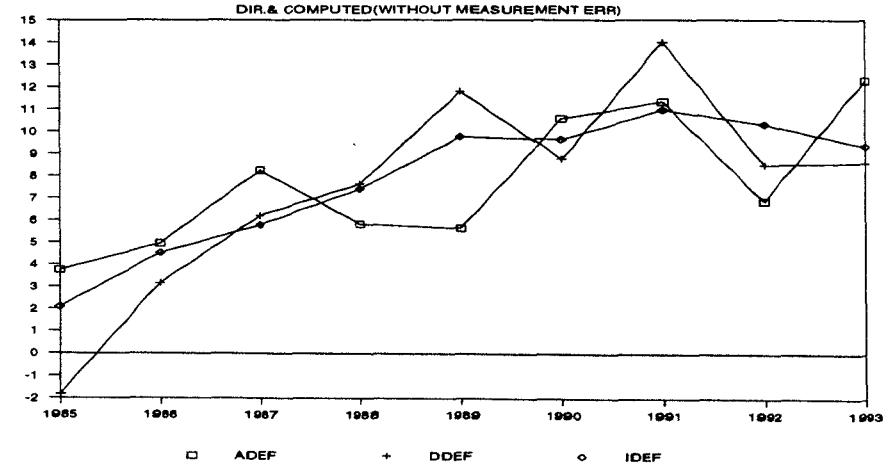


FIGURE NO. 3B: DEFICITS

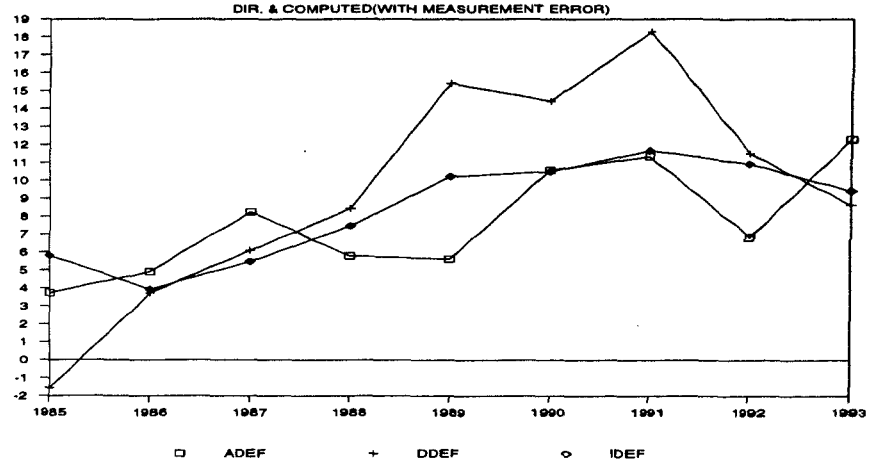
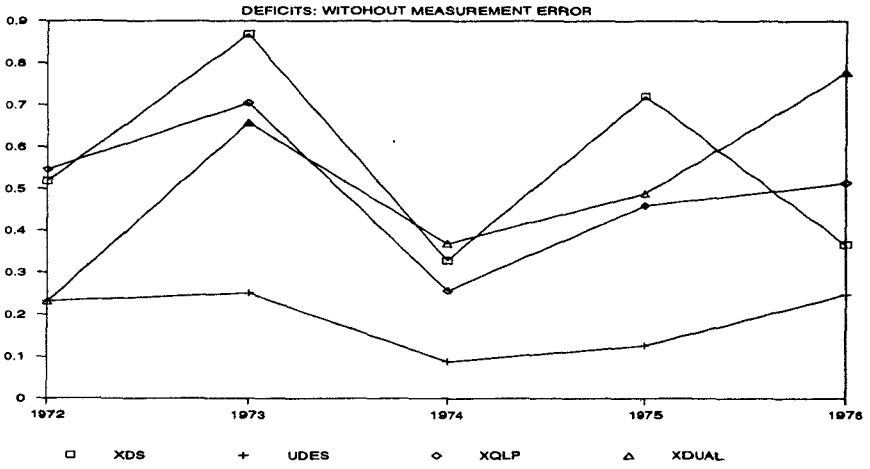


FIGURE NO. 4



APPENDIX II

DUAL CONTROL: USER'S GUIDE

The Quadratic Loss Function is minimised subject to the systems equations

$$x_{k+1} = A_k(\theta_k)x_k + B_k(\theta_k)u_{k+1} + C_k(\theta_k)\, z_k(\theta_k)\, z_k + \epsilon_k \qquad k = 0,\ldots,N\text{-}1$$

where

θ_k = vector (s x 1) of uncertain parameters in A, B and C.
A_k = state vector coefficient matrix (n x n).
B_k = control vector coefficient matrix (n x m).
C_k = exogenous vector coefficient matrix (n x l).
u_k = control vector coefficient matrix (m x 1).
z_k = exogenous variable vector (l x 1).
ϵ_k = additive system error term.

The measurement relations are

$$y = H(\theta_k)\, x_k + e_k$$

and the first order Markov process

$$\theta_{k+1} = D\theta_k + n_k$$

where

- y_k = measurement vector (r x 1).
- H = measurement coefficient matrix (r x n).
- ϵ_k = measurement error term - r vector for each period.
- D = known Markov process matrix (s x s).
- n_k = time-varying parameter error term - s vector for each period.

where the vectors ϵ_k, e_k, n_k, x_o, θ_o assumed to be mutually independent, normally distributed random vectors with known means and covariances (positive semi-definite):

initial period state: $x_o = N(x_o, \Sigma)$

initial parameters: $\theta_o = N(\theta_o, \Sigma)$

system noise: $\epsilon_k = N(0, Q)$

measurement noise: $e_k = N(0, R)$

Markov process noise: $n_k = N(0, G)$

and where

- Σ = known covariance matrix (n x n) for initial period state variables.
- Σ = known covariance matrix (s x s) for initial period parameter estimates.
- Q = known covariance matrix (n x n) for system disturbances ϵ_k.
- R = known covariance matrix (r x r) for measurement disturbance e_k.
- G = known covariance (s x s) for Markov disturbances n_k.

Problem Size and Control Parameters for The DUAL Problem

Line (1)	Math Name (2)	Fortran Name (3)	Description (4)
1			text to describe problem - must be exactly 72 characters including blanks
2	n	N	number of state variables
	m	M	number of control variables
	l	NS	number of exogenous variables
	s	NP	number of uncertain parameters
	r	NY	number of measurement parameters
	N	NT	number of time periods
		NMC	number of Monte Carlo runs
3		L1	solve the dual problem (if 1)
		L2	solve the OLF problem (if 1)
		L3	solve the CE problem (if 1)
		L4	solve the QLP problem (if 1)

	L5	Generate random terms (if 0) Read in random terms (if 1)
	L6	Noise in initial states and parameters $x = x_0$ (if 1) $\theta = \theta_0$ (if 1)
4	L7	Print detailed information for each Monte Carlo run (if 1)
	L8	Print the functional values for DUAL, OLF and CE
	L9	Print and flow control parameter which is not yet assigned
	L10	Input form for the problem with additive noise but no measurement noise (if 1)
	L11-L12	Print and flow control parameters which are not yet assigned

Data Inputs for The DUAL Problem

Math Name (1)	Fortran Name (2)	Description (3)
A	A	A matrix (N x N)
B	B	B matrix (N x N)
C	C	C matrix (N x N)
D	D	Markov matrix (NP x NP)
W	W	Penalties on states (N x N)
W_n	WN	Penalties on terminal states (N x N)
	FLAM	Priorities on controls (M x M)
z	EXOMAT	Exogenous variable vector (NS x NT)
x_0	XDESO	Initial desired state vector (NS x NT)
x_k	XDES	Desired states: other periods (N x NT)
u_k	UDES	Desired control for all periods (M x NT)
H	H	Measurement Equation matrix (NY x N)
x_0	XO	Initial state vector (N x 1)
θ_0	THO	Initial parameter vector (NP x 1)
Σ	SIXXO	Initial covariance matrix for states (N x N) obtained from prior data
Σ	SITXO	Initial covariance matrix for parameters and states (NP x N)
Σ	SITTO	Covariance matrix for system noises (NP x NP)
Q	Q	Covariance matrix for system noises (N x N)
R	R	Covariance matrix for measurement errors (NY x NY)
G	GAM	Covariance matrix for parameter evolution equations (NP x NP)
	ITHN	Matrix which maps elements in theta to elements in A, B and C first column = 0 if element in A = 1 B = 2 C second col. = row number of parameter third col. = col number of parameter

The remainder of the entries are required only if the user wants to read in error terms rather than create them with in-built Monte Carlo routines. If the error terms are to be read in then switch L5 has to be set to 1. In our case we have used Monte Carlo generator and hence set L5 equal to zero.

XSIS	Additive error terms (N x NT)
ZETAS	Measurement error terms
ETAS	Time-varying parameter error terms (NP x NT)
THODEV	Initial parameter vector error (NP x NT)
XODEV	Initial state vector measurement error

In our case, since there is only one equation model, the covariance matrices are merely variance matrices which are single numbers. Also, the penalty matrices are diagonal. In inputting a matrix, only the nn-zero elements are input. Therefore, the first row of the input for each matrix and vector gives the number of non-zero entries in the matrix. The remaining rows give the row and column number of the entry followed by its value. For example:

```
2
1        1        3
2        2        10
```

Shows a 2 x 2 matrix with 3 in first row first column and 10 in the second row second column position all the rest being zero. If all the entries in a matrix are zero, we have adopted the convention of using -99 for its entry but any negative number will do. For any further inquiry or to get the program for non commercial use the authors may be contacted or Prof Kendrick or Prof Amman may be contacted directly on the following e-mail addresses:

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Hans Amman	amman@sara.nl
Abhay Pethe	abhayp@econbu.ernet.in

We now reproduce the INPUT and OUTPUT files used in one of our control experiments.

```
INPUT FILE
/* FISCAL MARKSMANSHIP EXPERIMENT NO. 3 - DEFICITS
1   1   1   1   0   9   1
1   1   1   1   0   0
0   1   0   1   0   0
-99
1
1   1   1.3091
-99
1
1   1   10.0
1
1   1   10.0
1
1   1   100.0
-99
1
1   1   1.417
9
1   1   3.745
1   2   4.937
1   3   8.261
1   4   5.816
1   5   5.642
1   6   10.592
1   7   11.347
1   8   6.855
1   9   12.312
9
1   1   1.774
1   2   3.316
1   3   3.703
1   4   5.688
1   5   7.484
1   6   7.337
1   7   7.206
1   8   7.719
1   9   5.389
1
```

```
1   1   1.417
1
1   1   1.309
1
1   1   0.03
1
1   1   8
1   1   1
```

OUTPUT FILE

/* FISCAL MARKSMANSHIP EXPERIMENT NO. 3 - DEFICITS

N	M	NS	NP	NY	NT	NMC
1	1	1	1	0	9	1

L1	L2	L3	L4	L5	L6
1	1	1	1	0	0

L7	L8	L9	L10	L11	L12
0	1	0	1	0	0

ACTIVE OPTIONS DURING THIS SIMULATION ARE:

```
L1=1:     ACTIVE LEARNING (DUAL) SIMULATION.
L2=1:     PASSIVE LEARNING (OLF) SIMULATION.
L3=1:     SEQUENTIAL UPDATING (CE) SIMULATION.
L4=1:     LINEAR-QUADRATIC (QLP) SIMULATION.
L8=1:     PRINT INTERMEDIATE RESULTS ON FILE MCRES.
L9=0:     USE GRID SEARCH FOR M<=2 IN DUAL.
L10=1:    USE INPUT FORMAT OF CHAPTER 7 [TEXT].
```

```
A
        .0000,

B
        1.3091,

C
        .0000,

W
        10.0000,

WN
        10.0000,

FLAM
        100.0000,

EXOMAT
        .0000,    .0000,    .0000,    .0000,    .0000,

EXOMAT
        .0000,    .0000,    .0000,    .0000,

XDES0
        1.4170,

XDES
        3.7450,   4.9370,   8.2610,   5.8160,   5.6420,
```

XDES
10.5920, 11.3470, 6.8550, 12.3120,

UDES
1.7740, 3.3160, 3.7030, 5.6880, 7.4840,

UDES
7.3370, 7.2060, 7.7190, 5.3890,

X0
1.4170,

TH0
1.3090,

SITT0
.1000E+01,

Q
8.0000,

ITHN
1 1 1

ATRUE
.0000,

BTRUE
1.3091,

CTRUE
.0000,

ONE DIMENSIONAL GRID SEARCH WILL BE USED IN DUAL
NUMBER OF CORRECT MC RUNS = 1
THE MEAN AND STANDARD DEVIATION OF FUNCTIONAL J

MEAN J DUAL	= 574.1915	SIGMA	= .0000
MEAN J OLF	= 577.2347	SIGMA	= .0000
MEAN J CE	= 563.3688	SIGMA	= .0000

THE MEAN VALUES OF THE STATES
AND CONTROLS OVER ALL MC RUNS

XDUAL
-1.8318, 3.1608, 6.2047, 7.6465, 11.7997,

XDUAL
8.7758, 14.0234, 8.5132, 8.5959,

UDUAL
1.7295, 3.1317, 3.8550, 5.6221, 7.1307,

UDUAL
7.3794, 7.3985, 7.1939, 5.9402,

VARXDUA
.0000, .0000, .0000, .0000, .0000,

VARXDUA
.0000, .0000, .0000, .0000,

VARUDUA
.0000, .0000, .0000, .0000, .0000,

```
VARUDUA
      .0000,    .0000,    .0000,    .0000,
XOLF
     -1.8487,   3.0932,   6.1961,   7.6325,   11.7836,
XOLF
      8.7556,  14.0147,   8.4941,   8.5863,
UOLF
      1.7167,   3.0801,   3.8484,   5.6114,   7.1185,
UOLF
      7.3639,   7.3919,   7.1792,   5.9328,
VARXOLF
      .0000,    .0000,    .0000,    .0000,    .0000,
VARXOLF
      .0000,    .0000,    .0000,    .0000,
VARUOLF
      .0000,    .0000,    .0000,    .0000,    .0000,
VARUOLF
      .0000,    .0000,    .0000,    .0000,
XCE
     -1.6269,   3.3946,   6.4114,   7.7775,   11.8807,
XCE
      8.8178,  14.0559,   8.5304,   8.6068,
UCE
      1.8861,   3.3103,   4.0128,   5.7222,   7.1927,
UCE
      7.4115,   7.4234,   7.2070,   5.9485,
VARXCE
      .0000,    .0000,    .0000,    .0000,    .0000,
VARXCE
      .0000,    .0000,    .0000,    .0000,
VARUCE
      .0000,    .0000,    .0000,    .0000,    .0000,
VARUCE
      .0000,    .0000,    .0000,    .0000,
```

THE FUNCTIONAL VALUES IN ALL MC RUNS

MC RUN	JDUAL	JOLF	JCE
1,	574.1915,	577.2347,	563.3688,

AVERAGE DUAL	574.19150	STDEV	.00000
AVERAGE OLF	577.23470	STDEV	.00000
AVERAGE CE	563.36880	STDEV	.00000

COUNTJ DUAL	0	PERCENTAGE	.0
COUNTJ OLF	0	PERCENTAGE	.0
COUNTJ CE	1	PERCENTAGE	100.0

```
XQLP
      2.5303,   4.4279,   5.3466,   7.2072,   9.1888,
XQLP
      9.7486,   9.7127,   9.6289,   7.8233,
UQLP
      1.9330,   3.3826,   4.0845,   5.5059,   7.0197,
UQLP
      7.4474,   7.4199,   7.3559,   5.9766,
```

TOTAL COST QLP

QLP = 327.793300

APPENDIX III

Data Used in The Study
(All figures are in Current terms, in Rs Crore)

	RECEIPTS			EXPENDITURE			SURPLUS(+)/DEFICIT(-)		
YEAR (1)	BE (2)	RE (3)	ACT (4)	BE (5)	RE (6)	ACT (7)	BE (8)	RE (9)	ACT (10)
1955.56	1,040	947	752	1,027	929	912	13	18	-160
1956.57	1,190	1,150	986	1,190	1,096	1,090	0	54	-184
1957.58	1,233	1,160	1,014	1,516	1,541	1,474	-283	-381	-460
1958.59	1,362	1,317	1,267	1,562	1,573	1,488	-200	-256	-221
1959.60	1,637	1,594	1,534	1,859	1,769	1,694	-222	-175	-160
1960.61	1,814	1,937	1,944	1,968	1,972	1,827	-154	-35	-117
1961.62	2,070	2,080	1,972	2,140	2,202	2,084	-70	-122	-112
1962.63	2,549	2,592	2,613	2,638	2,880	2,768	-89	-288	-155
1963.64	3,293	3,339	3,252	3,475	3,491	3,419	-182	-152	-167
1964.65	3,806	3,850	3,711	3,903	3,930	3,883	-97	-80	-172
1965.66	4,163	4,114	3,952	4,053	4,278	4,126	-110	-164	-174
1966.67	4,345	5,030	5,009	4,377	5,379	5,305	-32	-349	-296
1967.68	4,968	4,776	4,868	4,967	5,077	5,075	1	-301	-207
1968.69	4,817	4,924	4,760	5,106	5,184	5,023	-289	-260	-263
1969.70	5,280	5,509	5,535	5,543	5,763	5,581	-263	-254	-46
1970.71	5,559	5,931	5,866	5,785	6,161	6,151	-227	-230	-285
1971.72	6,240	7,138	7,003	6,472	7,523	7,522	-232	-385	-519
1972.73	7,077	7,752	7,549	7,328	8,302	8,418	-251	-550	-869
1973.74	8,355	8,585	8,719	8,443	9,235	9,047	-88	-650	-328
1974.75	9,238	9,977	9,854	9,364	10,602	10,575	-126	-625	-721
1975.76	11,044	12,702	12,773	11,291	13,191	13,139	-247	-489	-366
1976.77	13,366	14,407	14,345	13,827	14,832	14,476	-461	-425	-131
1977.78	16,296	15,937	15,381	16,911	16,912	16,314	-615	-975	-933
1978.79	18,011	18,238	18,178	19,548	20,383	19,684	-1,537	-2,145	-1,506
1979.80	17,837	17,330	17,465	19,219	20,030	19,898	-1,382	-2,700	-2,433
1980.81	22,205	23,005	22,261	23,650	24,980	24,838	-1,445	-1,975	-2,577
1981.82	24,040	25,567	25,730	25,579	27,267	27,122	-1,539	-1,700	-1,392
1982.83	28,663	31,370	31,377	30,038	33,305	33,033	-1,375	-1,935	-1,656
1983.84	34,046	37,734	37,152	35,632	39,429	38,569	-1,586	-1,695	-1,417
1984.85	41,722	43,671	43,127	43,496	47,656	46,872	-1,774	-3,985	-3,745
1985.86	49,258	53,984	53,137	52,574	58,474	58,074	-3,316	-4,490	-4,937
1986.87	56,302	59,249	59,201	60,005	67,534	67,462	-3,703	-8,285	-8,261
1987.88	65,670	68,464	66,447	71,358	74,544	72,263	-5,688	-6,080	-5,816
1988.89	74,968	77,468	78,804	82,452	85,408	84,446	-7,484	-7,940	-5,642
1989.90	85,316	87,992	94,059	92,653	99,742	104,651	-7,337	-11,750	-10,592
1990.91	99,283	103,407	101,297	106,489	114,179	112,644	-7,206	-10,772	-11,347
1991.92	118,082	117,465	111,518	125,801	124,497	118,373	-7,719	-7,032	-6,855
1992.93	131,491	125,186	123,218	136,880	132,388	135,530	-5,389	-7,202	-12,312

Note: BE - Budget Estimates, RE - Revised Estimate, ACT- Actual.
Source: Data for 1955-56 to 1988-89 from Pattnaik, 1990, p. 231. The updated figures are from *RBI Bulletins*, various issues, after having made the various adjustments spoken of in the text.

STATE, PRIVATE SECTOR AND LABOUR: THE POLITICAL ECONOMY OF JUTE INDUSTRY MODERNISATION, WEST BENGAL, 1986-90

Supriya RoyChowdhury

In the decades since Independence, the jute industry has undergone a sharp eclipse. To reverse this process, in 1986 a Jute Modernisation Fund (JMF) was created and certain other policy measures were taken by the central government. Almost all of jute manufacturing takes place in West Bengal. The attempted restructuring thus took place in the context of the general political economy climate of West Bengal which has been ruled by a leftist coalition since 1977.

This paper documents that the period 1985-90, when the JMF was being implemented, actually witnessed increasing sickness in the jute industry. While there are important economic reasons for this phenomenon, this paper does not offer an economic analysis of the jute industry's continuing decline. Instead, this paper examines the nature of state-private sector - labour relationships within the context of the revitalisation that was attempted in the mid 1980s. The paper documents: (1) that in many cases the proposed modernisation funds could not be dispersed because mills were not in a position to provide the promoter's contribution, or such funds had to be used for paying off existing credits on provident funds and other workers' dues; and (2) that large numbers of labour lost their jobs, or retained their jobs only by accepting wages below the legally stipulated minimum wages in the industry. Thus large numbers of workers were pushed outside of the margins of organised employment in spite of a supposedly labour-friendly leftist government and a well entrenched trade union culture.

The analysis thus underlines, firstly, the limits of state attempts at jute industry restructuring via the private sector; and secondly, the vulnerabilities of both the government and of labour, to mill managers in a situation of a rapidly declining industry and the threat of large scale unemployment.

I. INTRODUCTION

The jute industry is one of the oldest of manufacturing industries in India. By the time of the first world war, jute and cotton textiles had emerged as the two leading factory industries in India. The growth of the jute industry had occurred mainly on the basis of exports. In the period after Independence, the industry has undergone a very clear decline, brought about primarily by the gradual loss of the export market. In the domestic arena, the demand for manufactured jute goods has shown some increase; and in recent years there have been attempts to reinvigorate the industry through a Jute Modernisation Fund and to sustain and expand the domestic market for jute goods by making jute packaging compulsory for certain industries, such as cement.

The restructuring of this industry poses certain dilemmas. On the one hand, the loss of the export market is a function of broader structural factors in the international economy, (such as the development of cheaper synthetic substitutes, increased competition posed by other exporting countries) and seems irreversible. In the domestic market, it is possible that in the long term, with the development of the petrochemical industry, synthetic bags are likely to emerge and to displace jute, as had occurred in the overseas market. From this perspective jute restructuring would appear to be a potentially lost cause.

On the other hand, jute industry remains one of the largest employers in the eastern region, particularly in West Bengal which is a heavily populated state, with a high rate of

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unemployment. The jute industry employs about 200 thousand workers and supports about four million families dependent on jute cultivation, the chief commercial crop of the region. The attempt to revive and rejuvenate the industry therefore makes sense from a socio-political, and possibly humane, if not from a purely economic point of view.

What makes jute modernisation of particular interest from a broadly political economy perspective is the industrial politics of West Bengal under the CPI(M) - led Left Front government that has been in power since 1977. The decline of the jute industry occurred in the context of the economic and industrial decline that had set in in West Bengal from the mid 1960s onwards (see Table 1).

Table 1. Income from Manufacturing (Including Small-Scale) Industries in West Bengal (at 1951-52 Prices)
(Rs million)

Period	Income at 1951-52 Prices	Average Volume of Increase per Annum	Average Annual per cent Increase (+) or Decrease (-)
(1)	(2)	(3)	(4)
1951-52	1,458	-	-
1956-57	1,867	+81	+5.61
1961-62	2,577	+142	+7.56
1965-66	3,719	+286	+11.22
1966-67	3,574	-145	-3.92
1967-68	3,722	+148	+4.16
1968-69	3,542	-180	-4.84

Source: Government of West Bengal, Economic Review, 1966-67 to 1969-70. [Table given in B.P. Bannerjee, 1972].

This decline was compounded by the extreme instability that marked West Bengal politics in the 1960s and 1970s. In the 1967 assembly elections, the United Front, a coalition of leftist and left leaning parties came into power. Industrial unrest reached a climax at this time with almost daily *gheraos*, sit-ins and strikes [Mallick, 1994, p. 130]. The number of lock-outs increased from 87 in 1966 to 206 in 1967 and 149 in 1968; the number of closures increased from 34 in 1966 to 123 in 1967, 139 in 1968 and 317 in 1970 [Bannerjee S., 1972, p. 59]. Industrial production reached an all time low and there was general flight of capital to other parts of the country. The powerful emergence of the Naxalite party at this time brought a particularly radical rhetoric and an environment of political violence that further disrupted the climate for industrial investment. The subsequent five years (1972-77) of Congress(I) rule in this state were also industrially unproductive years. Severe power shortages and labour militancy were two of the crucial problems that obstructed industrial progress at this time.

Significant changes began with the Left Front government's rule in 1977. Led by the Communist Party of India (Marxist), the Left Front inaugurated a positive approach towards industrial regeneration. The government began serious efforts to woo private capital for investment purposes both in industry and in infrastructural development. The practicalities of running a government appeared to dictate a labour policy that was much less agitational. The militancy of its trade unions that had completely disrupted the state's industrial climate in the 1960s and 1970s gave way to a significantly more moderate and cautionary approach towards labour-management relations. This change has been reflected most markedly in the declining number of industrial strikes in West Bengal (Table 2).

Table 2. Strikes in West Bengal

Year	Strikes	No. of Workers Involved
(1)	(2)	(3)
1970	678	454,000
1975	277	370,000
1980	78	153,000
1986	25	112,000
1990	7	83,000

Note: This table does not include information on Central Government owned public sector enterprises in India.
Source: Department of Labour,1989; Labour Bureau, 1990.

In attempting to revitalise industrial development, the CPM has thus made some definite efforts to provide positive signals to private entrepreneurs, and to neutralise, to an extent, its former labour militancy. These shifts in policies and in the general political climate in West Bengal provide the context in which this paper will examine the dynamics of the attempted restructuring of jute industry.

The share of jute goods exports in the country's total export trade was 28.6 per cent in 1950-51; this share declined to 20 per cent in 1960-61, 15 per cent in 1970-71 and to 4 per cent in 1986-87 [Sarkar, 1989]. The jute industry has shown visible signs of decay as profits have declined, technology stagnated, mills closed down, wages became stagnant, and large numbers of workers were thrown out of work, setting forth some of the bitterest industrial disputes in the state. Both the Left Front government and the major trade unions have repeatedly demanded nationalisation of the industry. The 1986 Jute Modernisation Fund can be seen as a choice made by the central government against the option of nationalisation in favour of attempting to rejuvenate the industry through greater support to the private owners of industry. What occurred in the next few years, however, was incomplete and halting execution of the fund, increase in the number of closures, deteriorating labour conditions and declining productivity. This paper highlights particularly that most mill owners were unable or unwilling to undertake any significant modernization and restructuring activities; and that on the other hand, large numbers of workers either lost their jobs or were forced to accept wages below the legally stipulated minimum.

II. BACKGROUND

The British government encouraged the commercial cultivation of jute fibre and its export primarily to England. The first jute spinning mill was set up in Calcutta by a Scottish entrepreneur in 1859. As jute growing was a virtual monopoly in Bengal, the manufacture of jute benefited from the competitive advantage provided by cheap raw material. The growth of the industry was based upon an elastic supply of cheap coal and rural labour, the availability of finance from British managing agents as also shipping facilities at Calcutta port. The industry grew rapidly during the early years of the twentieth century, and particularly during the two World Wars [Gadgil, 1974; Morris, 1984]. At partition in 1947, 75 per cent of the jute producing area growing about 80 per cent of the crop, was lost to East Pakistan (now Bangladesh). Since Independence there has been considerable government encouragement for jute cultivation; the acerage under jute cultivation increased from 2.66 lakh in 1947-48 to 11.44 lakh 1962-63 [S. Bannerjee, 1972, P. 65].

Table 3. Annual Category-Wise Production of Jute Goods in India

(Thousand Tonnes)

Financial Year (1)	Hessian (2)	Carpet Backing (3)	Sacking (4)	Others (5)	Total (6)
1976-77	329.6	112.8	616.1	127.1	1,185.6
1977-78	361.1	136.6	528.7	151.8	1,178.2
1978-79	279.2	112.9	511.0	143.9	1,047.0
1979-80	365.9	155.5	654.8	171.6	1,347.8
1980-81	402.0	67.0	732.0	191.4	1,392.4
1981-82	348.9	84.1	725.1	175.5	1,333.6
1982-83	323.4	56.2	782.9	175.3	1,337.8
1983-84	227.5	30.4	658.1	172.9	1,088.9
1984-85	325.5	46.6	805.6	192.0	1,369.7
1985-86	310.0	30.5	823.4	186.9	1,350.8
1986-87	348.5	53.5	831.1	160.9	1,394.0

Source: Sarkar, 1989.

The decline of jute manufacturing began, however, approximately around the time of Independence; and in fact the number of jute mills in West Bengal came down from 111 in 1947 to 106 in 1948. The story of the decline of the jute industry has been retold many times. Here only some broad patterns are indicated. Throughout the post-Independence period, production of jute goods in India did not demonstrate any significant growth. Profits did not show any marked rise during these years. The industry recorded relatively high profits in the years 1971-72, 1974-75, 1979-80 and 1980-81, because of favourable demand conditions both in overseas and domestic

markets alongside comfortable positions in respect of raw jute, and it registered losses in the years 1973-74, 1975-76 to 1978-79, mainly owing to adverse export demand. In other years over this period, the industry experienced low to moderate profitability [Sarkar, 1989].

The decline of the industry was most apparent in the number of closed and locked out mills and in the number of workers laid off. During the Emergency years, around 40,000 workers in the industry were laid off without compensation [Department of Labour, 1989]. There have been several important strikes in the industry during these years, the jute mill workers' strike in 1970, the 33 day strike in January 1974, the 50 day strike in January 1979 and the 84 day strike in 1984, which was the longest in the history of the industry. A repeated demand in these industrial unrests has been for nationalisation of the industry, but has not so far been met.

III. RESTRUCTURING: STATE INITIATIVES

With a view to restructuring the jute industry, the central government, initiated a number of measures in 1985. The Jute Modernisation Fund Scheme (JMFS) of Rs 150 crore was introduced with the Industrial Finance Corporation of India (IFCI) as the nodal agency. The Special Jute Development Fund (SJDF) of Rs 100 crore was also introduced. Further, the government issued a reservation order for mandatory use of jute goods in certain specific areas, such as, food grains, cement, fertilisers and sugar. In addition, the Internal and External Market Assistance Schemes were launched to provide subsidies on diversified jute products, such as carpets, decorative fabrics, felts, blankets, yarn handicrafts, etc. The central government, further, took a decision to allow duty free import of certain machinery of improved technology for a limited period. The government of West Bengal also agreed to grant reliefs or concessions to jute mills undertaking modernisation, by way of granting sales tax loans.

The JMFS was introduced with effect from 1st November 1986, for providing financial assistance to eligible jute mills for undertaking need-based modernisation of plant and machinery.[1] Under this Scheme, provision was made to sanction special loans upto 80 per cent of the promoter's contribution carrying concessional interest of 6 per cent per annum to be repaid over a period of 12 years. The modernisation/ rehabilitation loans were provided at concessional interest of 11.5 per cent per annum with a flexible approach with regard to the schedule of repayment.

To start with, the special loans were sanctioned to such concerns whose net worth was negative or there had been erosion of 50 per cent or more of the peak net worth during the preceding five years. The eligibility criteria were subsequently liberalised and such special loans were made available to mills whose aggregate cash accruals in the preceding year and the current year were likely to be lower than 20 per cent of the project cost. The criteria for grant of assistance under the Scheme were also liberalised to provide financial assistance for acquisition of modern equipment and personnel training.

From the middle of 1987 until 31st March 1990, the IFCI received 37 applications for assistance under the JMFS. Of these, only 17 were approved. The status of processing of these applications as on 31st March, 1990 is given in Table 4.

Table 4. Applications Under JMFS from 1987-1990

(1)	(2)
1. Number of Applications Received	37
2. Number of Applications Withdrawn	5
3. Net Number of Applications	32
4. Number of Cases Sanctioned	17
5. Number of Applications not Found Support Worthy	7
6. Number of Cases Forwarded to BIFR for Approval	6
7. Number of Applications Under Scrutiny	2

Source: Ministry of Textiles, 1990b.

At the time of the introduction of the Scheme, it was anticipated that the amount of Rs 150 crore would be utilised by the jute industry over a period of five years at Rs 30 per year. However, until 31st March, 1990, a total amount of only Rs 64.40 crore had been disbursed by the JMFS. A further amount of Rs 2.40 crore had been approved under the SJDF together aggregating Rs 66.8 crore [Ministry of Textiles, 1990b].

The halting pace of fund disbursement had much to do with the unhealthy financial position in many of the jute mills. Most of the jute mills had gotten into large cash losses on their past operations, which had been financed out of extended trade credits from the market, non-payment of statutory dues, default in respect of existing term loans, large irregularities in the cash credit accounts of banks, etc. [Ministry of Textiles, 1990b]. Since most of the jute mills were sick, the modernisation programme needed to be combined with rehabilitation plans which called for large infusion of interest-free funds on the part of the promoters [Ministry of Textiles, 1990b]. Under the terms of the JMFS the promoter is supposed to contribute a minimum of 20 per cent of the funds to be spent on modernisation/rehabilitation, and in such a situation the individual jute mill is not eligible to get Special Loan at a concessional rate of interest. Because of the extreme financial debilitation of some units, a provision was made under JMFS for sanction of Special Loan and the interest on this would be subsidised by the Central Government.[2]

At the time of the introduction of the JMFS, it was recognised that a large number of jute mills had defaulted in payment of their statutory obligations by way of provident fund (employee's contribution to retirement benefits) and employers' contribution to retirement benefits. This meant that a large part of the funds reserved for retirement benefits of employees had been used up by the management. An amount of Rs 16 crore was earmarked out of the Special Jute Development Fund of Rs 100 crore for sanction of Special Loans to eligible concerns to meet the initial requirement of the funds, representing 20 per cent of the provident fund overdues. According to the existing scheme, the Special Loan was to carry concessional interest of 6 per cent per annum to be repaid in the subsequent six years along with the current or accumulated interest in equal instalments.

Table 5. Jute Goods Production

(Lakh Tonnes)

	1986-87	1987-88	1988-89	1989-90	Rise(+) Fall(-) During	
					1988-89 Compared to 1987-88	1989-90 Compared to 1988-89
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Production						
Hessian	3.48	3.16	3.14	3.47	(-)0.02	(+)0.33
Sacking	8.31	6.80	7.92	6.71	(+)1.12	(-)1.21
Carpet Backing	0.54	0.41	0.36	0.34	(-)0.05	(-)0.02
Others	1.61	1.56	2.46	2.52	(+)0.90	(+)0.06
Total	13.94	11.93	13.88	13.04	(+)1.95	(-)0.84
Internal Consumption						
Hessian	1.43	1.46	1.60	1.78	(+)0.14	(+)0.18
Sacking	8.01	6.69	7.64	6.84	(+)0.94	(-)0.80
C. Backing	0.03	0.03	0.04	0.06	(+)0.01	(+)0.01
Others	1.43	1.39	2.19	2.41	(+)0.80	(+)0.22
Total	10.90	9.57	11.47	11.09	(+)1.90	(-)0.38
Exports						
Hessian	1.79	1.73	1.36	1.71	(-)0.37	(+)0.35
Sacking	0.25	0.06	0.09	0.05	(+)0.03	(-)0.04
C. Backing	0.49	0.34	0.34	0.27	--	(-)0.07
Others	0.24	0.28	0.24	0.33	(-)0.38	(+)0.33
Total	2.77	2.41	2.03	2.36	(-)0.38	(+)0.33

Source: Compiled from Indian Jute Mills' Association, *Annual Reports*, several years.

However, in the course of the implementation of JMFS during the period 1987/90, it was found that the total term liabilities of most of the sick jute mills were substantial, and then payment of 80 per cent of the balance provident fund (PF) and ESI dues out of their own funds was not possible for a number of jute mills. Subsequently, the quantum of Special Loan to be sanctioned to eligible jute mills for meeting the downpayment of PF/ESI dues was increased from 20 per cent of overdues to 50 per cent of overdues so that the balance 50 per cent could be repaid out of the internal funds of the respective jute mills. Consequently, while the initial allocation with regard to assistance in the payment of provident fund and ESI had been Rs 16 crore, this was subsequently raised to Rs 25 crore [Ministry of Textiles, 1990b].

These facts underline that not only was the pace of disbursement of the modernisation fund slow, but an increasing amount of money had to be allocated for essentially unproductive purposes such as settling of past dues. Table 5 shows that during the period of the implementation of the JMFS, the industry recorded negligible growth rate.

IV. STATE, LABOUR AND MILL OWNERS

The situation of sickness, strikes and lockouts in jute mills revealed more closely that the modernisation drive had borne meagre results. The number of strikes and/or lockouts in jute mills in West Bengal during 1980-89 and the consequent loss of mandays is indicated below (Table 6).

Table 6. Strikes and Lockouts, 1980-89

Year	No. of Strikes and/or Lockouts	Mandays Lost
(1)	(2)	(3)
1980	10	4,02,023
1981	17	42,00,709
1982	16	68,06,197
1983	12	37,26,988
1984	4	11,04,183
1985	14	56,49,239
1986	10	3,39,727
1987	7	39,57,163
1988	14	82,09,716
1989	7	38,65,836

Source: Indian Jute Mills' Association, *Annual Report*, 1990.

Industrial disputes in the jute industry in West Bengal have a long and tortuous history [Chakravarty, 1989]. The trade union movement in this industry is dominated by three unions, the Indian National Trade Union Congress (INTUC) which is affiliated to the Congress(I), the All India Trade Union Congress (AITUC), affiliated to the CPI, and the Bengal Chatkal Mazdoor Union (BCMU), and the CITU, both of which owe allegiance to the CPM. In the post-Independence period, there have been several organised strikes in this industry, on the issues of wage rise, permanency of *badli* (temporary) workers, labour retrenchment, etc. During the United Front government's rule (1967-70), the BCMU and the AITUC jointly sponsored an 8 day strike which led to a wage increase of Rs 30 above the pre-existing minimum monthly wage. Another successful strike in 1970 secured the workers' demand for bonus and gratuity. Under further pressure, a tripartite agreement in 1972 saw further wage rise of Rs 45 over the basic minimum monthly wage. The 1972 agreement laid down that on the basis of the labour compliment as in May 1971, 90 per cent of workers in each mill would be permanently employed and 20 per cent of the *badli* workers would be made Special *badlis* who would have to be provided with work at least 220 days in a year and would be entitled to provident fund. The rest would be casual *badlis* [National Commission on Labour, 1973]. This tripartite agreement was ratified in 1984 and made valid until 1988.

Despite this agreement, however, there has occurred over these years a significant decline in the labour force employed in the jute industry in West Bengal (Table 7). The reduction in the workforce in these mills appeared to have occurred largely by the gradual easing out of temporary (*badli*) workers.

During 1987-90 over 45000 jute mill workers lost their jobs as a result of lock-outs in 15 mills.[3] Many of these mills were closed down by their proprietors without due payment of provident fund and ESI to erstwhile employees. Table 8 gives an indication of the nature of default on workers' payments.

Table 7. Showing Depletion of Labour Force in 10 Mills from 1984-90 (Not Due to Natural Causes Such as Retirement or Death)

Name of Mill (1)	No. of Daily Compliment as per Industrywise Settlement (2)	No. of Workmen in March 1990 (3)
Baranagar Jute Mills	4,657	3,730
Soorah Jute Mills	1,399	1,120
Calcutta Jute Mills	930	698
Hooghly Jute Mills	3,455	3,110
Fort William	3,198	2,567
Kanoria Jute Mills	2,529	2,285
Delta Jute Mills	4,529	3,171
New Central Jute Mills	10,930	8,207
Budge Budge Jute Mills	3,372	3,035
Caledonian Jute Mills	3,075	2,775

Source: Interviews with managers of mills, and corroborated by information gathered at the Indian Jute Mills' Association, Calcutta.

Against this backdrop of an escalating crisis, the industrywise tripartite agreement of 1984 was terminated after its expiry. Following this, most of the Trade Unions operating in the jute mills served, along with their charter of demands, notices for an indefinite strike from February, 1988. Their general demands were for nationalisation of the industry, total ban on use of synthetics, ban on introduction of circular looms and adherence to the 1984 agreement on maintaining the number of workers at 2.5 lakh.

Table 8. Default on Workers' Payments

(Rs Lakh)

Name of Mill (1)	Amount of PF Default as on 3.31.89 (2)	Amount of ESI Default as on 3.31.89 (3)
Angus Co. Ltd	609.27	199.35
Nuddea Mills Ltd	426.80	191.34
Easter Manufacturing Co. Ltd	174.24	92.79
Hanuman Jute Mills	13.67	2.05
Delta Jute Industries Ltd.	670.88	104.67
Gouri Shankar Jute Mills	180.67	68.03
Agarpara Co. Ltd	265.39	83.05
Gouripore Co. Ltd	425.07	172.16
Titagarh Jute Mills	785.09	138.14
Budge Budge Jute Co. Ltd.	202.63	--
Nasarkarpara Jute Mills Ltd.	32.60	12.58
The Calcutta Jute Manufacturing Company	38.60	22.24

Source: Indian Jute Mills Association.

The Labour Department of the government of West Bengal initiated conciliation proceedings. Finally, after protracted discussions between the government, mill owners and trade unions, a settlement was reached on February 25, 1988 in respect of all the jute mills with the exception of the nationally owned mills. By the terms of the settlement there was an increase of Rs 40 per month in the basic wages for all categories of workmen, and the rate of payment of Dearness Allowance was made Rs 1.65 per point rise or fall in the consumer price index instead of the previously prevailing Rs 1.50 (The minimum wage of a jute mill worker as in February 1990 was Rs 1,335.28, inclusive of dearness allowance.) Although no settlement was reached on the other demands made by the unions, all the federations of unions and the central trade unions agreed to withdraw the scheduled strike.

Following the announcement of the settlement, about 18 jute mills which had been under lockout from around 1986 reopened and resumed production. But ironically, in several mills the process through which the mills were reopened worked against the labourers. During the period of lockouts, ownership of several such mills changed hands. In several of the closed jute mills which were sold, the new owners offered significantly lower wages to the workforce as a condition for reopening the mills. Faced with the prospect of unemployment, workmen frequently accepted such offers and mills were reopened. The important point to note here is that the terms and conditions of the 1988 tripartite settlement were largely ignored in these cases. The Tripartite Minimum Wages was fixed at Rs 1,335.28. According to information obtained at the Indian Jute Mills Association, six jute mills which reopened in early 1988, after a period of lockout, were paying their employees, on an average, Rs 850 per month.[4]

The government of West Bengal, supposedly a pro-labour one, played a complex role in this process. The option, for the government, often was between 'turning a blind eye'[5] to these under-the-table-wage deals struck up by management, and insisting on the stipulated wage, in its role as protector of labour. In opting for the

former role, i.e., in playing a neutral role with regard to these wage deals, the state obviously made a choice. Labour officials justified this choice on grounds of wanting to assure employment to workers even at lower wages.[6] This may indeed reflect the unenviable dilemma of a government faced with providing a choice between unemployment and abysmal wages; what surfaced also, however, was that in following this policy the government ended up supporting situations where labour continued to be significantly compromised.

The phenomenon of the changing pattern of jute mill owners was widely noted and criticised in jute industry circles. Traditionally, jute has been an area where larger business houses had considerable interests. In recent years, particularly in the 1985-89 period, following large scale sickness, strikes and closures, erstwhile owners have demonstrated a tendency to sell off their business and divert their capital. In their place a set of persons, most often with background in jute trading, have moved in as manufacturers. Industry circles frequently described them in terms such as 'shadow owners' or 'fly-by-night' operators.

During 1985-89 around 24 mills in which ownership had changed hands, withdrew from membership of the Indian Jute Mills Association. This had two implications: in the first place, the Tripartite Settlement of 1988 was enacted through the offices of the IJMA; by the terms of the settlement, however, the IJMA would not be responsible for the implementation of the settlement for those mills which were not or had ceased to be members of the Association. Workmen and unions in such mills thereby no longer had an organised association, such as that provided by the Industrial Relations Department of the IJMA, with which to hold dialogues in case of disputes; in the face of the state government's apparently neutral approach towards wage deals that fell below the minimum wage settlement, a large part of the workforce was left entirely at the mercy of the new owners who had made their entrance into the jute industry.

In the second place, the withdrawal of more than a quarter of the mill management from membership of the Association confirmed the impression of industry circles regarding the changing nature of entrepreneurship in this industry. The Association, which had been founded in 1890, has a long history of interaction with labour, and frequently, through its Industrial Relations Department, acts as mediator in industrial disputes and works closely with the state government's labour department.

Although the Association is essentially representative of the sectional interests of mill owners, many trade union leaders described the structure of the IJMA's Industrial Relations Department as both fair and humane.[7] The withdrawal of more than a quarter of mill management from membership of the IJMA signalled the emergence of a new set of entrepreneurs who did not share in the behavioural codes that had been developed over decades of management-labour interactions in the jute industry and were prepared to ignore stipulations arrived at by way of negotiations through established structures. What is noteworthy also is the Left Front government's acquiescence in wage deals which flouted the stipulated wage norms in the industry; this, in fact, signalled the tacit support being provided by the state to tendencies which were pushing jute industry workers outside the boundaries of unionised bargaining.

V. CONCLUSION

To a great extent the halting pace of restructuring of the jute industry was due to structural causes, such as the loss of the export market both to synthetics and to competitors such as Bangladesh, the competition from synthetics within the domestic market, etc. Our concern here, however, has been more with the politics than with the economics of jute, that is, to highlight the nature of the state-private sector-labour relationship within the context of the revitalisation that was attempted in the mid-1980s.

The introduction of the Jute Modernisation Fund was designed to inject necessary capital for the revitalisation of the largely private owned industry in West Bengal. The process of implementation revealed, however, both that the impact of this measure was negligible in terms of growth

in productivity, and that in many cases funds could not be disbursed either because mills were not in a position to provide the promoter's contribution, or such funds had to be used for paying off existing credits on provident funds and other workers' dues. The slow pace of fund disbursement and of modernisation indicated that the industry's response to the state's financial incentives were essentially lukewarm. The attempt to restructure and modernise the industry, via the private sector, was therefore, largely ineffective.[8]

In terms of industrial relations, this period saw the state in remarkably compromising situations in its relationship with both private owners of jute mills and labourers. In a state where the ranks of the unemployed have swelled, the state government has tacitly supported the operation of mills, frequently by a new set of mill owners, on the basis of lower than minimum wages. Under-the-table wage deals executed by such management signified that not only was the state tacitly supporting mill owners who flouted state-stipulated minimum wages but was also endorsing the ousting of many thousands of workers from the boundaries of minimum wages and unionised bargaining.

NOTES

1. Information regarding the JMFS was acquired from *Annual Reports* of the IJMA, Calcutta, and from conversations with IJMA officials.

2. Information obtained from the Indian Jute Mills Association, Calcutta (IJMA).

3. Information obtained from Indian Jute Mills Association, Calcutta.

4. Information obtained from the Indian Jute Mills Association, Calcutta.

5. Interview with T.K. Ghosh, then Secretary, Ministry of Labour, Government of West Bengal, Calcutta, July 25, 1990.

6. Interview with Dr. T.T. Kumar, then Labour Commissioner, Government of West Bengal, Calcutta, July 24, 1990.

7. Interview with Madhu Gupta, All India Jute Workers Federation, July 19, 1990, Calcutta; interview with Niren Ghosh, Bengal Chatkal Mazdoor Union, July 19, 1990, Calcutta.

8. Observers of the jute industry hypothesised that the emergence of raw jute traders as jute mill owners may offer a clue to this phenomenon. The unholy role of jute traders in manipulation of raw jute prices has remained a matter of concern for the government; however, the Jute Corporation of India has, by and large, failed to make any significant dent in the complex structure of the raw jute market; this has meant the continuing dominance of monopolistic traders in the raw jute market. Industry circles opined that these traders, as mill owners, have an interest in making quick profits rather than long term investments for modernisation of mills. This change in the character of ownership of jute mills from established manufacturers to traders may provide a subject for further research.

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DOCUMENTATION

The purpose of this section is to make available to the readers official documents such as reports of committees, commissions, working groups, task forces, etc., appointed by various ministries, departments, and agencies of central and state governments which are not readily accessible either because they are old, or because of the usual problems of acquiring governmental publications, or because they were printed but not published, or because they were not printed and remained in mimeographed form. It will be difficult and probably not worthwhile to publish the documents entirely. We shall publish only such parts of them as we think will interest our readers. The readers are requested to send their suggestions regarding official documents or parts thereof for inclusion in this section.

In the present section we publish:

Reports of Finance Commissions:

1. Report of Finance Commission, 1951, (Chairman: K.C. Neogy), Chapter II.

2. Report of Finance Commission, 1961, (Chairman: Ashok Kumar Chanda), Chapter VII.

3. Report of Finance Commission, 1969, Interim Report of Commission, (Chairman: Mahavir Tyagi), Annexure, Chapter 4.

REPORTS OF FINANCE COMMISSIONS

[SECOND COMMISSION, 1957]
SECTION III.
PLANNING AND FINANCE COMMISSIONS

23. We had some difficulty in dovetailing our work with that of the Planning Commission owing to two factors. First, the second five year plan covers only the first four years of the quinquennium to which our recommendations will apply. Secondly, the plan does not distinguish between revenue expenditure and capital expenditure, while our main function under the Constitution is to make recommendations for the devolution of revenue resources. We, therefore, obtained from the Planning Commission a statewise break-up of plan provision between revenue and capital.

24. In assessing the needs of the States, we had obviously to take into account the estimates framed by the planning Commission in consultation with the State Governments. For this purpose, the Planning Commission had made an assessment of the existing resources of each State, its committed expenditure, the expenditure necessary for its second five year plan and the additional resources to be raised by it for meeting such expenditure. As regards the revenue expenditure on the plan and the resources which, it had been assumed, would be raised by the States by additional taxation, we have generally taken the figures given to us by the Planning Commission.

25. In regard to the estimates of existing resources and committed expenditure, we obtained forecasts from the States. We had to do so for a variety of reasons. First, the forecasts of the Planning Commission were prepared in 1955 on the basis of the revised estimates of 1954-55, and allowance had to be made for subsequent changes. Secondly, the five year period with which we are concerned coincides with the period of the second plan only for four years. Thirdly, the forecasts of the Planning Commission had, in any case, to be recast for the reorganised States. Having got these fresh forecasts, we fortified ourselves by obtaining the comments of the Planning Commission on them and in our discussion with the State Governments, we made it apoint to investigate into any substantial variation between the figures adopted by the Planning Commission and those given to us by the States. In the forecasts agreed to between the Planning Commission and the State Governments, many States had over-estimated the yield from existing sources of revenue and underestimated the committed expenditure. There was also a misunderstanding about the exact scope of the term "committed expenditure" as used in the correspondence between the States and the Planning Commission. We discussed the forecasts of the State Governments with their officers. After consideration of the comments of the Planning Commission and the explanations given to us by State Governments for variations, we attempted to take a realistic view of the revenue and expenditure during the period to be covered by our recommendations. Our scrutiny of the States' forecasts disclosed that not only were the contributions from existing revenues, which were assumed for financing the plan, not available, but also that, in some States, the committed expenditure would absorb part of the resources which they were expected to raise for the plan through additional taxation.

26. We had a further difficulty in making a reasonable forecast of expenditure for the next five years. Apart from the burden of recurring expenditure thrown on the States' budgets by schemes completed under the first five year plan, there were many schemes for which Central assistance was on a matching basis, sometimes tapering off over a short period. This inevitably left a recurring burden on the States, of which no adequate indication could be had from figures of past actuals. In another part of our report, we deal more fully with matching grants. We mention them here because neither the Planning Commission nor the State Governments nor ourselves have been able to calculate their impact on the finances of the States with any degree of accuracy.

27. Some anomalies inevitably arise where the functions of the two Commissions, the Finance Commission and the Planning Commission, overlap. The former is a statutory body with limited functions, while the latter has to deal comprehensively with the finances of the Union and the States in the widest sense of the term. So long as both these Commissions have to function, there appears to be a real need for effectively co-ordinating their work. It will be an advantage if, in future, the period covered by the recommendations of a Finance Commission coincides with that of a five year plan. Further, it is desirable to eliminate the necessity of making two separate assessments of the needs of the States.

SECTION V.
RECENT TRENDS IN FEDERAL FINANCE

45. It may be useful at this point to review the recent trends in federal finance in some other countries. In Chapter IV of their report, the first Finance Commission have traced briefly the experience of other federations in relation to shared revenues. We do not propose to cover the same ground again, but shall review the subsequent developments in a somewhat wider perspective.

46. In the United States, financial relations between the Union and the States have recently been the subject-matter of study and review by a Congressional Commission on Intergovernmental Relations. The report of the Commission, made in June 1955, is a valuable study in the problem of federal financial relations in that country. It contains many important recommendations regarding the principles on which grants should be made to the States and the conditions that should govern them. The Commission hold that, in the context of the constitutional development of the United States, conditional grants represent a basically sound technique despite their piecemeal development and hotchpotch appearance. They emphasise that grants should be made only for clearly indicated and important national objectives, that they should be given for broad purposes like public health or welfare rather than for highly specialised schemes, that allocations should be flexible in relation to specific schemes or activities covered by those broad purposes and that matching requirements should take into account the economic conditions in the units and their fiscal capacity.

47. In Canada, the pattern of financial relations between the Dominion and the Provinces has been the subject of criticism in recent years. As the periods for which individual and corporate income taxes and the succession duties were rented from the Provinces by the Dominion were due to expire early in 1957, re-examination of the position became necessary. Meanwhile, a Royal Commission of Enquiry on Constitutional Problems (the Tremblay Commission) is understood to have suggested the transfer back from the Federation to the Provinces of the right to levy taxes in the fields which are now rented. It is also reported to have suggested that responsibility for welfare functions like unemployment insurance, old-age security, and family allowances should remain with the Provinces.

48. The Federal-Provincial Tax Sharing Arrangements Act, 1956 has modified to some extent the former scheme of compensation for the surrender by the Provinces of individual income taxes, corporation income taxes and succession duties, as provided in the Tax Rental Agreements Act of 1952. Each Provincial government has been given the option to choose the most favourable of three alternatives. These are:

(1) a Province will be entitled to compensation at not less than the amount due under the 1952 agreement suitably adjusted for population growth;
(2) it may get 95 per cent of the payments actually made to it in certain preceding periods;
(3) it will be entitled to get compensation according to a new formula by which a Province will obtain the sum of three rental payments, that is to say, (a) 9 per cent on corporation incomes in the Province, (b) 10 per cent on individual incomes earned within the Province or on incomes accruing within or without the Province to residents in the Province, and (c) 50 per cent of the proceeds of the Dominion succession duty chargeable on property attributable to a Province. If necessary, a tax equilisation payment will also be made to a Province to raise the per capita payment to it to the average per capita payment to the two wealthiest Provinces.

49. In spite of these attractive terms, Quebec has stayed out of these arrangements and Ontario has agreed to rent only the individual income tax field. The other eight Provinces have agreed to vacate the entire field of income and inheritance taxes.

50. In Australia, only income tax has been taken over by the Commonwealth from the States. The scheme of compensation for the surrender of taxing powers by the States was originally laid down in the States Grants (Tax Reimbursement) Act, 1946, but the compensation payments due to the States have increased in recent years, not only

because the formula for distribution, authorised by the 1946 Act, contemplated an increase in proportion to the growth of population and the increase in average wages per employed person, but also because *ad hoc* additions to the total amount of compensation payable according to the formula have been made every year. The settled pattern now seems to be for Parliament to pass every year, a States Grants (Special Financial Assistance) Act fixing the total sum of the compensation payable in that year and also the minimum payments for particular States, in case this is considered necessary. For the fiscal year ended June 1957, the compensation payments were about £A 174 millions, compared with the original sum of £A 40 millions mentioned in the 1946 Act.

51. Turning to West Germany, some aspects of the financial relations between the Federal Government and the Laender (States) are of interest. By the Basic Law of the Constitution adopted in March 1949, besides the yield from monopolies, the taxes accruing to the Federation are customs duties, excise taxes with the exception of the beer tax, transportation tax, turnover tax and capital levies for non-recurrent purposes. The State list includes the beer tax, taxes on transactions with the exception of the transportation tax and turnover tax, income and corporation taxes, property tax, inheritance tax, taxes on real estate and on business, and taxes with localised application. This distribution leaves the Federal Government in deficit. It has, therefore, no resources with which to assist the poorer States. Provision has consequently been made in the Basic Law by which the Federation may, by legislation which requires the consent of the Bundesrat, claim part of the income and corporation taxes to cover federal deficits and subsidies which are to be granted to State governments to meet expenditure in the fields of education, public health and welfare.

52. In order to assist the States with lower tax revenues and to equalise the burden of expenditure, the Federation has also been empowered to grant subsidies, obtaining the funds, if necessary, from specific taxes accruing to the States. Federal legislation, which requires the consent of the Bundesrat, determines which taxes will be utilised for this purpose, and in what amounts, and according to what scale the subsidies will be distributed among the States for equalisation.

53. For the purpose of equalisation, the tax capacity index and the equalisation index of every State are fixed according to prescribed formulae. The former is fixed according to the total tax revenue of the State after some adjustments, while the equalisation index is found by multiplying the federal average tax capacity index per inhabitant by the population figure of the respective State, subject to certain adjustments. The States with a tax capacity index greater than the equalisation index have to pay to the Federation a sum determined in accordance with a prescribed formula and the amounts so collected are distributed to the States whose tax capacity index is less than the equalisation index.

54. The tendency towards centralisation has been viewed with increasing disfavour in Switzerland, where the proposals to transfer from the Cantons to the Federation, by means of formal constitutional amendment, the purchase tax, certain stamp duties and the direct taxes on income were vetoed in a referendum in December 1953. These proposals envisaged that in the distribution of the centralised taxes, the poorer Cantons should benefit; and those Cantons did in fact support the proposals. The opposition to the formal transfer of taxing powers from the units to the centre was, however, widespread and it prevailed.

55. In the Nigerian Federation, the distribution of revenues has been based on the principle of origin or derivation. Out of the central taxes mentioned in the constitution of Nigeria as revised in 1954, the import duty on motor spirit in its entirety, half the import and excise duties on tobacco, one half of all the other import duties, half the export duties, half the excise duty on beer, the proceeds of personal income tax, and mining royalties were devolved on the constituent regions and distributed as nearly as possible by origin. This scheme of distribution is now due for revision.

56. The Rhodesian constitution provides, among other things, for the devolution to the States of not less than thirty-six per cent of the federal taxes on income and export duties, and not less than two-thirds of the sales and turn-over taxes.

57. We may refer finally to the constitution of Pakistan, which came into force in March, 1956. While the pattern of federal financial relations embodied in this constitution is generally similar to that of the Indian Constitution, there are some differences. Sales taxes are centralised and railways provincialised; there is no provision for the distribution of estate duty on non-agricultural property, while there is a permissive provision enabling the Federal Government to distribute any export duty or any specified tax. The Pakistan constitution provides also for the appointment of a Finance Commission. Pending the recommendations of that Commission, the existing scheme of distribution of revenues as adopted at the time of the unification of West Pakistan has been maintained, subject to a minor adjustment on account of the collections attributable to federally-administered territories.

58. A noticeable trend in all federations has been the progressive increase in the size of federal payments to the states. For the three major federations which have been referred to in the earlier paragraphs of this Section, this growth is illustrated by the figures set out in the following table:

(1)	Fiscal year 1951-52 (2)	Fiscal year 1956-57 (3)
U.S.A. (in $ millions)		
Net federal expenditure in aid of States and local governments	2,604	3,317*
CANADA (in $ millions)		
Tax rental payments and statutory subsidies	127.2	395.6
Grants for unemployment assistance, old-age assistance, pensions and allowances for blind and disabled persons, health grants, and university grants	37.3**	92.5
AUSTRALIA (in £A millions)		
Tax reimbursements, special financial assistance, special grants and payments under the financial agreement	162.30	204.82
Commonwealth aid for roads, grants to universities, and grants for long-service leave in the coal-mining industry, encouragement of meat production, Western Australia water works, mental institutions and imported houses, price control reimbursement and tuberculosis benefits	20.59	38.93***

Note: Figures for Australia under column 2 are for 1952-53.
* Excludes grants from the federal highway trust fund, estimated at $ 1,137 millions in fiscal year 1957.
** Excludes $ 77.2 millions on account of old-age pensions as they have since been federalised.
***Excludes £A 14.77 millions paid to the States from the National Welfare Fund, £A 1.36 millions paid on account of agricultural and other services and £A 14.23 millions paid for assistance to primary producers.

SECTION VI.
PRINCIPLES OF GRANTS-IN-AID

59. Article 280(3) (b) of the Constitution casts on us the duty of recommending the principles which should govern the grants-in-aid of the revenues of the States.

60. It would be interesting to recall the scope of grants-in-aid in the scheme of devolution under the Government of India Act, 1935, which set the pattern for such devolution. Sir Otto Niemeyer, on whose award the scheme was based, treated grants-in-aid as a form of residuary assistance for certain Provinces after taking into account the sharing of taxes and the adjustment of debt. While estimating the overall fiscal need of a Province, he took note of the differences in administrative needs which, he thought, could not be obliterated by Central assistance on a basis common to all the Provinces. He recognised the responsibility of each Province to ensure budgetary equilibrium and was anxious to set those Provinces, which were suffering from chronic budgetary deficits, on an even financial keel, without endangering the solvency of the Central Government. He took an integrated view of the finances of the Centre and the Provinces and recognised that any scheme

of devolution, which sought to help the financially weaker Provinces, involved subsidisation at the expense of the financially stronger Provinces. He said that "some Provinces are intrinsically better off than others and at the moment less urgently in need of additional resources, and it is both fair and inevitable that a certain measure of corrective should be applied, even if it means that Provinces which have been able to maintain higher standards of administration should now to some slight extent have to progress more slowly". The "correctives" he applied to the scheme of devolution of revenues were debt adjustment, unconditional grants-in-aid, either fixed or tapering, and in the case of the jute-growing Provinces a larger share of the net proceeds of the jute export duty.

61. After the Niemeyer award, the perspective changed as a result of independence and the new conception of close financial collaboration between the Union and the States on the basis of a national plan of economic development. It was no longer merely a question of higher or lower "standards of administration" in the restricted sense. The transition from a police state to a welfare state brought about fundamental changes in the scope of governmental functions and resulted in widening the content of fiscal need. Nevertheless, the basic overall approach of Niemeyer still remains valid; the States and the Union have to balance their budgets within their available resources and the needs of the States, which cannot be met by devolution of shares of taxes, have to be covered by grants-in-aid.

62. The principles formulated by the previous Finance Commission for regulating grants-in-aid of the revenues of the States are, if we may say so, unexceptionable. They suggested that the budgetary needs of the States should be the starting point for determining the assistance required by the States, but that the needs thus disclosed should be adjusted with regard to certain other considerations. First, the budgets of the States should be reduced to a comparable basis by making adjustments in respect of abnormal, unusual and non-recurring items of revenue and expenditure. Secondly, due allowance should be made for "clear cases" of failure of States to maximise tax effort. Thirdly, in order not to place a premium upon extravagance, the States' endeavour to secure reasonable economies in expenditure should be taken into consideration. Fourthly, where standards of social services in any State are significantly lower than in others, it should qualify for special assistance. Fifthly, special disabilities of States due to abnormal conditions beyond their control should be provided for. Lastly, grants may be made to certain States for the furtherance of broad purposes of national importance, such as primary education, in respect of which they may be specially backward.

63. We see no reason for departing from this basic approach to the problem of grants-in-aid, although our emphasis on the various principles laid down by our predecessors has been influenced by subsequent developments. We endorse the principle of fiscal need and interpret fiscal need comprehensively by taking into account the impact of the completion of the first five year plan and the needs of the second. We have, as in the past, taken an integrated view of the finances of the Union and the States and the financial capacity of the Union to assist the States, after meeting its own essential commitments. We have sought to formulate a scheme of grants-in-aid which should, under normal conditions, enable the States to balance their budgets after meeting their normal revenue expenditure as well as the revenue expenditure incidental to the execution of the second five year plan. We have, as far as possible, reduced the State budgets to a comparable basis. We have also made allowance for the various factors by which the computation of budgetary needs has to be adjusted and have treated grants-in-aid as residuary assistance to the States after taking into account devolution of revenue in other forms.

64. Our predecessors thought that, while considering the eligibility of a State for a grants-in-aid and the amount of such aid, due weight should be given to tax effort, so that the States, which raise adequate resources through taxation, are not penalised and no premium is put upon lack of self-help. The principle of tax effort is unexceptionable, but, as they themselves admitted, "it is only in clear cases of inadequate taxation" that it should affect the quantum of assistance which the States may be otherwise qualified to get. "Clear cases" of inadequate taxation are difficult to

determine. Low *per capita* taxation in poor States may simply be evidence of low taxable capacity. An agricultural State with a low level of purchasing power has to maintain a comparatively high level of *per capita* expenditure to sustain a reasonable standard of public services. An industrial State can raise a much larger *per capita* revenue than an agricultural State, even though the kinds and rates of taxes are the same in both. It is, therefore, difficult to decide whether a State is taxing its people adequately in relation to their income and taxable capacity. Some kind of empirical judgment is inevitable. In our assessment of tax effort we have assumed that if a State raised additional revenue which it has promised for the plan, it will have done its part.

65. Another consideration, which weighed with the previous Commission, is the function of grants-in-aid in reducing inequalities in the standards of basic social services in the States. We recognise that maintenance of certain important services at a minimum national level may justify giving special grants-in-aid. Since total resources are limited, this can be achieved only by stages. We have taken the view that it is the function of the Planning Commission and the National Development Council to ensure the equalisation, as far as practicable, of the standard of essential social services in the various States of the Union. To the extent that plan expenditure incurred on raising the level of social services has become committed expenditure, we have taken it into account. For our scheme of devolution, we have accepted the plan as ensuring an equitable development in the field of social services. There is, therefore, now no room for any grants in this field, such as the grant for expansion of primary education recommended by the last Commission.

66. The principles of grants-in-aid, which we recommend, are as follows:

(i) The eligibility of a State to grants-in-aid and the amount of such aid should depend upon its fiscal need in a comprehensive sense. In a Union, in which the Centre and the States co-operate for planned development, grants-in-aid should subserve this end. Priorities and provisions in the plan itself should determine the fiscal needs for development for the period of the plan.

(ii) The gap between the ordinary revenue of a State and its normal inescapable expenditure should, as far as possible, be met by sharing of taxes. Grants-in-aid should be largely a residuary form of assistance given in the form of general and unconditional grants.

(iii) Grants for broad purposes may also be given. While they last, they should be grants-in-aid of revenues, but the States would be under an obligation to spend the whole amount in furtherance of the broad purposes indicated. Where those purposes are provided for in a comprehensive plan, there will be no scope for such grants.

SECTION VII.
REVIEW OF STATE FINANCES

67. We shall now review briefly the trends in the revenue and expenditure of the State Governments during the period following the report of the last Commission. We propose to confine this review to the four years ending 1955-56, although the recommendations of the last Commission covered the year 1956-57 as well. This is because the financial picture was altered in November 1956 by the reorgnisation of States. The four-year period is also convenient as it covers the last four years of the first plan and the actuals of these years reflect the impact of the plan on the State revenues.

68. Before dealing with individual States it will be interesting to view the picture for all the States taken together. In the four years covered by our review, the States excluding Jammu and Kashmir, which was not included in the last Finance Commission's scheme, had a cumulative revenue deficit of Rs 57 crores. In this period, the revenue expenditure on schemes included in the first five year plan amounted roughly to Rs 333 crores. The States received from the Union, under article 282 of the Constitution, grants amounting to Rs 133 crores while they raised additional revenue of Rs 77 crores. For the remaining plan expenditure amounting to Rs 123 crores, they were able to utilise Rs 66 crores which they had as surplus from their ordinary revenues and devolution under the scheme of the first Finance Commission, leaving an uncovered deficit of Rs 57 crores. The scheme of devolution recommended by the last Commission did not make any direct provision for

implementation of the first five year plan; it, however, turned out to be quite liberal in relation to the normal expenditure of the States and for most of them left a substantial margin which helped them in implementing the plan. Because of this liberal devolution, the States did not find it necessary, during the period of the first five year plan, to hold up any scheme for lack of funds, although some of them ran into sizeable deficits. The States did not also find it necessary to draw to any substantial extent upon their accumulated reserves for augmenting their revenues. For all Part A and Part B States together, excluding Jammu and Kashmir, the total withdrawals from reserves during the last four years of the first five year plan amounted only to Rs 22 crores. Bihar withdrew in this period Rs 8.5 crores, Bombay Rs 3.5 crores, Madhya Pradesh Rs 7.02 crores and Uttar Pradesh Rs 2.92 crores.

69. We may now turn to a consideration of the position of individual States. Bombay, Madhya Pradesh, Punjab, Rajasthan, Travancore-Cochin and Uttar Pradesh ended this four-year period with substantial revenue surpluses while Andhra, Assam, Bihar, Hyderabad, Madras, Orissa, Pepsu, Saurashtra and West Bengal had substantial deficits, Madhya Bharat and Mysore having a nominal surplus. The table below shows the cumulative surplus or deficit of each State for this period:

(Rupees in lakhs)

State (1)	Surplus (2)	Deficit (3)
Andhra	-	1,161
Assam	-	313
Bihar	-	948
Bombay	935	-
Hyderabad	-	295
Madhya Bharat	45	-
Madhya Pradesh	445	-
Madras	-	2,521*
Mysore	21	-
Orissa	-	842
Pepsu	-	206
Punjab	248	-
Rajasthan	552	-
Saurashtra	-	251
Travancore-Cochin	660	-
Uttar Pradesh	474	-
West Bengal	-	2,555
Total	3,380	9,092
Net deficit	-	5,712

* For composite Madras upto September 1953 and for residuary Madras thereafter.

If the transfers to revenue from reserves during the period are excluded, Bombay's surplus drops to Rs 5.85 crores and that of Uttar Pradesh to a marginal Rs 1.82 crores, while the surplus of Madhya Pradesh is converted into a deficit of Rs 2.57 crores and the deficit of Bihar raised from Rs 9.48 crores to Rs 17.98 crores.

70. The relatively comfortable position of Bombay, Punjab and Uttar Pradesh was due to their tax effort; these three States raised Rs 24 crores, Rs 4.5 crores and Rs 11 crores respectively during the period. The deficit of the remaining States reflect the impact of the plan on their revenues and, except in the case of Assam, also their failure to raise the additional revenue expected of them. In the case of Andhra, the position appears to have been aggravated by an imbalance in its ordinary revenue position.

71. The total revenue of the States, excluding Union grants and shares of divisible Union taxes and transfers from revenue reserve funds, showed a significant increase from Rs 332 crores in 1951-52 to Rs 415 crores in 1955-56. Of this increase, Rs 55 crores occurred under the principal revenue heads. Land revenue, which accounted for a little less than 20 per cent of the revenue from principal heads in 1951-52, accounted for a little over 25 per cent in 1955-56, the yield rising from Rs 48 crores to Rs 78 crores, largely the result of the abolition of zamindari. The revenue from State excise duties declined from a little over Rs 49 crores in 1951-52 to Rs 42 crores in 1955-56, its share in the total revenue declining from 20 per cent to 14 per cent. Stamps and Forests showed a slight increase but there was no significant change in their position as components of the revenue. Receipts from motor vehicles rose from Rs 9.79 crores in 1951-52 to Rs 15.67 crores in 1955-56, while 'Other Taxes and Duties' expanded from Rs 87.95 crores to Rs 104.27 crores.

72. Part of the increase in the revenue of the States was due to the additional taxation imposed during the period. The first five year plan assumed

that, in the period covered by it, the States taken together would raise a sum of Rs 230 crores for financing the plan. In most States, the additional taxation fell far short of the target, only Assam, Bombay, Punjab and, to a certain extent, Rajasthan being exceptions. The statement below shows the target fixed for the individual States and the amounts actually raised by them, according to the estimates of the Planning Commission:

(Rs in crores)

State	Five year Target	Achievement (1951-56)	Achievement expected as a percentage of target
(1)	(2)	(3)	(4)
Assam	3.5	3.3	94.29
Bihar	7.3	3.0	41.10
Bombay	23.5	24.0	102.13
Madhya Pradesh	10.6	2.3	21.70
Madras (including Andhra)	39.3	8.0	20.36
Orissa	9.4	2.0	21.28
Punjab	5.0	4.5	90.00
Uttar Pradesh	50.2	11.0	21.91
West Bengal	36.9	4.5	12.20
Hyderabad	7.4	1.0	13.51
Madhya Bharat	4.9	2.7	55.10
Mysore	9.2	3.0	32.61
Pepsu	4.1	0.4	9.76
Rajasthan	3.3	2.6	78.79
Saurashtra	4.7	2.1	44.68
Travancore-Cochin	11.0	6.0	54.55
Total	230.3	80.4	34.91

73. Out of the additional revenue raised during the period of the first five year plan, about 50 per cent was accounted for by sales taxes and taxation of motor spirit and tobacco and 20 per cent by motor vehicles, passenger and carriage taxes. The balance was raised by a number of minor taxation measures. Taxation of land contributed very little and, except in Uttar Pradesh, irrigation rates also did not contribute any sizeable amount.

74. The increase in the yield of the principal heads of revenue in 1955-56 as compared to that in 1951-52 was Rs 55 crores. A statewise analysis of the yield from the principal heads of revenue is given below:

(Rupees in crores)

State	Yield from principal heads of revenue in 1951-52	Yield from principal heads of revenue in 1955-56
(1)	(2)	(3)
Andhra	*	14.17
Assam	6.41	10.63
Bihar	15.56	18.43
Bombay	36.95	52.07
Hyderabad	21.89	18.12
Madhya Bharat	7.81	9.00
Madhya Pradesh	16.18	17.03
Madras	37.83**	30.42
Mysore	6.88	9.33
Orissa	6.38	6.86
Pepsu	4.35	4.79
Punjab	8.67	10.76
Rajasthan	11.49	10.96
Saurashtra	2.96	5.01
Travancore-Cochin	10.54	11.00
Uttar Pradesh	30.79	45.72
West Bengal	23.86	29.13
Total	248.55	303.43

* Included in Madras.
** Included Andhra.

The improvement was of the order of 5 per cent per annum; it was due to partly to the normal expansion of revenue, partly to increased receipts of land revenue in certain States owing to the abolition of zamindari and partly to the additional taxation, mentioned earlier, imposed for financing the plan.

75. A disturbing feature in the revenue position of most States was the deterioration in the net receipts from irrigation and electricity undertakings. An analysis of the net return in respect of irrigation works other than multi-purpose projects is given below:

Net Receipts from Irrigation Works (Commercial) After Deduction of Interest Charges

(Rupees in lakhs)

State (1)	1951-52 (2)	1952-53 (3)	1953-54 (4)	1954-55 (5)	1955-56 (6)
Andhra	-	-	(+)40.60	(-)221.74	(-)230.00
Assam	-	-	-	-	-
Bihar	(-)28.32	(-)3.04	(-)29.84	(-)46.67	(-)47.00
Bombay	(-)28.03	(-)17.62	(-)28.78	(-)48.05	(-)64.00
Madhya Pradesh	-	-	-	-	-
Madras	(-)97.90	(-)180.31	(-)251.96	(-)106.68	(-)201.00
Orissa	(-)10.67	(-)12.32	(-)19.39	(-)23.69	(-)40.00
Punjab	(+)57.89	(+)131.19	(+)185.85	(+)138.97	(+)63.00
Uttar Pradesh	(+)136.31	(+)96.21	(+)192.87	(+)208.41	(+)47.00
West Bengal	(-)21.13	(-)22.69	(-)11.75	(-)29.17	(-)19.00
Hyderabad	(-)8.04	(-)11.00	(-)9.25	(-)9.25	(-)11.00
Madhya Bharat	-	-	-	-	(+)12.00
Mysore	(+)3.14	(+)9.30	(+)2.43	(+)4.38	(+)7.00
Pepsu	(+)36.97	(+)35.03	(+)40.28	(+)34.47	(+)1.00
Rajasthan	(+)9.24	(-)5.77	(-)16.95	(+)4.41	-
Saurashtra	(-)5.09	(-)8.86	(-)13.41	(-)18.39	(-)25.00
Travancore-Cochin	(-)0.47	(-)1.07	(-)0.96	(-)3.84	(-)7.00
Total	(+)43.90	(+)9.05	(+)79.74	(-)116.84	(-)514.00

Note: Interest not debited to the major head "17 - Irrigation, Navigation, Embankment and Drainage Works (Commercial)" in Hyderabad, Madhya Bharat, Mysore and Pepsu.

It will be seen that at the end of the first five year plan only two States, namely, Punjab and Uttar Pradesh, were able to obtain a net return from productive irrigation works after meeting interest and other charges.

76. There has been noticeable delay in the utilization of major irrigation works and tubewells. For all Part A and Part B States, excluding Jammu and Kashmir, it was anticipated in the first five year plan that an additional 8.3 million acres or so would be brought under irrigation in the area commanded by major projects. Recent estimates put this figure at less than 4 million acres.

77. The delay in the utilisation of costly works naturally imposes a heavy financial burden. The full extent of this burden on the revenue budgets is not yet apparent, because in respect of a number of major works, like Bhakra Nangal, Hirakud and Chambal, which are in the process of construction, the interest on outlay is still being added to capital. We apprehend that some time towards the end of the second five year plan period, when some of these projects will be completed, the impact on the revenue budgets of the results of their working will cause anxiety.

78. In respect of electricity undertakings only four States, namely, Madras, Mysore, Punjab and Uttar Pradesh, derived, according to the information supplied to us by the State Governments, an appreciable net return after providing for interest and other charges. The financial results in other States were far from satisfactory. The broad position is indicated by the table below:

Total Net Receipts from Electricity Schemes in the Four Years Ending March 1956

(Rupees in lakhs)

(1)	(2)
Andhra	-283*
Bihar	-52
Hyderabad	-11
Madhya Bharat	+28
Madras	+180*
Mysore	+149
Orissa	-59
Pepsu	+34
Punjab	+197**
Rajasthan	-74†
Saurashtra	-8
Travancore-Cochin	-54**
Uttar Pradesh	+87†
West Bengal	- 8†

* Includes for the year 1953-54 actual results of undertakings located in the Andhra and Madras areas respectively.
** Taken from budgets; in all other cases, based on actual results of the major undertakings as furnished by the State Governments.
† For three years ending March 1955.

79. In a formal sense, this problem, perhaps, is no longer the direct concern of the State Governments, since Electricity Boards have been established in some States and will soon be established in others. The mere transfer of the undertakings to autonomous statutory boards will not, however, solve the problem. The State Governments should take adequate stepts to ensure that these boards are run in such manner that they are able to meet the interest burden on the outstanding loans due to the States. States, which are not now levying an electricity duty because the electrical undertakings are state-owned, may strengthen their revenue position by levying it.

80. Concern was expressed by the States deriving appreciable net revenue from electrical undertakings about the adverse effect on their revenues of the transfer of the State undertakings to the Electricity Boards. The payments by these Boards of interest on account of the capital loaned to them by the States has not been accorded sufficient priority in the Electricity (Supply) Act, 1948 and there is reasonable ground for apprehension that the States may not be able to collect regularly even the interest from the Boards. Further, the Boards being subject to income tax, the States, which have been getting a net revenue from electricity undertakings, are now likely to lose part of it.

81. In more than one State, there has been accumulation of losses in the working of transport, industrial and commercial undertakings. There seems to be inadequate appreciation of the need to run such undertakings on a commercial basis and with a view to bringing a net return to the State exchequer.

82. In a number of States, there has been a steady increase in recent years in the accumulated arrears of revenue. To some extent, particularly in the case of arrears of land revenue and irrigation rates, this might have been due to failure of crops. We were, nevertheless, left with the impression that sufficient attention was not always paid to the recovery of these arrears. The position appears to be the same in the case of loans also. It is hardly necessary to emphasise the need for reducing the overdue arrears, as this will materially assist the States in implementing their development plans.

83. The total expenditure met from revenue, excluding transfers to revenue reserve funds, rose from Rs 409.57 crores in 1951-52 to Rs 609.08 crores in 1955-56. Expenditure on tax collection showed a significant increase of 57 per cent, rising from Rs 35.59 crores in 1951-52 to Rs 55.94 crores in 1955-56. Land revenue accounted for nearly 60 per cent of the increase; in certain States large sums were set apart for payment of compensation on the abolition of zamindari, while in many others increased expenditure was incurred on survey and settlement. Interest charges rose by nearly 200 per cent, reflecting a steady increase in the States' debt, mostly for financing the execution of capital schemes in the plan. During this period the public debt of the States rose from Rs 390 crores at the end of 1951-52 to Rs 1,163 crores at the end of 1955-56. Expenditure on Administrative Services increased by about 12 per cent, the bulk of it occurring under General Administration and Police, the expenditure on the former rising from Rs 33.7 crores to Rs 42.41 crores and that on the latter from Rs 54.9 crores to Rs 58.24 crores. Expenditure on social services increased by 55.7 per cent, mostly on account of development. Expenditure on Education increased from Rs 60.30 crores to Rs 98.89 crores, on Medical and Public Health from Rs 29.21 crores to Rs 44.56 crores, on Agriculture from Rs 18.87 crores to Rs 25.78 crores, on Veterinary Services from Rs 4.07 crores to Rs 5.62 crores and on Co-operation from Rs 3.75 crores to Rs 6.32 crores. Miscellaneous and other expenditure rose by 60 per cent, mainly under Civil Works. In many States, larger sums were spent on maintenance and minor works while in some others there was also considerable expenditure on flood and famine relief. On the whole, non-developmental expenditure appears to have risen at a pace somewhat more rapid than was envisaged in the plan, but part of the increase was perhaps unavoidable.

84. The main points brought out by the review of the States' revenue and expenditure may now be summarised:

(a) The scale of devolution recommended by the last Finance Commission was generally adequate for the normal expenditure of most States and left for many of them a sizeable surplus for meeting their plan expenditure.

(b) The tax effort of many States during this period fell far short of the expectations of the Planning Commission. If they had raised the resources expected of them, some of the States, which ran into deficits, might not have done so.

(c) The level of arrears of revenue and overdue loans in some States is a matter of concern and special efforts would seem to be necessary to reduce these arrears.

(d) The public debt of the States is increasing rapidly on account of the implementation of the plan. A considerable part of it may turn out to be deadweight debt and the cost of its servicing will fall on general revenues. Efforts should be made to ensure that irrigation, electricity, transport, commercial and industrial schemes yield the maximum revenue so as to keep down the net burden of interest charges.

(e) Expenditure has been steadily rising as a result of development; non-developmental expenditure has risen at a pace somewhat in excess of that envisaged by the plan.

[THIRD COMMISSION, 1961]

CHAPTER VII

GENERAL OBSERVATIONS

77. In all federal constitutions, it has been found difficult to provide for allocation of resources to correspond to allocation of functions. There is a measure of inter-dependence between the national and State Governments, which becomes more pronounced in a developing economy. Our Constitution takes cognizance of this position in its financial provisions. The division of resources between the Union and the States, embodied in our Constitution, might not, it was considered, make the States viable, and provision had, therefore, been made for the yield of certain taxes being made divisible between the Union and the States. There is provision both for obligatory and permissive participation. Accordingly, the Constitution has made the proceeds of income-tax divisible compulsorily, its yield being (a) substantial and (b) historically it had been a divisible tax earlier. It was recognised also that even with a share in the proceeds of income-tax, a few of the States, which had been formed earlier on political, linguistic and other considerations, might still be in need of additional financial assistance. Accordingly, provision has been made for grants-in-aid of revenue in article 275 of the Constitution. The Constitution provides also for permissive participation in the yield of excise duties either on the whole range of, or of specified, commodities on which the duties have been imposed.

78. The scope and magnitude, which the successive five year Plans will assume for the development of our national economy and the level of social services, could not be fully appreciated when the Constitution was drafted. It became necessary, therefore, from the very beginning, to operate on the permissive provision of participation in the excise duties, and the first Finance Commission made recommendations for division of the yield of excise duties on three commodities in addition to other provisions of devolution and grants-in-aid. The second Commission considered it necessary to expand the list to eight commodities, along with some other adjustments.

79. A general weakness of federal-State financial relations, more particularly in the field of devolution, is that federal assistance tends to be discretionary in character, not necessarily on principles of uniform application. To safeguard the position of the States, our Constitution provides, therefore, that the assessment of the needs of the States as well as the measure of assistance to be afforded and the form in which this should be given, are determined by an independent Commission to be constituted at intervals of not more than five years. But this role and function of the Finance Commission, as provided in the Constitution, can no longer be realised fully due to the emergence of the Planning Commission as an apparatus for national planning.

80. As a prelude to the formulation of each five year Plan, the Planning Commission has to make an assessment of resources required in their totality, including those to be raised by the Union and the States, both by way of loan and by additional taxation and adjustment of existing levels of taxes, foreign assistance and deficit financing. Based on this assessment, the size of the national plan is determined and is divided into

components of industrial and social development, individually for the Union and each State Government, and priorities are also arranged. This overall planning embraces an examination and acceptance of the revenue and expenditure forecasts of the Union and the State Governments; additional tax efforts to be made are similarly pre-determined as requisites of the fulfilment of the Plan. Against this background, the role of Finance Commission comes to be, at best, that of an agency to review the forecasts of revenue and expenditure submitted by the States and the acceptance of the revenue element of the Plan as indicated by the Planning Commission for determining the quantum of devolution and grants-in-aid to be made; and, at worst, its function is merely to undertake an arithmetical exercise of devolution, based on amounts of assistance for each State already settled by the Planning Commission, to be made under different heads on the basis of certain principles to be prescribed.

81. The second Commission had referred to the overlap of functions of the Planning and Finance Commissions and had urged that there was 'a real need for effectively co-ordinating' the work of the two commissions. It had also stressed the desirability of eliminating the necessity of making two separate assessments of the needs of the States. Being of the same view, we consider that the acceptance of one of two alternatives we suggest would alone remove the anomalous position.

82. The first is to enlarge the functions of the Finance Commission to embrace total financial assistance to be afforded to the States, whether by way of loans or devolution of revenues, to enable them both to balance their normal budgets and to fulfil the prescribed targets of the Plans. This would, we consider, be in harmony with the spirit and even express provisions of our Constitution. This would also make the Commission's recommendations more realistic as they would take account of the inter-dependence of capital and revenue expenditure in a planned programme.

83. The second is to transform the Planning Commission into Finance Commission at the appropriate time.

84. Most of the States have complained that there is a perceptible trend of centralisation of resources, in addition to centralisation of certain State functions. In evidence, they point out that the recent amendment of Income-tax Act has removed from the definition of income-tax the tax paid by companies and has thereby caused an appreciable shrinkage in the divisible pool to which they are constitutionally entitled. Though the amendment was made to simplify levy and collection, the indirect effect has, in fact, been a diminution in the amount hitherto available for distribution. Similarly, they cite the recent repeal of the Act imposing a tax on railway passenger fares. This, they claim, was an expanding source of revenue to which they were legally entitled in terms of article 269. Though provision has been made for an *ad hoc* grant of Rs 12.5 crores a year for five years, representing the average yield of the tax in the past two years, they fear that even this amount may not be separately earmarked hereafter to compensate them for loss of entitlement. In any event, it can only be a discretionary grant *in lieu* of a legal right now extinguished. They have also complained that the Union Government had not adjusted the rates of additional excise duties levied on certain commodities *in lieu* of sales-tax, though the basic rates of excise duty on these very commodities had been recently revised upwards. Their grievance is that the benefits of all these measures accrue to the Union at the expense of the States.

85. We mention this as there is a general feeling that the contents of the autonomy of the States are being diluted not only by the prescription of detailed directions on subjects within the State list, but also by unilateral financial decisions taken.

86. A more important and even disturbing feature is that the States are becoming dependent on Central assistance on an ever-increasing scale. This arises partly out of the impact of committed expenditure of the completed plan projects and partly for other reasons. This increasing dependence is diluting, on the one hand, the accountability of the State Cabinets to their Legislatures; on the other, it is coming in the way of the development of a greater sense of responsibility in their administration.

87. If it were possible to establish a proper balance between the productive and non-productive components of a State's Plan, the productive projects, it might be expected, would generate, though after a time-lag, enough resources to finance the maintenance cost of the non-productive schemes. But due to the uneven development of the social services and their inadequacy generally, these have to be given an important place in planning. As a result, the States are unable even to balance their normal budgets with the tax resources available to them. This is rendered more difficult, as additional taxation measures are earmarked and absorbed for financing the revenue component of the current Plan. It has, therefore, to be considered whether, in the present situation, the treatment now accorded to completed Plan schemes should be continued. The cost of maintaining the schemes, whether viable or not, now becomes automatically a charge on the revenues of the State. Such of these schemes (and many of them fall into this category) as do not produce revenues sufficient to meet their maintenance charges add to the financial liabilities of the States. Instead of creating assets, these schemes create additional financial liabilities in most cases. The question, therefore, arises whether the schemes which have yet to become viable should not appropriately be a first charge on the resources of the immediately succeeding Plan. This arrangement will provide, on the one hand, for a review of the working of the schemes, whether they are being efficiently and economically administered and whether they are fulfilling the purposes for which they were designed, and on the other hand, make it possible to assess the extent to which the different States are endeavouring to balance their 'normal' budgets. We feel that the issue we pose merits examination in all its implications and should appropriately be remitted to the Commission we propose later. The increased need of assistance is not entirely a concomitant of planning; in many cases it is additionally attributable to ineffective expenditure control and laxity in fuller mobilisation of available resources.

88. The earlier Commissions had rightly stressed the importance of efficiency and economy in administration and the tax efforts of the States. But they were unable to assess the relative efficiency and performance due to inadequacy and often unreliability of statistical and other material. We have also been confronted with the same difficulty. With the limited time and organisation at our disposal, we would have been, even otherwise, unable to undertake either of those reviews, and give recognition in our scheme of devolution to those States which had made the maximum effort in effecting economy in expenditure and raising resources. We have, therefore, been compelled, like our predecessors, to cover the annual budgetary gaps of all the States, whether caused by normal growth of expenditure, the maintenance cost of completed schemes and mounting interest charges or even by a measure of improvidence.

89. Secure in the knowledge that the annual budgetary gap would be fully covered by devolution of Union resources and grants-in-aid, the States are tending to develop, as we have noticed, an allergy to tap resources in the rural sector on many considerations and also a disinclination to make up the leeway in others. They do not also attach the same importance to a proper and adequate control on expenditure in the matter of services and supplies as before. Cadres expand, pay-scales get revised upwards, negligence develops in the procurement of supplies and execution of projects in the absence of proper cost control. While there is a close scrutiny of, and consultation on, the contents of the Plan, there is hardly any on the contents of the annual estimates; there is no counterpart at the national level in regard to non-Plan expenditure which is progressively increasing as a result of planning itself.

90. A disturbing feature is not only the effect of unsound financial policies of a State on its own development, but its impact on neighbouring States also. We have noticed that in one State the pay-scales of one of the services were being substantially increased, backed by the recommendations of a high-powered commission, even when the scales were one of the highest in India. Sufficient thought does not seem to have been given to the effect of this pay revision on other departments of the State itself, much less on its impact on the neighbouring States.

91. A similar situation obtains in the field of taxation and considerable disparities exist in the fields of land revenue, sales-tax, motor vehicles tax, etc. Though it is generally accepted that the rural sector could make a greater contribution to national economy, there is an understandable reluctance to revise even the rates of land revenue in operation, even when they have not been reviewed in the last 30 to 60 years. In one State, when a limited operation indicated that the rates could be raised considerably on old accepted and established principles of assessment, the Government considered it inadvisable to continue the settlement operations. In another State, in real need of resources, the collection of betterment levy already introduced had to be suspended just because the neighbouring State had done so in a more prosperous contiguous area. All these induce a chain reaction of enforced under-taxation on the one hand, and avoidable increase in public expenditure on the other.

92. It is becoming increasingly evident that there should be arrangements for national or, at least, zonal economic co-ordination, both of tax levies and expenditure programmes, to introduce a measure of uniformity. It should ensure optimum mobilisation of resources and re-introduce a greater sense of responsibility in expenditure control. It is not our intention to suggest that absolute uniformity in various tax levies could be effected even on a zonal basis. The tax potential of even contiguous states is not always the same and their tax structure may need differing degrees of adjustments.

93. We consider that a comprehensive examination should now be undertaken to assess the tax potential of each State, to review its tax structure and to recommend rates under different heads of levies in the State list. This examination should appropriately be entrusted to an independent Commission which would naturally take note of the widening gap between resources and functions of the States brought about mainly by the planning process and consider what adjustments, if any, should be made in Union-State financial relations which would add strength both to the Union and the States.

94. We should, at this stage, stress, as our predecessors did, the importance and necessity of arranging for the compilation of reliable statistics relevant for the determination of needs of the States, their taxable capacity and the efficiency of their administration. This would prove invaluable not only to the enquiry we suggest, but also to the agency which will advise on devolution of taxes to be made and other forms of assistance to be afforded to the States.

95. The acceptance of the rates recommended by this Commission and efficiency in effecting recoveries would provide a suitable yardstick for assessment of comparative efficiency and give a better and more acceptable guide for assessing the assistance justified from the Centre. This will, in our opinion, bring about the optimum mobilisation of resources by all the States. Equally, it will put a stop to the present undesirable system of affording assistance by covering the revenue gaps, howsoever they have arisen or been caused. Under the present dispensation, it is likely that the States, which have done the least, may receive more than they would have otherwise deserved.

96. To complete the picture of financial assistance afforded by the Union to the States, we should refer to the present system of dual allocation of grants, grants-in-aid of revenue made on the recommendations of the Finance Commission under article 275 and grants for specific purposes made at the discretion of the Union Government under article 282. Though the assistance given under article 282 was 48.7 per cent of the total in the year 1952-53, it has now assumed the proportions of 80.2 per cent in the budget for 1961-62. In other words, discretionary grants account for a substantial part of total assistance.

97. We invited the views of the State Governments on the system of dual allocations. Some of the States advocated that the grants in their totality should be covered by the recommendations of the Finance Commission as being in accordance with the basic principles of the Constitution and that grants should not be left to be made at the discretion of the Union Government. Some other States suggested that the bulk of the grants should be covered by the recommendations of the Finance Commission leaving the residue to be

made by the Union Government. This, they suggest, is necessary as the Plan itself is flexible and a margin should, therefore, be left for effecting adjustments should they become necessary. It is claimed, however, by the proponents of full devolution that having regard to the needs of our economy there is no scope for curtailment of the Plan except in an emergency. In evidence, they drew attention to the fact that the Plan itself lays down a physical target higher than the present financial target.

98. It has also been urged that article 282 is outside the provisions of the Constitution governing 'Distribution of Revenues between the Union and the States', and is one of the several 'Miscellaneous Financial Provisions'; that it is only a permissible provision to meet a possible contingency and is not intended to be used in the manner it is now being used.

99. Another important matter, which deserves a mention, is the need for overhauling the administrative, technical and executing agencies to make them more efficient, quick in movement and effective in execution. We have noticed that in their natural anxiety to obtain larger State plans, there is a tendency to overstate resources, current and additional, and promise economies which are not susceptible of realisation. We should like to stress the importance of 'non-Plan' expenditure pertaining, more particularly, to administration, even in a planned economy. Unless a balance is struck between Plan and non-Plan outlays and the need is recognised of refashioning the machinery of government, we fear that the Plan itself will be in jeopardy. In any event, it will be difficult to secure completion of projects to schedule or to obtain value for money expended. In this connection, we have mentioned earlier that we consider that it would be useful if the States were to set up a machinery to draw up their own development plans and also to undertake a review, at suitable intervals, of the progress of execution of projects and also other non-Plan programmes. In other words, it should be a planning apparatus with added functions of audit of performance.

100. Article 280(3) (c) empowers the President to call upon the Commission to make recommendations on any matter which he considers to be in the interests of sound finance. Under this provision three questions have been referred to us which we have dealt with elsewhere. There is one other important point, which, though not specifically referred to the Commission, has been stressed before us by the States and we feel that we should make some observations on it. It is in regard to the mounting interest liability which is devolving on the States both on loans raised by themselves and loans granted by the Union Government. The importance of this question lies in the fact that in most cases this liability alone absorbs a substantial portion of their current revenues. The position will worsen in the foreseeable future. As our devolution must take account of the revenue gaps, partly attributable to interest charges, we consider that it would not be out of place if we were to give our appreciation of the position.

101. A general complaint, more particularly of the States which have large multi-purpose river valley projects with considerable financial outlays, (in some cases several times their total annual revenues) is that the loans made to them bear interest charges from the dates on which they are drawn. This liability has, of necessity, to be met out of additional interest-bearing loans. This not only leads to the over-capitalisation of the projects but also makes these additional loans attract compound interest levies. It has to be considered whether it would not be advisable to have a period of moratorium depending on the character and scope of each productive project, with a weighted rate of interest to compensate the Union Government for the interest foregone over the period of moratorium. This is the principle, we understand, on which World Bank loans are made for projects. It has also to be appreciated that the interest recovered from the States at present is, in the main met out of the assistance given by the Union Government itself. The position is far from satisfactory and requires, in our opinion, analysis and review.

102. As our observations above relate mainly to multi-purpose river valley and other major irrigation projects, we made a detailed examination of their financial working. We were disappointed to find that in a number of cases the returns are insufficient to meet even the working expenses and in the majority of cases insufficient to cover the additional incidence of interest liability. The

power components of the multi-purpose projects are generally remunerative, though marginally because of the statutory ceiling of 5 per cent return. They are not so where agreements were made for supplies at concessional rates either to attract industries to the States concerned, or to find an outlet at the time for power generated or both. But the irrigation components of these projects and also other major irrigation projects are unproductive in most cases. The reasons are two-fold: (a) the reluctance of the agriculturists to avail themselves of irrigation facilities and (b) the unwillingness of States to levy suitable water rates. There is also a marked hesitation to impose and collect betterment levies as an offset to capital expended. The question, therefore, is whether States, which have failed to make their agriculturists irrigation-conscious and/or to levy appropriate taxes, should be encouraged or even allowed to undertake additional irrigation projects.

103. We have felt impelled to raise these issues of a general character, though these are not directly related to our terms of reference. Nevertheless, we consider that they are relevant in the context of the recommendations we make and important enough to merit consideration in the interests of our national economic growth and the introduction of a minimum acceptable standard of social services in all the States.

[FIFTH COMMISSION, 1969]
ANNEXURE: INTERIM REPORT, 1968.
CHAPTER 4

UNAUTHORISED OVERDRAFTS

24. Paragraph 4(j) of the Order of the President requires us to make recommendations regarding the problem of unauthorised overdrafts of certain States with the Reserve Bank of India and the procedure to be observed for avoiding such overdrafts.

Nature and Magnitude of the Problem

25. We shall first set out the present arrangements between the State Governments and the Reserve Bank of India and indicate how unauthorised overdrafts arise. All the States except Jammu and Kashmir have entered into agreement with the Bank under Section 21-A of the Reserve Bank of India Act to enable it to handle their monetary transactions. Section 17(5) of the Act provides that the Reserve Bank may make advances to State Governments repayable in each case not later than three months from the date of the advance. The limits of such advances are specified in the letters exchanged in pursuance of the agreements. Upto 1953, the limits laid down were equal to the minimum cash balances that the State Governments were required to maintain with the Reserve Bank, and since then they have been fixed as a multiple of such balances. Besides the normal ways and means advances for which no cover is necessary, the Reserve Bank gives special advances to the State Governments against Central Government securities. Table 1 [not printed here] gives the position regarding the limits as obtaining since the 1st March, 1967, under which the States can obtain normal ways and means advances upto Rs 18.75 crores in all and special advances of a further amount of Rs 37.5 crores. The Reserve Bank also sanctioned additional *ad hoc* limits for secured advances. Such limits as on the 10th August, 1968 stood at Rs 12.7 crores. "Unauthorised overdrafts" arise either because the limits agreed to between the States and the Reserve Bank are exceeded or because the overdrafts are not repaid within the period of three months.

26. The monetary transactions of State Governments go on simultaneously at over 2,000 treasuries, sub-treasuries and banks. Owing to this large number of places it is not possible for the Bank to ensure beforehand that payments on behalf of a State Government do not exceed the balance held by it by more than the limit specifically agreed to. The Government transactions occurring at all such places are allowed to proceed without any reference to the actual position of a State Government's cash balance, the accounts of which are maintained only at the Central Accounts Section of the Reserve Bank. The agency Banks transfer the net amount of debit or credit to the State's cash balance account every day. The non-Banking treasuries have separate balances belonging to the State Governments outside the cash balances maintained with the Reserve Bank. Such treasuries are permitted to draw on currency chests kept with them by the Reserve Bank as a resource for making payments whenever the State's own balance at the treasury gets depleted, as well as to deposit surplus receipts

in the currency chests from time to time. The net transfers of funds to or from the currency chests are taken to the credit or debit of the cash balances of the States. When on the compilation of accounts each day it is found that the debit against a State Government exceeds the limit of the ways and means advance, an unauthorised overdraft results. This happens unobstrusively and the Reserve Bank comes to know of it only after the event. At that point the agreement entered into by the State Government under the Reserve Bank of India Act is contravened. Further, in view of the fact that all the State Governments are indebted to the Centre, there is also a contravention of Article 293(3) of the Constitution, which provides that a State Government may not, except with the consent of the Government of India, raise any loan if there is outstanding any part of a loan to the State by the Government of India or a loan guaranteed by it. When the fact of an unauthorised overdraft comes to the knowledge of the Reserve Bank, it issues a notice to the State to make arrangements to clear the overdraft within three weeks with a warning that in case of default the Bank will consider itself free to stop payments without any further notice. Some State Governments have taken these notices seriously and have complied with their requirements, mostly with the help of the Central Government. Others have just ignored them. Where the overdraft is not cleared, it is open to the Reserve Bank to refuse to honour any further cheques of the State Government. It is, perhaps, incumbent on it to do so, as a body constituted for securing monetary stability. The Reserve Bank has, however desisted from this course in the past, in view of the extremely adverse effect that such action may have on the credit and financial stability of the State Government with all its serious implications including the possible emergence of a situation envisaged in Article 360 of the Constitution. To avert such a crisis, the Central Government has been giving *ad hoc* loans or other form of assistance to the State Governments to enable them to clear their unauthorised overdrafts before the end of the year.

27. The prevalence and magnitude of these overdrafts have become serious in recent years. Upto about 1950, the State Governments were able to manage their financial transactions within the specified limits of their ways and means advances. The first overdraft of an appreciable size arose in that year. In April, 1953, in order to meet the increasing requirements of the States, the Reserve Bank increased the limits of ways and means advances for all the States from Rs 1.85 crores to Rs 7.88 crores in all. Special ways and means advances of Rs 2 crores for each State were also permitted against Government of India securities. In spite of these increased limits, the Government of India had to provide during the Second Plan period *ad hoc* loan assistance aggregating to Rs 128 crores to seven State Governments to clear their unauthorised overdrafts. Eleven States had to be given such assistance amounting to Rs 286 crores during the Third Plan period. The problem has become even more serious since the end of the Third Plan period. During 1966-67, the Central Government had to sanction *ad hoc* loans amounting to Rs 149 crores. Although there was a further upward revision in the limits of ways and means advances in March, 1967, *ad hoc* loans amounting to Rs 128 crores had to be given during 1967-68 (*vide* Table 2) [not printed here].

28. Of the seventeen States, six or seven States have been having persistent unauthorised overdrafts. As ranked by the *per capita* incomes of their inhabitants, such States were not those with the lowest ranks. Some of the less prosperous States did not get into unauthorised overdrafts while some relatively better-off States had done so.

Consequences

29. The persistence and large size of unauthorised overdrafts are a matter of very serious concern. Apart from the contravention of Article 293(3) of the Constitution and the agreements entered into under Section 21-A of the Reserve Bank of India Act, the occurrence of such overdrafts and their practically automatic clearance by the Centre through *ad hoc* loans have grave effects on the national economy. In all federations, it is the sole responsibility of the Central Government to take decisions regarding the need for and the extent of deficit financing in the context of overall economic considerations. No country with a unified currency system can afford to have more than one independent authority taking measures which result in increase of money supply. Unauthorised overdrafts violate this fundamental

principle of sound monetary management. The benefits of this violation go to a few States which draw on the national resources at their own will without any scrutiny of their needs at the national level, while the burdens are borne by all, including the States which are less prosperous. There is a serious danger that the example of having recourse to such unauthorised overdrafts by certain States, followed by their almost routine clearance by the Centre, may prove infectious. The States which have avoided such overdrafts by prudent fiscal management are very critical of this practice. They strongly represented to us that this extremely undesirable state of affairs should be immediately ended.

30. In our discussions with the State Governments we found that all of them, including those which had got into unauthorised overdrafts, were agreed that such overdrafts are untenable in principle and undesirable in practice and that there is an urgent need of stopping them. There is thus general unanimity that the practice of unauthorised overdrafts is harmful and undesirable, and that effective measures should be taken to put an end to it in the interest of national economy. The Commission agrees with this view.

States' Difficulties

31. We shall now examine the reasons given by the States for the emergence of unauthorised overdrafts. The State Governments which have had persistent overdrafts have explained to us that they have been forced to have recourse to them due to various difficulties which they have to face. The State Governments have to strive to meet the ever growing needs of the people in a welfare State, particularly for social and economic development, and many of them have special problems and difficult situations to deal with. The steep rise in prices in the last few years has also added considerably to their financial difficulties. If the problem is to be tackled at its source, these difficulties must be considered in their proper context and, to the extent they are genuine, removed.

32. We may classify the difficulties explained by the States into two groups according to their nature:

(a) Temporary difficulties arising from the uneven flow of receipts or expenditure and the inadequacy of limits of ways and means advances with which they could be met; and
(b) Relatively more chronic imbalances between their resources and functions, inadequate devolution and the absence of suitable mechanism to deal with unforeseen difficulties.

The first group can only explain temporary unauthorised overdrafts which should get cleared as soon as progressive receipts reach up to progressive expenditure. The second group of difficulties can lead to persistent unauthorised overdrafts. It is the latter which we shall consider first.

Imbalance between Resources and Functions

33. The States have complained of the great disparity between their resources and functions under the Constitution. The distribution of resources and functions between Central and State Governments varies from one federal Constitution to another. Recent technical and economic developments leading to integration of the national economy have, however, resulted in an effective centralisation of a number of more productive taxes. A growing degree of imbalance between the revenues of State Governments and the expenditure needed for the efficient discharge of their functions has, therefore, proved to be inescapable in most federations. The Indian Constitution, drawing upon the experience of the working of other federations and recognising the need of the times, has given the Central Government the exclusive power to levy and collect some important direct taxes. On the other hand, it has left a considerable field of direct taxation, such as land revenue, taxes on agricultural income and duties in respect of succession to agricultural land, entirely to the States. The power to levy taxes on commodities, excluding customs duties, is divided between the Centre and the States. Besides, the Constitution has assigned to the States the entire proceeds of some taxes levied and collected by the Central Government under Article 269 and a share in the proceeds of income tax under Article 270. The proceeds of Union Excise duties may also be shared under Article 272. Article 275 provides for grants-in-aid of the

revenues of States which may be in need of assistance. The shares of these taxes and the amount of grants are decided on the recommendations of the Finance Commissions which are appointed at least every fifth year. The recommendations of the Finance Commissions have been making provision for the requirements of States for non-Plan revenue expenditure. Revenue grants as well as loan assistance for the Plan are disbursed by the Central Government on the recommendation of the Planning Commission. The Central Government generally accepts the recommendations of these Commissions and large and increasing amounts are being transferred to the States accordingly. The State Governments have a full opportunity to state their cases and explain their requirements to the two Commissions. In the nature of things it cannot be expected that the States will be fully satisfied with the decisions. However, once the decisions are taken, it is the duty of the States to manage their affairs within the resources available to them including the devolution and assistance from the Centre. They must regard it as a matter of necessary fiscal discipline to balance their budgets, and to take in their stride the normal vicissitudes in their financial position.

Difficulties due to Changed Circumstances

34. Many states have drawn our attention to the fact that while the size of State Plans and Central Plan assistance are reviewed and revised from year to year, the recommendations of Finance Commissions remain in force for longer periods without any such review. If due to changed circumstances, such as increase in prices requiring provision for dearness allowance to their employees, the States have to incur substantially larger non-Plan expenditure there is no machinery at present for providing increased devolution of resources to them. They have represented to us that it is necessary to have some reviewing agency like a permanent Finance Commission which could look into their difficulties on such occasions and recommend suitable additional assistance. We have given very careful thought to the demand of the States for such a mechanism. We are, however, of opinion that it would not be very useful to set up any standing arrangements for this purpose. We think that the case for a permanent Finance Commission has to be judged on grounds much wider than the occasional need for providing additional non-Plan assistance to States during the period covered by the existing devolution arrangements. Having regard to the nature of its functions it would be inappropriate to require a Finance Commission to look only into the requirements arising from some isolated causes affecting the States' revenue or expenditure, or to look into the financial needs of a few States only. In considering any modification of the scheme of devolution of resources from the Centre to the States or their distribution among the States, the Finance Commission would have to take into account the overall needs and resources of the Central and State Governments in the changed circumstances, including the commitments already made on the basis of the existing scheme of devolution. Such a review would not be practicable for the purpose of dealing only with the additional needs of States due to particular reasons.

35. When a State Government finds itself unable to balance its budget having regard to its existing resources including the proceeds of additional taxation undertaken after the last Plan period, its difficulties may be either due to circumstances beyond its control, such as natural calamities, or due to other new developments necessitating substantial additional expenditure. We note that the Central Government already has a scheme for assistance to States in case of natural calamities under which, after obtaining the report of a team of Central officers, it provides assistance by way of grants and loans as well as necessary ways and means advances to cover the entire approved expenditure required to meet such calamities. We consider that in all cases where a State Government experiences difficulties due to unforeseen developments, it should make serious efforts to raise further resources or to reduce its expenditure as far as possible instead of incurring unauthorised overdrafts. If, in spite of all possible measures, the State finds itself unable to meet the additional expenditure which is immediately necessary, it may apply to the Centre for temporary assistance to tide over the difficulty by a short-term loan on suitable terms. We recommend that in such cases the Central Government should provide necessary assistance to the State after satisfying itself regarding the need of the State,

the efforts made by it to adjust its resources and expenditure and the steps it is prepared to take to provide for repayment of the loan.

36. After the immediate requirements have been provided for in this manner, the State should be able to devise suitable measures for balancing its budget in the succeeding year. The Planning Commission which annually reviews the estimated non-Plan receipts and expenditure of the States, should take into account the adverse effect of the new developments, and if necessary, modify the size of the annual Plan of the State concerned. This may result in some States having to curtail their annual Plans, but we think that proper fiscal discipline requires that they should make such necessary adjustments in their Plan programmes until the whole question of devolution is reviewed by the next Finance Commission.

Plan Finance

37. Some State Governments have represented to us that they have been led to overestimate their resources and underestimate their non-Plan expenditure in their eagerness to have larger Plans and to secure greater Plan assistance which has been allocated on a basis of matching resources. We consider that both resources and expenditure should be estimated in a realistic manner. At the same time we recognise that to some extent the States have to be prevailed upon to maximise their resources and to economise on non-essential expenditure. We understand that the Planning Commission is engaged in revising the principles for distribution of Plan assistance in future, and that it is likely to give less importance to the basis of matching resources. We consider it fundamental that there should be no deficit financing at the State level, and that the size of the State Plans should be regulated strictly within the States' own resources and such Central assistance as may be available. For this purpose, ways and means advances should not be considered as a resource.

Repayment of Central Loans

38. Besides the requirements of unforeseen circumstances which have led to difficulties in the States' revenue budgets, the volume of repayment of loans has in recent years resulted in a considerable strain on the capital side. In this respect there is a serious lacuna in the present arrangements for fiscal assistance to States to which we would like to draw the attention of the Central Government. The repayments of loans by States have been growing very steeply (*vide* Table 3) [not printed here] while non-Plan capital receipts have not shown any such growth. It has not been possible for us to consider the various items of capital receipts and expenditure individually, but taken together they have resulted in substantial non-Plan capital deficits (*vide* Table 4) [not printed here] which have been responsible for unauthorised overdrafts in several States. At present, there is no arrangement for dealing with the problem of these capital deficits. In order that unauthorised overdrafts are avoided, we suggest that whenever such deficit is anticipated the State Government should carefully consider how far its non-Plan capital expenditure can be reduced, and also make efforts to increase its capital receipts including better recovery of loans given by it. If in spite of such efforts, the capital budget for the year cannot be balanced, the State may represent its case to the Central Government which may, if satisfied that the State needs relief in order to avoid unauthorised overdrafts, consider deferring the repayment of Central loans falling due during the year to the necessary extent.

Deprivation of States' Share of Taxes

39. Some of the State Governments have represented to us that the inadequacy of their resources has been accentuated by the unilateral actions taken by the Central Government which have deprived them of their legitimate shares out of proceeds from advance collection of income-tax, income-tax on companies and tax on railway passenger fares. We may point out that while the Constitution gives the States a right to share in certain taxes when they are levied by the Centre, it is the responsibility of the Central Government to decide what taxes are to be levied as well as the manner in which and the rates at which they should be levied. The machinery of Finance Commissions has been provided to ensure that the States receive an equitable share of the proceeds of divisible taxes and duties after periodical review. A cause for complaint regarding deprivation of the States' due share can therefore arise

only if the Central Government made a change adversely affecting the States without providing for suitable compensation during the period between two Finance Commissions. Such has not been the position in any of the cases mentioned by the States in this connection. Whatever view might be taken as to the correctness of the procedure for determining the net proceeds of income-tax, the fact is that the present practice of excluding advance collection of income-tax from the divisible pool pending finalisation of assessments has been in existence since a time prior to the appointment of the first Finance Commission and even before the commencement of the Constitution. All the Finance Commissions have framed their recommendations regarding devolution of taxes and grants after having due regard to the size of the divisible pool of income-tax estimated on the basis of the existing procedure. The change in the Income-tax Act whereby the income-tax paid by companies was brought into the category of corporation taxes was made in 1959. This resulted in contraction of the divisible pool immediately, but the Central Government gave the States a compensatory grant to make good the loss. When this matter was dealt with by the Third Finance Commission, it pointed out that there were other measures available for taking account of the shrinkage in the divisible pool. On this and other considerations it increased the States' share in the proceeds of income-tax to 66-2/3 *per cent* and also made other recommendations to increase the volume of devolution. The Fourth Finance Commission also took due note of the States' representations in this regard and eventually increased the States' share of income-tax to 75 *per cent*. An *ad hoc* grant was provided by the Centre in lieu of the repealed tax on railway passenger fares. We do not therefore consider that the contention of some States that these measures have led to unauthorised overdrafts is justified.

Delays in Receipt of Devolution and Plan Assistance

40. We now come to temporary difficulties arising from fluctuations in the flow of receipts and expenditure. In this connection the States have complained of delays in the receipt of their shares of tax devolution, statutory grants and Plan assistance. We have gone into this question in some detail. We find that the States' share of the Union Excise and Additional Excise Duties are paid to them in monthly instalments and grants under Article 275 are disbursed quarterly in advance. The States' share of income-tax is paid quarterly - 10 *per cent* in July, 20 *per cent* in October, 25 *per cent* in January and the rest in March. It is seen that the income-tax collections follow the same pattern (*vide* Table 5) [not printed here], and obviously the Central Government cannot be expected to pay the State's share in advance. Since, however, large portions of this share involving considerable sums are at present being paid to the States in January and March, we suggest that the Central Government may consider whether the releases could be made more frequently during the last two quarters.

41. Under the existing arrangement for release of Plan assistance, except for expenditure on multi-purpose river projects where quarterly payments are made on the basis of estimated expenditure, monthly ways and means advances are made to State Governments during the first ten months of the year on the basis of annual budget estimates and the residual amount is released in March on the basis of departmental figures of actuals for nine months and departmental estimates of expenditure for the last quarter. The Plan assistance actually due for the year is finally adjusted on the basis of audited figures which generally become available long after the close of the year. This procedure, we understand, follows a recommendation of the Central Public Accounts Committee. We think that the delay in the final adjustment of Plan assistance should not normally result in any ways and means difficulty, unless there have been large increase in Plan expenditure actually incurred as compared with the departmental actuals for nine months and estimated expenditure for the last quarter. The disparity between the two could be substantially narrowed down, if the State Governments arrange for speedy reconciliation of departmental actuals with the accounts maintained by the Accountants-General during the course of the year. Efforts should also be made to reduce the time taken for completion of audit.

Payments on behalf of Central and Other State Governments

42. Some State Governments have suggested a change in the existing accounting arrangements for transactions in a State on behalf of the Central Government and other State Governments which are initially met from State balances. The Central Government transactions at banking treasuries and sub-treasuries do not affect the cash balance of a State as they are met directly from the Central Government's cash balance. Central transactions at non-banking treasuries are initially met from the State's own balances but they are adjusted on a weekly basis. Transactions of other State Governments at all treasuries and banks are met from the cash balance of the State where they occur and they are settled monthly. Their effect on the ways and means position of most States is, however, small and the States have also the benefit of their own transactions in other States being met from the balances of those States. We therefore think that no change in the present arrangements is called for.

Consolidation of Plan Loans

43. According to existing arrangements large repayments of Central loans have to be made by the States in the month of October. This results in ways and means difficulties for some States during that month and the succeeding few months. It has been represented to us that the repayments falling due in October may be evenly spread over the last six months of the financial year. We think that such modification would not be helpful since in most cases the repayments due in March are also substantial (*vide* Table 6) [not printed here]. In view, however, of the difficulties experienced by the States, we suggest that the Central Government may consider the possibility of suitably modifying the procedure for consolidation of loans to States so that their repayment may be in instalments which correspond generally with release of Central funds to the States and the usual time of flotation of their market loans.

Inadequacy of Limits of Advances

44. Several State Governments represented to us that in view of large increases in their revenue receipts and expenditure in recent years, the limits of ways and means advances allowed to them are no longer sufficient and they should be suitably increased. At this stage, we wish specially to emphasise that the facility of ways and means advances from the Reserve Bank is intended only for enabling the States to meet their temporary day to day requirements and it is not meant to be used as a resource for financing their general budgetary needs. It is vitally important that this basic position is accepted. Difficulties have often arisen because some States have been taking advantage of this facility to incur expenditure beyond their resources with the result that such advances are no longer available to them as a cushion for meeting temporary imbalances.

45. As an authority responsible for monetary management the Reserve Bank has to determine the overall limits of ways and means advances for the States having regard to the prospect of timely repayment and their general effect on monetary expansion. The limits have been revised recently in March 1967 when they were substantially enhanced. Besides, the States are authorised to meet their requirements on account of trading schemes, such as purchase of foodgrains and fertilizers, by taking separate advances from the State Bank of India and other commercial banks. The adequacy of the limits of ways and means advances from the Reserve Bank can be judged only with reference to the seasonal disparities between the inflow of revenue receipts and outflow of revenue expenditure, assuming that the budget for the year as a whole is balanced. The States have not been able to show that the temporary disparity between their revenue receipts and expenditure, with balanced budgets, could not have been covered by the size of advances allowed to them. The Reserve Bank has assured us that it is always prepared to agree to an additional limit to meet any special difficulties of a State Government, provided that the Bank is satisfied that resources would be available for clearing the advance within the statutory period of three months. The State Governments can avail of this facility, and if need be, the Central Government can also be approached for temporary ways and means advances. We are, therefore, of the view that the present position regarding the limits of advances does not call for any immediate change. The Reserve Bank has stated that a

periodical re-examination of the position will be possible. Having regard to the likely rapid development in the fiscal situation, we suggest that such periodical reviews should be made.

46. Some States have referred to the difficulty which they experience in fully availing of special advances from the Reserve Bank due to their not having sufficient Central Government securities. They have stated that their ways and means position would be eased if securities of other State Governments held by them could also be accepted by the Reserve Bank as cover for special advances. The Bank has stated that under the Reserve Bank of India Act, securities of only the Central Government can be reckoned as an asset in its Issue Department. Such special treatment of Central Government securities is inherent in any federal system. The position of such securities is therefore totally different from that of State Government securities. Further, we understand that in the last few years a practice has grown among the States of subscribing to one another's securities on a reciprocal basis. Securities created in this manner do not reflect any net investment, and they cannot afford satisfactory cover to the Reserve Bank for advances to State Governments. Their acceptance for such purpose is also likely to encourage this financially unsound practice. Besides, from the viewpoint of meeting the needs of the State Governments, what is more important is the adequacy of the limits of advances rather than the cover against which they can be obtained. Section 17(5) of the Reserve Bank of India Act does not require any cover to be taken against advances to the States, and even now clean ways and means advances are given to them upto specified limits. While the Reserve Bank normally requires Central Government securities as cover against special advances the Governor of the Bank told us that he did not see any difficulty in providing additional accommodation to States in special difficulties whenever necessary by allowing further clean advances in cases where they did not have sufficient Central Government securities, subject to the Bank's being satisfied about repayment of the advances in time. We suggest that the State Governments may avail themselves of this facility which should meet their requirements.

Advances Continuing beyond Three Months

47. In the preceding paragraphs we have examined the various difficulties explained by the State Governments and have made some suggestions which should help in removing these difficulties. We shall now proceed to consider more fully the question as to the measures which are necessary for avoiding unauthorised overdrafts and for dealing with such cases of overdrafts as may arise in spite of the measures we have suggested.

48. We may first consider the overdrafts which continue beyond the period of three months specified in section 17(5) of the Reserve Bank of India Act. We find that in fact a number of States have been having this type of overdrafts. The prolonged continuance of substantial ways and means advances is likely to result in their exceeding the permissible limits when there is a small time-lag in the inflow of receipts or unanticipated increase in expenditure. The Reserve Bank has been allowing such advances to continue beyond three months without renewal and without calling for their repayment on the view that the continuance of advances in this manner does not contravene section 17(5) of the Reserve Bank of India Act. We think that it is necessary to review such advances instead of allowing them to continue automatically. We suggest that the Reserve Bank should keep a continuous watch over the ways and means position of each State, and whenever any advance is found to continue beyond the period of three months, the Bank should examine whether it is due to a long-term imbalance in the State's budgetary position or any temporary reasons. Where the continuance of the advance is not due to a long term imbalance, it should be formally renewed by the Bank and treated as a fresh advance. In other cases the bank should call upon the State Government to repay the advance, and in case of default, it should be dealt with as an unauthorised overdraft.

Balanced Budgets and Expenditure Control

49. In the context of over-all shortage of financial resources available to the Central and State Governments and rising demands for expenditure in a welfare State, it is inevitable that

the State Governments, even after receiving all possible devolution of tax shares and grants as well as Plan assistance from the Centre will not find themselves in a position to meet their needs in full. If the evil consequences of unauthorised overdrafts are to be avoided, it is a matter of vital importance that in spite of the relative inadequacy of their resources the State Governments must have balanced budgets and they should not embark upon any expenditure in excess of their available resources. Where, after the adoption of a balanced budget, there are fresh developments likely to result in lower receipts or higher expenditure, the responsibility for restoring the budgetary balance must necessarily lie on the State Government and it should take timely steps to mobilise sufficient additional resources or curtail its expenditure to the necessary extent. Table 7 [not printed here] gives the overall budgetary position of the States for the years 1965-66 to 1968-69. It shows that several States had substantial deficits at the initial stage of budget estimates and in many cases the deficits continued even at the time of revised estimates. In some cases, though the budgets had been balanced initially, the revised estimates showed considerable deficits. This practice of unbalanced budgets has inevitably led to persistent overdrafts. We therefore recommend that every State should adopt the policy of having overall balanced budgets both at the beginning of the year and at the time of revised estimates.

50. Even when there is a balanced budget, it is necessary that a careful watch is maintained on the flow of receipts and expenditure throughout the year. We consider it an indispensable ingredient of sound financial administration that every State should have an effective ways and means section in its Finance Department. Such sections already exist in several States, and we recommend that all States should have them. They should evolve a system of preparing every month a forecast of the ways and means position for at least three months ahead. On the basis of such forecasts, corrective measures should be taken where necessary and suitable directions issued to controlling officers for restricting expenditure, so as to ensure that the total disbursements do not exceed anticipated resources during each period. The States may also consider the introduction of a system in the nature of "letters of credit" in the case of major spending departments, such as Public Works, Irrigation, Electricity, Forests, etc., which generally draw money by cheques on the treasuries and banks. The monetary limit upto which each disbursing officer can incur expenditure may be fixed periodically and any withdrawal in excess of such limit should be refused by the treasury or bank. We understand that a system on these lines has been introduced in one State and has led to a definite improvement in its overdrafts position. This system may be adopted by other States with advantage.

51. With the adoption of balanced budgets and an effective system of control over expenditure, the State should be able to avoid any difficulties in their ways and means position. We have already dealt with the question of unforeseen developments requiring heavy expenditure or reduction of revenues, while considering the question of imbalance between the States' resources and functions. We consider that if the suggestions we have made in that regard are properly followed, the States should be able to arrange for meeting the essential expenditure on such occasions. Where necessary, they should represent their case to the Central Government in good time for obtaining suitable assistance. We have no doubt that the Central Government would give careful consideration to the difficulties experienced by the States due to unforeseen circumstances and would give them such assistance as is possible, instead of allowing them to get into unauthorised overdrafts and having to clear them later.

Procedure for Dealing with Unauthorised Overdrafts

52. If the arrangements envisaged in the preceding paragraphs are implemented and worked in their proper spirit, there should not be any occasion for a State to run into an unauthorised overdraft. If, however, any such overdraft still occurs, it could only be due to lack of fiscal discipline on the part of the State. We consider that it would not be proper for the Reserve Bank to treat its notice to a State Government for clearing its overdraft as a routine measure. It should be the duty of the State Government to

take all possible steps for clearing the overdraft, failing which the Reserve Bank must proceed to stop payment of the State's cheques.

53. In view of the serious consequences which would ensure from the stoppage of payment of a State's cheques, we are of opinion that in such a situation it is the duty of the Central Government to help the State to regain a position of budgetary balance and to achieve fiscal discipline. To do so, it would be necessary for the Central Government to assist the State to clear its overdraft, It must, however, be recognised that this would be possible only where the State does not persistently follow policies resulting in financial difficulties and that the Central Government cannot be expected to clear unauthorised overdrafts of the State Government repeatedly. The Central Government would therefore have to consider, whenever an unauthorised overdraft occurs, whether the situation resulting from stoppage of cheques should be allowed to take place of(or) whether the State should be given necessary assistance to clear the overdraft. For this purpose we suggest that the Reserve Bank, whenever it issues a notice to the State Government, should also bring the matter to the attention of the Central Government. The Central Government should take up the matter with the State Government and ascertain what steps it proposes to take to clear the overdraft. If the State Government is not in a position to do so, it should urgently approach the Central Government for special assistance. The Central Government should, where it decides to assist the State, release as a matter of urgency so much of the share of devolution or Plan assistance payable to the State during the remaining part of the year as may be needed for covering the portion of the overdraft which the State Government is not able to clear by itself. If the amount due to the State during the year is not sufficient for this purpose, the Central Government should provide further assistance to the State by giving an *ad hoc* loan to be adjusted against its share of devolution or Plan assistance falling due during the next year.

54. The Central Government should at the same time initiate necessary consultations with the State Government with a view to finding out the causes responsible for its difficulties and the measures necessary to ensure that a similar situation does not recur. The Central Government should for this purpose depute a team of its officers, including a nominee of the Planning Commission, to visit the State for assessing the situation and to make suitable recommendations, after consulting the State Government, regarding the measures necessary for removing the disparity between the State's resources and expenditure, and for ensuring an effective system of control over expenditure. The team may also examine whether any further temporary loan assistance would be required by the State for tiding over its immediate difficulties. The Central Government should, after considering the recommendations of the team of officers, call upon the State to adopt such measures as the Central Government may deem necessary. In this connection it should be open to the Central Government to arrange for the association, ...in an advisory capacity, of an officer nominated by it with the Finance Department of the State, to secure effective control over expenditure so as to keep it within actual receipts. The State Government should comply with these requirements as they are part of the arrangements for getting special assistance from the Centre. We have carefully considered whether such requirements could be regarded as an infringement of the State's autonomy. We consider that in view of the fact that such measures would be required only for the purpose of giving assistance to the State for clearing its unauthorised overdraft, they cannot be regarded as in any way affecting the State's autonomy. We discussed this point with the State Governments and many of them expressed agreement with this view. In fact, some of them stated that such action would be nothing more than the fulfillment of the Centre's responsibility.

55. If a State Government persists in incurring an unauthorised overdraft, we are of opinion that it would not be proper that the Central Government should clear it. The consequences of the State's failure to clear the overdraft will then have to be faced. If a persistent overdraft occurs, or if it is not found possible to clear an overdraft in accordance with the procedure that we have suggested, the Central Government would have to take a view within the period of notice given by the Reserve Bank whether the crisis resulting from the stoppage of payments of the State's cheques should be allowed to develop or it would be expedient to forestall it by the invocation of its

constitutional powers. It is obvious that such an important decision would be taken by the Central Government only after full consideration of all the facts and circumstances of a particular situation. It would not be proper for us to make any suggestion in this regard.

Summary of Recommendations

56. We therefore recommend the following measures for avoiding unauthorised overdrafts:

(1) The State Governments must accept the basic position that the facility of ways and means advances is meant only for meeting temporary requirements and not for financing general budgetary needs.
(Para 44)

(2) The States should, as a matter of necessary fiscal discipline, balance their budgets and manage their affairs within the resources available to them. They should adopt the policy of having overall balanced budgets both at the beginning of the year and at a time of revised estimates.
(Paras 33 and 49)

(3) There should be no deficit financing at the State level and the size of the State Plans should be regulated strictly within the States' own resources and available Central assistance. Ways and means advances should not be considered as a resource.
(Para 37)

(4) While the present position regarding limits of ways and means advances does not call for any immediate change, periodical reviews of the limits should be made by the Reserve Bank.
(Para 45)

(5) The State Governments which do not have sufficient Central Government securities may, in special difficulties, avail themselves of such further clean advances as the Reserve Bank can allow subject to being satisfied about repayment in time.
(Para 46)

(6) The Central Government may consider more frequent releases of the States' share of income tax during the last two quarters.
(Para 40)

(7) To avoid ways and means difficulty due to delay in the final adjustment of Plan assistance, the State Governments should arrange for speedy reconciliation of departmental actuals with the accounts maintained by the Accountants General during the course of the year. Efforts should also be made to expedite completion of audit.
(Para 41)

(8) The Central Government may consider suitably modifying the procedure for consolidation of loans to States so that their repayment in instalments may correspond with release of Central funds to States and the usual time of flotation of their market loans.
(Para 43)

(9) Where a State Government experiences difficulties due to unforeseen developments, it should make efforts to raise further resources or to reduce expenditure, instead of incurring unauthorised overdrafts. If in spite of all possible measures it cannot meet the additional expenditure which is immediately necessary, it may apply to the Central Government for a short-term loan to tide over the difficulty. The Central Government should in such cases provide the necessary assistance to the States.
(Para 35)

(10) The Planning Commission should, in their annual Plan review, take into account the adverse effect of the new developments and, if necessary, modify the size of the annual Plan of the State concerned.
(Para 36)

(11) Whenever a deficit on non-Plan capital account is anticipated, the State Government should consider reducing its non-Plan capital expenditure and make efforts to increase its capital receipts including better recovery of loans. If the capital budget cannot be balanced in spite of such efforts, the Central Government may consider deferring the repayment of Central loans falling due during the year to the necessary extent.
(Para 38)

(12) Every State should have an effective ways and means section in its Finance Department. Forecasts of the ways and means

position should be prepared, on the basis of which necessary corrective measures should be taken.

(Para 50)

(13) The States may consider the introduction of a system in the nature of 'letters of credit' in the case of major spending departments and a monetary limit of expenditure may be fixed for each disbursing officer.

(Para 50)

(14) The Reserve Bank should keep a continuous watch over the ways and means position of each State and the ways and means advances should not be allowed to continue beyond three months automatically. The Bank should formally renew an advance only where it is satisfied that its continuance is not due to a long-term imbalance in the State's budgetary position. In other cases the State should be called upon to repay the advance and in case of default it should be dealt with as an unauthorised overdraft.

(Para 48)

(15) Where an unauthorised overdraft takes place, the Reserve Bank should issue a notice to the State Government as at present, and at the same time inform the Government of India. It should be the duty of the State Government to take immediate steps for clearing the overdraft within the notice period, failing which the Reserve Bank must proceed to stop payments.

(Paras 52 and 53)

(16) In view of the serious consequences which would ensue from stoppage of payments, the Government of India should help the State to regain a position of budgetary balance and to achieve fiscal discipline. To do so it should assist the State to clear the overdraft. It must be clearly recognised that this would be possible only where the State does not persistently follow policies resulting in financial difficulties and that the Central Government cannot clear unauthorised overdrafts repeatedly.

(Para 53)

(17) For this purpose the Government of India should, as soon as it is informed by the Reserve Bank about issue of notice to the State, ascertain from the State what steps it proposes to take to clear the overdraft, If the State Government is not in a position to clear the overdraft it should urgently approach the Central Government for special assistance. The Central Government should, where it decides to assist the State, release in advance the State's share of devolution or Plan assistance payable during the year. When the amount due to the State during the year is not sufficient for the purpose, further assistance should be given as an *ad hoc* loan to be adjusted against the devolution or Plan assistance falling due during the next year.

(Para 53)

(18) The Central Government should also have consultations with the State Government to ascertain the causes of its difficulties and to ensure that the situation does not recur. It should depute a team of its officers, including a nominee of the Planning Commission, to visit the State for assessing the situation and recommending remedial action, and also considering whether any further temporary loan assistance is necessary for tiding over the immediate difficulties of the State.

(Para 54)

(19) The Central Government should call upon the State to adopt such measures as it may deem necessary. For the purpose of securing effective control over expenditure so as to keep it within actual receipts, it should be open to the Central Government to nominate an officer to be associated with the Finance Department of the State. The State Government should comply with these requirements.

(Para 54)

(20) If a State Government persists in incurring an unauthorised overdraft it would not be proper that the Central Government should clear it and the consequences of failure to clear it will have to be faced. In such a case, or where an overdraft cannot be cleared in accordance with the procedure we have suggested, the Central Government would have to take a view whether the crisis resulting from stoppage of Payments of the States' cheques should be allowed to develop or it would be expedient to forestall it by invoking its Constitutional powers.

(Para 55)

REVIEW ARTICLE*

LOOK BACK IN ANGUISH

Ajit Karnik

1. INTRODUCTION

The last few years, especially after the initiation of economic reforms in India, have seen a lot of soul searching with respect to the development strategy that had been followed in this country over the last three and half decades. To be fair, there have been misgivings in certain quarters regarding the path that India has charted out since 1991-92, as well. These misgivings and apprehensions have been shared across the ideological spectrum: the left views the importance being given to markets as an abdication of its responsibilities by the State; the right, on the other, believes that markets still continue to be shackled and the State has still not relinquished enough of its controls for the market to really deliver benefits. Alongside this introspection with respect to Indian planning, there have been comparisons with the success stories in East Asia. It is well known that most of the East Asian 'Tigers' began their process of development around the same time that India did, but choosing a different strategy of growth, have forged far ahead of India. This sense of being left behind has been coupled with anguish that, had India chosen differently, it would have been among the ranks of the 'Tigers'. This anguish is not overcome by rationalisations such as 'even though life can best be understood backwards, it has to be lived forward'. Consequently, there has raged a controversial debate regarding the *conscious choice* of India's development strategy in the mid-1950s. The book under review raises some important issues in the context of this controversy.

The articles in the book under review present a peculiar dilemma to the reviewer. The better articles in the book do not raise the important issues referred to in the previous paragraph while the focus of my review is on these issues. Thus, the article by Tendulkar is excellent by any standards, certainly it is the best article in the book, but I refer to it in passing only. Two other articles I virtually ignore altogether. These are pieces by Balakrishnan (which, having been written at early stages of the Indian reforms process, is very tentative) and Rao and Maiti. This is possibly not being fair to these other articles, but my objective over here is to discuss in detail issues that have been raised in the book with respect to planning, especially the Second Plan, and with respect to the role of the State, generally, and with special emphasis on equity. Hence my rather extensive treatment of some of the articles in the book and only a cursory glance at some of the others.

The plan of the paper is as follows: Section 2 deals with what I have called Mahalanobis' world-view, a discussion of which I believe to be important for appreciating the development strategy of the Second Plan. Section 3 is concerned with examining different aspects of the Mahalanobis model such as heavy industrialisation, import-substitution, employment, etc. In section 4 I have a rather detailed discussion of the various theoretical approaches to State intervention and try to relate this with views on the role of the State as discussed in the book under review. Section 5 briefly discusses a specific role of the State, namely, the one related to equity in society; the neglected contribution of markets in attempting to introduce social justice is pointed out. Section 6 concludes the review.

2. MAHALANOBIS' WORLD-VIEW

In appreciating the contribution of Mahalanobis to the Indian planning process, I believe, it is quite important to have a good idea about his view of the world situation in the late 1950s and India's position in it. This will then enable me to compare Mahalanobis' world-view with the situation as it prevailed then and point out any contradictions that might exist between the two. The importance

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* *Planning and Economic Policy in India: Evaluation and Lessons for the Future*, by Manabendu Chattopadhyay Pradip Maiti and Mihir Rakshit (Eds.), Sage Publications, New Delhi, 1996, Pp. 215, Price: Rs 275.

of this comparison cannot be emphasised more since Mahalanobis' planning strategy was a direct outcome of his world-view. Should the world situation prevailing then be seen to be different from Mahalanobis' world-view, then the whole planning strategy initiated in the Second Plan could be called into question. The Second Plan, in many ways, charted out the path that the Indian economy was to follow for the next three and half decades, albeit with substantial dilution of the Nehru-Mahalanobis vision but, nonetheless, with the same emphasis on the public sector and shackles on the private sector.

2.1 Export Pessimism

One of the basic premises of the Mahalanobis model was that India would not be able to make a breakthrough in export market development in view of the traditional character of Indian exports and their price inelasticities [Sengupta[1], p. 67]. Thus the model neither considered any analysis of comparative advantage among individual lines of production nor examined the possibility of any gains from trade. Mahalanobis sought to demonstrate with his model how India could confidently optimise allocation of investment and long run growth for a given technology scenario *irrespective of developments in the rest of the world* (Sengupta, p. 67). Thus the Mahalanobis model was permeated, according to Parikh, with 'export pessimism that was widespread in post-World War II years' (p. 44). As a matter of fact this statement of Parikh is not quite accurate in that export pessimism was not explicitly stated in the Second Five Year Plan. The following quote of Bhagwati and Srinivasan [1976, p. 12] is quite illuminating:

> 'It is interesting that the Second Plan did not explicitly state the rationale of the shift to heavy industries in terms of foreign trade constraints, so that the later justification of this strategy by alluding to "stagnant world demand" for exports comes close to an *ex post facto* rationalization'.

Further, it is pointed out that the discussion in the Second Plan document about India's export earnings is so cursory that it seems implausible that the assumption of export-pessimism was seriously made. This statement may be supplemented by pointing out that export volumes in dollar terms rose almost continually over the First Plan period [see Bhagwati and Desai, 1970, Table 18.2, p. 371] and that the balance of payments position over this Plan was comfortable [Bhagwati and Desai, 1970, p. 369]. Thus, Indian evidence around that time period does not seem to support the view that export pessimism was widespread.

It is, possibly, not fair to single out Mahalanobis for this world view since this view was widely prevalent in India. The objective of self-reliance was a major theme in the reports of the National Planning Committee set up under the Chairmanship of Nehru in 1938 (Bose, p. 103). It was felt that the industrial world of the late 1940s and 1950s was dominated by economies of scale, the world market was deeply segmented and nations were separated by protectionism (Guha, p. 89). Given this international milieu what role could a densely populated poor economy like India play? Import substituting industrialisation within an autarkic economy thus became the model that came to be adopted in the Second Plan.

How realistic is this view of the world? How important was it to plan development in an autarkic framework? Was this view of the world shared by other countries who were starting off on the path of development in the 1950s? I try to answer these questions below.

2.2 Experiences in East Asia

The world was changing quite rapidly during the 1950s. By 1953 the Korean war had already ended; steps towards the formation of OECD were already being taken which was subsequently established in 1961; the precursor to the OECD, the Oranisation for European Economic Cooperation (OEEC), had been in existence since 1948; multinational corporations were beginning to operate and invest in the Third World countries

by the middle of this century (Sengupta, p. 67); volume of world trade was already beginning to pick up during the 1950s; importantly, the increase in the real wage rates in developed countries meant that the international division of labour was working to the advantage of developing countries. Significantly, Asian countries such as South Korea and Taiwan were ready to take advantage of the changing world situation wherein export pessimism of the immediate post World War-II years was starting to wane. At about this same time when the world was opening up and Asian countries were about to launch their export led growth, India was in the process of pulling down shutters. The world view that prevailed in India was not so much wrong as it was completely misunderstood.

The Korean experience with import substituting industrialisation (ISI) from 1954 to 1960 was a product of the peculiar historical circumstances of that country. After the colonial period ended in 1945, Korea was divided into North Korea (supported by the Soviet Union) and South Korea (backed by the U.S.A.). During the transition, in 1950, from the American military government to the Syngman Rhee government, the Korean war broke out and lasted till 1953. After the war ended there were significant doubts about the very survival of South Korea as a nation-state. The objectives of the Rhee government were solely short term: reconstruction of the nation and maintenance of minimum standards of consumption. Import substitution was introduced by the Rhee regime purely in the interest of maintaining minimum consumption and using scarce foreign exchange to import essential commodities. However, Korea had always been trade-dependent during colonial times and the necessity of export promotion was recognised as early as 1951, when the export-import link scheme was introduced [Datta-Chaudhuri, 1981, Pp. 47-77]. The system was reinforced in 1953 and 1955 by increasing the proportion of export earnings that could be used for importing goods. The first instruments of export promotion were highly discretionary: exporters were supported with multiple exchange rates, direct cash payments, permission to use foreign exchange for private use, etc. [World Bank, 1987]. After 1955, by introducing the dollar-denominated deposit system, exporters were insured against exchange risks, as well. Thus, even though, South Korea had a phase of ISI, there was never any doubt regarding the direction in which Rhee wanted the system of State intervention to move: it was towards a regime of liberalised trade with a system of selective intervention to promote industrial growth and exports [Datta-Chaudhuri, 1981, Pp. 47-77].

An important feature of import substitution as practised in Korea was that there was a distinct slowing down of the economy: GNP growth peaked in 1957 at 7.7 per cent and fell to 1.9 per cent by 1960. The standard interpretation for this is growing inefficiency and exhaustion of import substitution [Haggard, et al., 1990]. A similar scenario was unfolding in Taiwan at around the same time and for the same reasons: by the late 1950s, growth was slowing down [Little, 1981, Pp. 23-45].

Even in the brief episode of ISI that was witnessed in Korea, some of its unhealthy political manifestations were starting to become evident. It is possible to attribute the slowing down that was taking place in Korea during the late 1950s to excessive political manipulation of the economy by the Rhee regime for partisan ends. Rhee used instruments of economic policy, such as allocation of foreign exchange, import licenses, bank credit, to sustain and build support bases [Haggard, et al., 1990]. It is indeed ironical that when the perils of manipulative State intervention and the inefficiencies of ISI were being witnessed in Korea and Taiwan, India was embarking on the same path and with much greater vehemence. The Korean and Taiwanese flirtation with ISI, it must be remembered, was in its easy or primary phase, mainly confined to manufacturing of consumer goods such as textiles, clothing and wood and leather products [Little, 1981]. In the Indian case, however, import substitution was being pursued in as many sectors as possible, often causing a very thin distribution of scarce resources over too many sectors (Sengupta, Pp. 67-68).

2.3 Autarky

India's choice of ISI was combined with an emphasis on self-reliance or autarky. Such an isolationist policy meant that India was cut off from the rest of world, cut off from international competition as well as technological progress outside India. In the absence of either of these benefits that would have been available had India integrated with the rest of the world, production within the country was not cost-competitive from an export point of view; further, since India was always trying to catch up with technological development in the rest of the world, production quality suffered. Emphasis on self-sufficiency of the kind that India adopted was observed in a few other countries such as Korea, Taiwan, Soviet Union and China, but their circumstances were vastly different. I have already made reference to the historical circumstances in Korea, which led to its brief experiment with ISI and autarky. As far as Taiwan which was a Japanese colony till 1945 was concerned, it found its industry largely destroyed during the war. Substantial American aid helped it to overcome its macroeconomic problems, notably massive inflation, only in 1952. Primary ISI, mainly in consumer non-durables, continued till 1960, by which the familiar ills of this strategy had begun to show up [Little, 1981]. In the case of the Soviet Union and China autarky was forced on these countries by the necessity of having to live in a hostile environment. Surrounded as these countries were by the 'enemies of communism', it was inevitable that self-sufficiency would be a desirable objective.

In the case of India, however, autarky was a deliberate choice. India had not gone through the ravages of war as had Korea and Taiwan, nor was it surrounded by enemies which made autarky inevitable. This choice reflected a desire on the Indian government's part to distance itself from the erstwhile imperialist powers in the West and their military alliance and to generate a new World Force, the so-called Third World [Nachane and Karnik, 1992, Pp. 68-88, 1992a, Pp. 144-60]. The autarkic nature of India's development policy was thus a natural concomitant of the desire to play a leadership role in the Third World and remain non-aligned in a polarised world.

In a sense India's development policy was an extension of Nehru's world view, as well as, that of the Fabian socialists who saw in Communism 'the living, vivifying expression of something hitherto hidden in the consciousness of humanity' [Nachane and Karnik, 1992, Pp. 68-88]. The rigours of Stalinism were, mistakenly, felt to be accidental and very much tied to the personality of Stalin rather than to the nature of the communist system itself. Thus a humane approach to communism was cobbled together under the name of Fabian socialism and India became the experiment for these recipes. The major features of this experiment were intrusive State control (as operationalised by a powerful bureaucracy), a public sector straddling the 'commanding heights' and, what we have already discussed, autarky.

Like Nehru, Mahalanobis was also greatly influenced by the developments in the Soviet Union: '...it appears quite plausible to argue that Mahalanobis.....was impressed with Soviet thinking on industrialisation, with its emphasis on the building up of the capital goods base, without full recognition of the fact that such a strategy pre-supposes constraints on domestic and foreign transformation that need to be empirically verified' [Bhagwati and Chakravarty, 1971, p. 11]. The impression that the Soviet Union had on Mahalanobis is also quite apparent from his writings [see, for example, Mahalanobis 1958, Pp. 69-106; 1985, Pp. 197-204; 1985a, Pp. 183-196].

In the final analysis one could very well argue that development policy of the Second Plan was fashioned by a view of the world which was already changing. By the mid-1950s, Korea and Taiwan were already taking their first steps towards integration with the rest of the world and were also finding out the perils of isolation as operationalised by ISI. The geo-political conditions facing the Soviet Union and China were completely different from those facing India and

yet India *consciously* chose to isolate itself from the rest of the world. It does not appear to me, as Guha (Pp. 89-92) seems to suggest, that India had no choice but to choose to isolate itself from the rest of the world. It seems more the case that due to reasons of ideology as well as due to an out-of-date and misunderstood view of the world, the Second Plan deliberately chose a development strategy that would set India on a path that was quite at variance with that followed by the more successful Asian economies.

2.4 Vakil-Brahmananda Critique

One should not get the impression that the inappropriateness of the Soviet experience for India is being recognised here only with hind-sight. In fact, there were scholars, especially at the Bombay School of Economics, who had warned against emulating the Soviet strategy of heavy industrialisation but, unfortunately, these warnings were not heeded. I refer to the works of Vakil and Brahmananda. Their major work [Brahmananda and Vakil, 1956] was, probably, the only rival to the Mahalanobis approach to planning [Bhagwati and Chakravarty, 1971]. But here I would like to draw attention to an earlier contribution, namely, Vakil and Brahmananda [1955]:

> '....it may be pointed out that the system for an expansion of heavy industries is based on the experience of the Soviet Union which concentrated in the first few years on the development of heavy industries and later on the development of consumer goods industries including that of agricultural production. It would be dangerous to argue on the basis of the experience of a country which had had a different economic background to face in planning. May we point out that the problem in the case of the Soviet Union was more one of deficiency of marketable surplus rather than of overall production, whereas in the case of India, we have both problem of relatively lower production as well as a lower proportion of marketable surplus.....(In this connection), it may also be pointed out that the international climate under which the Soviet industrialisation process was carried out was not favourable for the imports of capital equipment into that country. Fortunately, the conditions in the case of India are somewhat better. The above reasons are sufficient to prove the doubtful validity of the Soviet experience under conditions facing India' [Pp. 115-116].

The extensive quote above is sufficient to establish that there were scholars at that time who had a different and, possibly, a more accurate view of the world, as compared to the world-view that informed the formulation of the Second Plan. Vakil and Brahmananda [1955, p. 118] went even further and argued in favour of emulating the Japanese approach as opposed to the Soviet one. In fact, towards the end of the 1955 paper, Vakil and Brahmananda argue for a strategy for India which anticipates the Korean export promotion drive of a few years later: '(The Second Plan) should concentrate on expanding industries which have built up export markets and at the same time explore the potentialities of those industries which can build up export markets anew' [p. 119].

3. CHARACTERISTICS OF THE MAHALANOBIS MODEL

3.1 Heavy Industrialisation

The strategy developed for the Second Plan was based on the framework of Mahalanobis which stressed industrialisation with an emphasis on the development of heavy industry or production of capital goods (Rangarajan, p. 31). In a deviation from the Harrod-Domar growth model which focused on shortage of savings, Mahalanobis focused on the bottle-neck that might be created by shortage of capital goods. The novel feature of the Mahalanobis model [1953, Pp. 307-312] was the extension of the Harrod-Domar model to an optimising framework.

The two sector model divided the economy into a consumer goods industry (C) and the investment goods industry (I). Total investment, I(0), was fixed forming the datum for the model. The target variable was the rate of growth of national income (Y). The instruments were θ_I and θ_C, the relative shares of investment in the two sectors ($\theta_I + \theta_C =$

1); while the structural parameters, β_I and β_C, were the reciprocals of the ICORs in the two sectors. Assuming full capacity utilisation and a single period lag between investment and output, yielded the Mahalanobis income growth equation [see Rao and Karnik, 1994, Pp. 197-256 for details]:

$$Y(t) = Y(0)\,[1 + \alpha\{\{(\theta_I\beta_I + \theta_C\beta_C)/(\theta_I\beta_I)\}\ \{(1 + \theta_I\beta_I)^t - 1\}\}]$$

This equation makes it clear that high values θ_I would be associated with lower rates of growth in the initial stages but with the passage of time higher values of θ_I would imply a higher rate of growth of income in the future [Rao and Karnik, 1994, p. 204]. Thus the policy prescription to emerge from the growth equation was that priority was to be given to the development of the capital goods or investment goods sector if the rate of growth of consumption was to be higher in the long run and that this strategy was to be pursued even though the consumption goods industry had a higher output-capital ratio.

The two sector model of Mahalanobis was concerned with intertemporal allocation of investment, while the four sector model [Mahalanobis, 1955, Pp. 3-62] was related to the intersectoral allocation of investment. The four sectors considered were investment goods (I), factory production of consumer goods (C_1), household production of consumer goods (C_2) and services (C_3). In spite of this detailing, however, θ_I, the investment share of the capital goods sector remained the key policy parameter as in the two sector model.

Both of these models of Mahalanobis formed the philosophical basis of the Second Plan and provided the rationale for a shift in industrial investment towards building up a capital goods base. The Second Plan rather surprisingly assumed that India had a comparative advantage in heavy and basic industry and that an emphasis on them was justified (Parikh, p. 44). It is, indeed, strange that neither Parikh nor any of the other contributors to the volume under review have questioned this assumption of comparative advantage. So far as I can see, Mahalanobis' bias towards heavy industrialisation and against agriculture stems from his view of the world and the power play between the Western nations (notably, U.S.A.), the Soviet bloc and the underdeveloped nations. This is especially apparent in Mahalanobis [1985a] where it is pointed out that experience has shown that it is not possible to improve the level of living beyond a certain limit on the basis of agricultural production alone. Further, in underdeveloped agricultural economies a very small group of families have the largest share of wealth, income and political and economic influence and it is very easy for a foreign power to exert influence on a small group of powerful persons. Relations between foreign powers and underdeveloped countries, Mahalanobis argues, are thus unstable. The process of industrialisation would broaden the base of social and political decisions; consequently, the external relations between foreign powers and the now industrialised (formerly developing) countries would be more stable and contribute to decreasing tensions between the East and the West. Thus, for Mahalanobis, the industrialisation of underdeveloped countries, especially India, was an indispensable condition for world stability and peace.

The difficulties that a nation such as India would have in the 1950s to pursue a programme of heavy industrialisation were scarcely recognised. Thus, Mahalanobis [1985a, p. 189] notes:

> 'In India it would be *economical* (emphasis added) to establish a heavy machine building industry which would manufacture heavy machines and equipment required for the installation of factories for the production of steel, fertilizers, aluminium etc. .....It would be also *economical* (emphasis added) gradually to establish large scale industries for the manufacture of synthetic raw materials of many kinds.....It follows that a big country would require a comparatively small amount of outside capital'.

Much before the contradictions of this drive towards heavy industrialisation became apparent, a virtual plea was put out by Vakil and Brahmananda [1955] to abjure the strategy that the Second Plan eventually adopted. Their strategy called for development of heavy industries which were *ancillary* to agriculture; a continuous state of excess capacity in these industries would enable India to have continuously increasing supply of marketable surplus of food. Especially because Vakil and Brahmananda believed that India's food position, at the beginning of the Second Plan, was not completely secure that they suggested that India should not embark on a type of industrialisation which would neglect cultivation over a fairly long period of time.

It is pertinent to point out here that even Korea, which had achieved much success during the 1960s, had little sectoral bias in its development strategy prior to the 1970s. Its shift from general export promotion to heavy and chemical industries (the so-called HCI drive) did not happen till 1973. This change represented a major change in the policy in favour of specific industrial targets and a wide-ranging commitment by Government to using trade and financial policies to steer resources to the HCI sector [World Bank, 1985]. In spite of introducing the HCI drive late in its development process and with substantial intervention from the Korean government including a secondary import substitution sub-phase of transition, it is widely accepted that the HCI drive was overambitious and resulted in serious misallocation of resources [Park, 1981, Pp. 23-45; World Bank, 1985].

3.2 Import-Substitution

The emphasis, in the Second Plan, on investment in capital goods industry went hand in hand with Mahalanobis' world view which inevitably had to assume a closed economy and hence self-reliance. Industrialisation combined with self-reliance necessarily led to import substitution (Sengupta, p. 67). Sengupta (p. 67) makes the important point that ISI need not have, necessarily, excluded growth of export industries in which India had a relative cost advantage because of favourable factor endowments. However, continuous technical progress in the rest of the world meant that successive rounds of import substitution became more and more difficult. Thus, compared to the rest of the world, costs of production remained very high in India and Indian exports suffered on the score of cost-competitiveness. Consequently, ISI also concomitantly meant the negation of export promotion.

Although the Mahalanobis model assumed a closed economy, subsequent to the Second Plan, growth of imports became inevitable for the economic development of India. This was especially so in the case of imports of foodgrains and this could be seen as a tragic outcome of the neglect of agriculture in the Second Plan, but more on this slightly later. Apart from foodgrains, imports of basic industrial products such as petroleum, fertilisers, chemicals, steel, non-ferrous metals and machinery became necessary. Such imports placed major demands on availability of foreign exchange. In setting targets for the Second Plan the government had assumed a much higher level of foreign assistance as compared to the First Plan and estimated a level of exports just below that of the earlier quinquennium; as it turned out, this was over-optimistic and foreign exchange constraint came to have a powerful impact on the implementation of the Second Plan [Tomlinson, 1993] Inevitably, the government had to resort to rationing of scarce foreign exchange by means of quantitative restrictions on imports. *The Reserve Bank of India Report on Currency and Finance* [1957-58] points out:

> 'During 1957-58, despite efforts to conserve foreign exchange, import payments reached an all time high of Rs. 1175 crores.....Sector wise, the entire increase was under government imports which rose by as much as Rs. 201 crores; private import payments dropped sharply....' [p. 70].

The *Report* also points out that the heavy imports were on account of the Government's expanded developmental activity; on the other hand, imports on private account were held down by means of vigorous control measures. The above comments of the *1957-58 Report,* come on top of similar comments of the *Reserve Bank of India Report on Currency and Finance* [1956-57]:

> 'Throughout the greater part of the First Plan there had been recurring current account surplus in the balance of payments; this was sharply reversed during 1956-57 with the emergence of an overall current account deficit of Rs. 292.5 crores.....This was mainly due to the large increase in imports, particularly of capital goods....' [p. 72].

Guha (Pp. 92-97) points out that the contradictions of the ISI regime introduced during the Second Plan soon became apparent and imposed a substantial cost on the Indian economy, a part of which we have pointed out in the context of the balance of payments crisis. Guha further points out that combination of the ISI regime with the Industries Act, 1951 and the Industrial Policy Resolution, 1956 gave the Indian state all the standard Olsonian characteristics. The Indian Industries Act, 1951 was designed to implement:

1. the development and regulation of industrial investments and production according to Plan priorities and targets;
2. the protection and encouragement of small industries;
3. the prevention of concentration of ownership of industries; and
4. balanced economic development of the different regions of the country [see Bhagwati and Desai, 1970].

The Industrial Policy Resolution of 1956 was even more emphatic about the importance of the public sector than the Industrial Policy Resolution of 1948. Seventeen industries (heavy electrical plant, iron and steel, etc.) were grouped into one category where the State would have total monopoly or have exclusive right to establish new industries. Twelve other industries (machine tools, ferro-alloys, fertilisers, etc.) were specified as the sector where the State would progressively establish new units. The remaining industries were left to the private sector, though the State had the option of entering these as well. This Industrial Policy Resolution significantly did not reiterate the 10 year guarantee against nationalisation that was mentioned in the earlier Resolution and thus was more closely attuned towards the goal of a socialistic pattern of development [Bhagwati and Srinivasan, 1976].

The import and export policy followed over the period 1956-66, which had as its major objective operationalising ISI, aimed at comprehensive direct control over foreign exchange utilisation. Thus, administrative decisions had to be made over the allocations of foreign exchange for practically all uses in the economy. Further, reliance on the direct allocative mechanism was almost complete during this period. Bhagwati and Srinivasan [1976] have listed out in detail the adverse effects of this import-export policy regime. It led to a wasteful allocation of investible resources among alternative industries and also accentuated the under-utilisation of investments within these industries; the regime also reduced the degree of competition that firms in these industries had to face; apart from this, there were other problems such as delays, lack of co-ordination among different agencies, anticipatory and automatic protection afforded to industries regardless of costs and discrimination against exports [Bhagwati and Srinivasan, 1976, Chapters 2, 12 and 13]. The emphasis on import-substitution also led to social inequality: The negation of import substitution, i.e., 'Trade liberalisation ..... tilts economic activity towards the production of exportable commodities, which tend to be labour-intensive, and this can be expected to have, often enough, an inequality reducing influence' [Dreze and Sen, 1995, p. 97]. One hardly needs reminding that this was precisely the policy that Korea started following from the mid-1950s onwards and this was also the approach that Vakil and Brahmananda [1955] had advocated.

As Guha (p. 95) points out the combination of ISI and the Industrial Policy Resolutions paved the way for stagnation in the Indian economy due to the following: 1. neglect of static comparative advantage in an ISI regime, 2. exclusion of domestic and foreign competition, 3. manipulation of industrial location, 4. appointments on non-merit considerations, 5. diversion of resources into rent-seeking, 6. delays in decision making, 7. elimination, on account of labour laws, of the threat of dismissal as a worker disciplining device, and 8. belief that employment alone and not productivity is socially valuable.

3.3 Employment

As far as labour was concerned, Mahalanobis assumed, in the manner of Arthur Lewis, unlimited supplies of it (Guha, p. 88). Since labour was in excess supply, the Mahalanobis model called for a higher allocation of resources for capital goods which would raise the rate of growth of production, employment and consumption of the economy in the long run (Sengupta, p. 80). In a sense this was a trickle down strategy spread over a long period: employment and consumption, both essential for poverty alleviation, would benefit from an increase in the rate of growth of the economy. This, of course, meant that alternative measures would have to be put in place to increase employment in the short run. Mahalanobis emphasised the role of cottage and small scale industries in supplying mass consumption goods and providing employment in the short and medium terms. However, cottage and small scale industries find no mention in Mahalanobis' formal model and are, in a sense, an appendage to his strategy. Even Mahalanobis' writings point to the subsidiary role that cottage and small scale industries would play in the overall strategy of industrialisation, which was focused on heavy industries [Mahalanobis, 1985]. We have already noted above that Mahalanobis was well aware that a strategy of heavy industrialisation would increase employment only in the long run. Small industry can provide employment in the short run if there is sufficient demand for its produce. Mahalanobis' way of accomplishing this was to increase investment in heavy industries, which would generate income, create purchasing power and boost demand. A similar effect would result if the government increases expenditure on social services. Further, Mahalanobis felt that, the small scale industry, which is expected to play such a crucial role, should be protected from large industry; there should be no investment in factories which compete with small and household units of production. Even when factory made products compete with small and household industry, there will have to be protection afforded to the latter: since the prices of output of the small sector will be higher, suitable excise should be levied on factory-made goods to maintain price parity. It is quite apparent that Mahalanobis was not particularly concerned about the consumers of these products; the point seems to have been missed that employees of small scale and large factories would themselves be consumers as well. Thus the same individual, qua consumer, would subsidise himself, qua employee.

In spite of this importance attached to small and household industry by Mahalanobis, when it came to formal modelling, the focus of attention was heavy industry. This is definitely true if one considers the two sector model of Mahalanobis; even in the case of the four sector model investment share of the capital goods sector remains the key policy parameter, as in the two sector model [see above; also Rao and Karnik, 1994 for details].

3.4 Agriculture

The dominant line of thinking in the First Plan advised attention to the large agricultural sector with its potential for quick yield. It was also thought that agricultural products, as also agro-based industries, would permit earning of foreign exchange through their exports and eventually lay the basis for industrialisation through the import of machines (Bose, p. 102). The departure from this line of thinking came with the Second Plan; neither the two-sector nor the four sector models of Mahalanobis accorded any importance to agriculture. Vaidyanathan, in his article in the book under review, rather valiantly, tries to defend Mahalanobis from the criticism that he did

not accord sufficient importance to agriculture. He quotes extensively from Mahalanobis [1958, Pp. 69-106; 1985b, Pp. 217-249] to support his point. However, it is also true that Mahalanobis believed that only industrialisation, as opposed to an emphasis on agriculture, would enable developing countries to have stable relations with foreign powers; an agriculture dominated country would be under the undesirable influence of foreign powers [Mahalanobis, 1985b, p. 185] Vaidyanathan himself admits (p. 145) that '(Mahalanobis') discussion of the means by which (agricultural) output required to meet anticipated demand was to be realised was admittedly thin'. So, basically, what Vaidyanathan is suggesting is that there was a lot of *verbalisation* in Mahalanobis' writings of his concern for agriculture, but none of it really got incorporated into the models that formed the basis of the Second Plan. That, of course, is precisely the criticism. One could as easily argue, *à la* Vaidyanathan, that there is a lot of concern, in the Planning Commission, for growth in the Ninth Plan, not because coherent policies are being recommended but, because there is a lot of verbiage about growth coming out of the Commission.

There were warnings that were issued out during the framing of the Second Plan that the optimism with regard to food security was misplaced [Vakil and Brahmananda, 1955]. Vakil and Brahmananda pointed out that they were not at all certain whether the improvement in food production during the First Plan was of a permanent character and that it would be hazardous to ignore the need to step up continuously agricultural production. That agriculture was neglected is apparent from a contribution of Vaidyanathan [1982, Table 13.6] himself; the percentage share of agriculture in aggregate investment fell from 27 per cent during the First Plan to 19 per cent during the Second Plan. Vaidyanathan in this very contribution further states that the shortage of foodgrains that emerged during the course of the Second Plan lent credence to the criticism that the Plan had indeed neglected agriculture. Given these views of Vaidyanathan himself, it is certainly very surprising that he has, in the book under review, so strongly defended Mahalanobis' views on agriculture.

4. ROLE OF THE STATE

I would have expected that a book dealing with planning in India and appearing at a time when the notion of planning is undergoing a change would have had a sharp focus on the emerging role of the State. While there are some important comments in some of the articles, there does not appear to be a proper appreciation of the various theoretical approaches to State intervention.

The role of the State is important in the process of economic development of an economy, whether centralised planning is abandoned or continued. The abandonment of centralised planning is hardly to be equated with the demise of the State. It is in this sense that one can read meaning into the title of Parikh's paper: 'Planning is Dead, Long Live Planning'. What is being debated currently is an appropriate role of the State in a liberalised framework and, consequently, debates such as 'State versus Market' are completely sterile. To repeat a cliche, what we have to discuss is the *quality* of State intervention as opposed to *quantity* of State intervention. This being the case it is vital to have in mind a meaningful political philosophy of society and the resultant theories of State intervention. I will discuss this briefly here, but the interested reader is referred to Karnik [1996] for an elaboration.

The conception of society that one visualises is important from the point of view of examining the theories of State intervention. A society based on minimalist, *libertarian* principles severely constrains State intervention; once the basic public good, defense, has been provided, no further State intervention can be justified [Nozick, 1974; Hayek, 1976; Friedman, 1962]. The immorality of any further State intervention is axiomatic. On the other hand, a society based on *collectivist* principles (including in its fold, both, Fabian socialism and Marxism) completely rejects the market and operations of the State are all pervasive. The position of the collectivist is in a sense a mirror image of the libertarian position;

the failures of the market are seen to be axiomatic. Neither of these approaches, either libertarian or collectivist, allows for a piecemeal approach towards State intervention. Such an approach is, however, consistent with a *liberal* view of society [Rawls, 1972]; that is, a society in which neither the market nor the State is sacrosanct. It is well accepted that both the market and the government may fail. Further, both, the market and the State are viewed as means to an end; the end being concern for (possibly, from a neo-classical perspective, even maximisation of) social welfare.

Within the liberal framework, various approaches to State intervention can emerge. I will discuss some of these briefly, before attempting a comparison with the view of the State that is to be found in the book under review. It is possible to identify four main approaches to State intervention: 1. Neo-classical approach. 2. Information theoretic approach. The third approach is a critique of the over-extension of the above two approaches: 3. Public choice approach. And the final approach seeks to balance views of the State emerging from the first two against the third: 4. Transactions costs approach.

Even though I have distinguished four approaches to State intervention these cannot be put in a water-tight compartments; the distinction has been made, essentially, for taxonomic purposes. Actual State intervention will be reasonably eclectic, drawing on each of these approaches as rationale for diverse, specific instances of intervention.

4.1 Neo-classical Approach

The starting point for a neo-classical theory of State intervention is the two Fundamental Theorems of Welfare Economics. The First Theorem states that, subject to certain assumptions, a general equilibrium, if it exists will be Pareto efficient. These assumptions are perfect competition, absence of public goods and of externalities and perfect information. The Second Theorem, subject to these assumptions plus the assumption of the availability of lump-sum taxes and transfers to the government, states that any Pareto efficient allocation can be achieved as a solution to a general equilibrium system.

The Second Theorem provides a limited role for State intervention; the State can intervene only by employing lump sum taxes and transfers. However, a major role for the State is envisaged when there is a violation of any of the assumptions underlying these theorems which leads to second best situations and is broadly labeled as the breakdown of the efficiency conditions [Atkinson and Stiglitz, 1980]. Among all the efficiency conditions that fail to hold, neo-classical economics focuses on what are called instances of *market failure,* as the rationale for State intervention. Neoclassical theory taking its cue from Adam Smith's conception of duties of the State, identifies the existence of public and quasi-public goods as an important cause of market failure. Presence of externalities, oligopolistic market structures and distributional inequalities can also be seen as market failures, calling for State intervention. Parikh (p. 52-53) has discussed this approach to State intervention, employing a weighted Benthamite social welfare function. He quite correctly points to the vast amounts of information that may be necessary to implement the tax-transfer mechanism as required by the Second Theorem, information that may be necessary in a planned environment as well as in a decentralised environment. Parikh argues (p. 53) that decentralisation is to be preferred because of greater efficiency in resource allocation, which is unexceptionable. As far as transfers are concerned, however, his approach is rather naive; he claims that, even if we do not know the optimal level of transfers, we know the direction of the transfers - from the rich to the poor. This is rather too simple. Firstly, there are more than just the two classes of individuals and hence vast amounts of information is required to categorise individuals in their correct income brackets; secondly, individuals will want to behave strategically and receive transfers rather than pay taxes. Parikh believes that the transfer mechanism that he suggests will move the economy to a higher level of welfare and hence giving up central planning does not mean giving

up social objectives. I have already pointed out that this is too simple and later on I will suggest an alternative approach to combine equity with efficiency.

4.2 Information Theoretic Approach

The information-theoretic approach to economics [Stiglitz, 1994] provides an alternative approach to State intervention. This approach is also based on market failures, but goes deeper than the neo-classical approach. The First Fundamental Theorem of welfare economics provides the intellectual foundations of the belief in market economies. It assumes that there is perfect information, that this information is fixed and that there is a complete set of risk markets. Should this assumption not be satisfied, then the market may not be constrained Pareto efficient, i.e., State intervention may be unambiguously welfare improving. Rangarajan (p. 37) in his discussion of indicative planning alludes to such an approach to State intervention: 'This kind of planning focuses on market failures that result from failures in the nature or availability of information'.

In fact, this was precisely the kind of State intervention that was practised in Korea and other East Asian economies. The State played a very crucial role in the export promotion drive by providing information regarding lucrative export markets. Further, 'providing economic agents with a "common and coherent view of the future" on which to base their decisions....' (Rangarajan, p. 38) is a key element in this type of State intervention.

It must be, however, pointed out that Rangarajan might be optimistic about the quality of government intervention that would be forthcoming under indicative planning. Should the government be dependent on private agents in its responsibility of collecting information, then there is no guarantee that agents will convey accurate information. Each agent will, rationally, prefer to free-ride and take advantage of the disclosures of others. The governments in Japan and Korea had to use a variety of devices to get co-operation in this respect from private business, business that tried to free-ride were ostracised, co-operation was rewarded, mergers were encouraged in the belief that with fewer firms co-operation would be easier [Stiglitz, 1996, Pp. 151-77]. One major qualification that needs to be made, however, and not just as a comment on Rangarajan, but as a comment on the information theoretic approach: it is assumed that the State is 'developmental' in the sense of White and Wade [1988]. The notion of 'developmental' implies that the State has an 'organic and multi-dimensional' [White and Wade, 1988, p. 26] relationship with the economy and that development is seen as a national endeavour guided by a strong and pervasive State. It is quite clear that such a view of the State has its origins in Gerschenkron [1966]. A critique of such a view of the State comes from considering the public choice view of the State.

4.3 Public Choice Approach

In stark contrast to the Neoclassical approach and the information theoretic approach, the Public Choice approach regards the State as resulting spontaneously from a state of nature [see Mueller, 1989]. In the Neo-classical framework, the rationale for the existence of the State comes from the prior existence of markets and a failure in, at least, some of these markets.

The Public Choice school differs from the Neo-classical paradigm in one other important respect. Neo-classical theory assumes that the State seeks to maximise social welfare. According to Public Choice theory State functionaries are assumed to maximise their own personal interest, as does every rational economic agent [Downs, 1957; Niskanen, 1973; Nordhaus, 1973, Pp. 1969-90; Mueller, 1989]. In the terminology of agency theory, the principal in neoclassical analysis were the consumers whose welfare is maximised by the State, acting as their agent. According to the Public Choice perspective the State is itself the principal, seeking to maximise the welfare of its functionaries. This feature of the Public Choice approach raises the possibility that the State will not be a neutral participant in the economic process, but may favour sectional

interest in order to further its own welfare. Legislation favouring powerful interest groups may be passed in return for financial and voting support [see North, 1981; Karnik and Lalvani, 1996, Pp. 818-20].

The articles in the book under review have been rather deficient in encompassing this view of the State. The system of controls and the over-arching domination by the State would have made an analysis of the planning process in a public choice framework a rewarding exercise, but the opportunity seems to have been missed. To be fair, Guha (Pp. 92-97) has brought in notions of the public choice approach while analysing the failure of the ISI regime. Specifically, he has tried to analyse the situation in India from an interest groups point of view in the light of the contributions of Olson [1982] and Bardhan [1984]. None of the other contributors have, however, contributed anything worthwhile.

4.4 Transactions Cost Approach

The starting point for an analysis of transactions costs is [Coase, 1937, Pp. 386-405]. This work of Coase explains why firms exist and also makes a conceptual distinction between the firm and the market. The key feature of the firm is its internal suppression of the price mechanism and the allocation of resources within the firm by command rather than through prices. Following from this approach, Williamson [1985, p. 1] has developed his central thesis that economic institutions (such as the firm) have the main purpose and effect of economising on transactions costs. Even though there is no acceptable definition of 'transactions costs', the reasons for their existence are *bounded rationality, opportunism* and *asset specificity* [Williamson, 1985; see Karnik, 1996 for details].

Though the firm emerges as an institution designed to overcome these transactions costs, it is not the only institution so designed. An alternative to the firm is government regulation which can influence the way in which factors of production are used. The government is thus a super-firm of a very special kind [Coase, 1960, p. 17]. The government is different from the firm in that it can avoid the market and forces of competition altogether which a firm can never do. Further, the government with enormous powers at its disposal can get things done at lower cost than can a private organisation.

There is, however, one problem with this transactions costs rationale for the existence of the State. Given that the State can economise on transactions costs more efficiently than markets can through its coercive powers, why does not the State replace both the firm and the market? The answer lies in the fact that no solution can be costless. Bounded rationality and opportunism on the part of State functionaries could act as a barrier to what the State can achieve. There is no reason to believe that government regulation will not worsen the problem of market failure or even possibly introduce failures of another kind. The literature in public choice is replete with instances of such government failures. This is the reason why firms and markets continue to exist in the presence of government or regulation even though the coercive powers of the government may lend it an edge in terms of efficiency in resource allocation.

Virtually, none of the papers in the volume under review has examined this approach as a reasonable basis for State intervention. As stated earlier, it should be understood that no instance of State intervention can be neatly slotted into the approaches that we have discussed. At any point of time a variety of reasons drawn from diverse approaches may prompt a particular episode of State intervention. However, from a research point of view, it becomes imperative that we be able to identify the basis on which the State has intervened. Very few of the papers in the book under review have adopted such an approach and consequently the discussions on the role of the State seem rather sketchy.

5. EQUITY, STATE AND MARKETS

By and large, it has been assumed in the context of Indian planning and discussions of the role of the State that reduction in poverty and introduction of equity or social justice lies in the domain

of the State and that the market has a very limited role to play in this context. Thus Parikh states that the role of planning is to lobby for the poor in economic policy making (p. 55); or that an important role of the government emerges in designing and monitoring redistributive programmes (Parikh, p. 54). Sengupta points out that 'Since political democracy ....could not...afford to ignore the problem of poverty for long the development plans began to emphasise the need for a *direct attack on poverty* (emphasis in the original).....' (p. 81). Guha makes the rather strange point that, in order to expand demand, the development policy followed by India aimed at redistribution of income through massive expansion of government and semi-government employment to create a homogeneous middle class market for manufactures (p. 91). This was necessary because the middle class in India was minuscule (Guha, p. 89) and this leads Guha to suggest that India had to adopt an inward looking development strategy.

I am not entirely convinced that the State alone has a major role to play in poverty alleviation and reduction of inequalities. Growth, which can come from the private sector, can also be a very significant instrument for poverty and inequality reduction. That, in fact, is the major result of Tendulkar's paper:

> 'The message seems to be loud and clear. That rapid growth has not only raised social welfare but also relieved social deprivation in a reasonably sustained fashion. In the light of this experience it is necessary to reject the premise stated in the introduction that the outcome emerging from the market forces would *invariably* be distributionally undesirable and that state intervention would *always* improve upon this outcome' (emphasis in the original) (p. 140).

Inegalitarian distribution of income is often seen as a market failure, in the sense that the market will not introduce distributional equity automatically. Thus distribution is seen as an essential element of government policy making or government budget formulation, along with other functions in the spheres of allocation and stabilisation. This is, of course, the familiar three way classification of the budget proposed by Musgrave [1959]. It cannot, however, be the case that all the burden of introducing egalitarianism be placed on the distribution branch of the budget. To the extent that cyclical unemployment leads to poverty and increases inequality, the stabilisation function of the government budget has a role to play in the sphere of social justice. In the context of provision of 'merit' goods or quasi-public goods, the government's allocation function, too, will have a role to play [see Karnik, 1997 for details]. Thus, a fragmented view of government budget making, in terms of three separate functions, may not be the most ideal way of tackling distributional problems. A more holistic view that promotes efficient allocation of resources in all sectors of the economy, maintains the economy at high levels of activity coupled with price stability, along with directly tackling income and other inequalities provides a superior approach to state intervention in pursuit of social justice. Such an approach clearly brings to the fore the importance of the market in the search for egalitarianism. Specifically, what this approach emphasises is the importance of growth and price stability in the pursuit of distributive justice. The experience of the East Asian countries seems to clearly indicate that inequalities were reduced, not by shunning growth, but by actively pursuing it, not by supplanting the market by State intervention, but by supplementing the market with quality State intervention. In fact, the East Asian experience can be seen as a good example of the synergistic relationship between growth and equality [Birdsall, et al., 1995, Pp. 477-508; Stiglitz, 1996, Pp. 151-77].

Inappropriate State intervention, which interferes with market transactions, often tends to have effects contrary to what was intended. However, strong arguments have been made for interfering with the market in some cases, e.g., establishing some minimum wage rates, affirmative action in employments policies, usurious money lending, environmental protection. Even in these cases it may often happen that, even though the initial intervention may have a strong equity component,

it is possible for perversions to set in. Thus minimum wage legislation or affirmative action for employment may curtail employment as a whole; curtailment of money lending might imply complete non-availability of credit if formal credit markets are under-developed. Such unintended results arise since 'it must be recognised that interference with the market exchange may have severe limitations as a re-distributive device' [Dreze and Sen, 1995, p. 94].

The roots of economic inequality in market economies do not lie in market exchange *per se*, but in market exchange based on unequal ownership. Therefore, interventions which leave unaltered the distribution of resources can be ineffective and counterproductive. Such measures often have efficiency costs, which may be borne by the intended beneficiaries of the intervention. Further, even the redistributive effects of such interventions may be disappointing. Thus excess wage demands, benchmarked on the legislated minimum wage may distort capital-labour ratios. Finally, from a public choice point of view, bureaucratic controls which impede the market not only involve excessive efficiency costs but may themselves be a major source of inequality [Dreze and Sen, 1995, p. 94]

Any pursuit of social justice, which strongly discriminates against the market or seeks to aggressively correct market failures, has to guard against the Leviathan State, with all its attendant dangers. Further, the existence of a Leviathan State may not ensure reduction in inequalities. The evidence from the former USSR, Poland, Hungary and Czechoslovakia seems to point to an overwhelming similarity with capitalist countries with respect to inequalities, in spite of the avowed 'socialistic egalitarian' objectives [Haynes, 1996, Pp. 467-82]. This is true whether the basis of comparison is earnings distribution of full time workers or distribution of household consumption. Even adding in non-money social benefits does not make the comparison any favourable to Eastern Europe. On the other hand, the rich and the powerful in both, the East and the West, had access to privileges which increased inequalities at the top. Thus, for all the propaganda rhetoric, there were serious inequalities in the socialist States, combined with severe poverty. In general, the past emphasis on accumulation in the Soviet Union meant that consumption was suppressed among the mass of population but the relative burden fell heavily on the poor. The poverty ratio of 14 per cent in the Soviet Union in 1989 masked the fact that it was as low as 2 per cent in Estonia while it was as high as 51 per cent in Tajakistan.

The above discussion has served to demonstrate that the State need not necessarily be the best institution for poverty reduction or for inequality reduction. Rapid growth can play a significant role in attaining this objective; evidence from Tendulkar's paper is quite compelling in this respect. The State will have a role to play but this role should not be played out at the cost of growth.

6. CONCLUDING REMARKS

It has been a long tour, this review, and I do not wish to prolong it even further. I would, however, like to state that none of my comments in this paper call into question the position of P.C. Mahalanobis as a scientist. His creations such as the Indian Statistical Institute, the Central Statistical Organisation and National Sample Survey have benefited and will continue to benefit generations of economists. The reader is referred to Deshmukh [1985] for a fine sketch of the contributions of Mahalanobis.

This review was concerned, firstly, with an examination of the contributions of Mahalanobis to the formulation of the Second Plan and, secondly, with Indian planning in general. Numerous issues have been discussed above, but one thought keeps recurring. Would India's current economic situation have been any different, had India followed some alternative development strategy, say the strategy then advocated by Vakil and Brahmananda? Like all grand questions, this one too has no definitive answer. However, looking to the success of the Asian 'Tigers', one can get some inkling of what might have been, but was not. But this is an imponderable and experiences

of successful economies can rarely be transplanted in an alien soil. Such rationalisation, however, does not completely banish the feeling of having been left behind in the race towards development. That, in fact, is the summary evaluation contained in the title of this review.

NOTE

1. Articles contained in the book under review have been referred to in the text without the year of publication in parenthesis. These articles have, however, been listed out, separately, in the list of references.

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REVIEW ARTICLE*

WHITHER INDIAN ENVIRONMENTALISM?

Subodh Wagle

INTRODUCTION

Environmentalism in India is a matter more of a passion than of reason. As it has become a prisoner of intense ideological battles, an informed but dispassionate assessment of its contribution to Indian thinking on politics and development is a rarity. In this context, the book entitled *Environmental Politics: People's Lives and Development Choices* by Sumi Krishna is a welcome effort. Sumi Krishna is a senior journalist who has been consistently writing on developmental and environmental issues.

The book is prompted by an important concern shared by many experts, journalists, activists and citizens of this country: 'Why has environmentalism not had a greater impact on development policy and people's lives?' (p. 7). In an attempt to answer this question, the author has structured the book in three parts. Part 1 elaborates and analyses 'the kaleidoscope of environmental approaches and strategies, their strengths and weaknesses' (p. 9), whereas, the second part deals with 'unresolved conflicts' over some critical development issues such as population and technology. The last part, in the light of previous analyses, attempts to show how the Indian environmentalism needs to be 'redirected' so that it will be able to 'offer an alternative strategy for human development.'

This starting question itself could be challenged on many grounds. Though the environmental rhetoric has been rife in top government echelons and some sections of voluntary sector in India since the early 1970s and the Silent Valley controversy started raging since the mid-1970s, the environmental movement reached the mainstream of Indian society, polity, academia, and media only after the Narmada controversy erupted in the late 1980s. In this sense, the Indian environmentalism is hardly a decade old. And, hence, it could be argued that it is too early to expect that it would be able to influence the course of development adopted by the massive institutional structure in such a large country. The Indian environmentalism, like any other counter discourse would certainly need some more time before it could influence the Indian mainstream. Thus, it is premature to ask the question: why it has not significantly affected thinking and actions of the mainstream.

Alternatively, it could be argued that despite the fact that it is just a decade old, the Indian environmentalism has already altered the thinking and actions of many mainstream institutions to a great extent. This influence could be traced to the integration of environmental concerns in the watershed development programmes of the central and state governments. These programmes have now become the main components of development effort in rain-fed areas, especially in peninsular India. In the case of judiciary, environmentalists have been successful in eliciting several important pro-environment verdicts from the Supreme Court in the last three to four years. These verdicts covered a wide range of environmental issues including encroachment on the green zones within the New Delhi metropolitan areas, polluting industries in Delhi and Agra, illegal mines in protected forest areas of Rajasthan and Bihar, and hazardous shrimp farms on the East coast. Many workers and leaders of mainstream political parties and related organisations, especially from the 'left' and the 'right' have become conscious of the environmental issues. An increasing number of meetings, workshops, and seminars at the state and national levels are being organised by various elements within these parties, organisations, and trade unions on different environmental issues and ideas of alternative development. However, because of the political intricacies and vested interests of the top leadership, these remain low-key affairs.

Two Important Methodological Characteristics

The author attempts to find answer to her

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starting question by investigating Indian environmentalism from two different angles: (a) looking for weaknesses in the different strands or approaches of environmentalism, and (b) analysing the unresolved conflicts over several issues in the enviro-development debate. The author, however, has not discussed why this particular framework is chosen and what are its merits and demerits. This framework is somewhat akin to and could be better presented in the form of a matrix or a table. One axis of the matrix could be various environmental strands or approaches, while the other may represent the major enviro-development issues. Due to lack of such clarity, the structure of the book remains somewhat fuzzy. For example, Chapters 1 and 2 which are introductory chapters are clubbed in Part 1 which is supposed to deal with different environmental approaches. Similarly, in the second part dealing with major controversial environmental issues, Chapter 12 on the emergence of sustainable development debate remains a misfit.

Another major methodological feature of the book is a constant effort on the part of the author to connect the ongoing substantive discussion to some empirical situation in India. This approach certainly has distinct advantages. It does not allow the book to lapse into esoteric theoretical discussions laden with jargon and clichés. It helps even a lay reader to maintain interest in an otherwise specialised subject. Finally, it provides a concrete context to the discussion in the book making it a book specifically about 'Indian' environmentalism. However, there is one major problem with this approach. In order to provide the reader a fairly detailed picture of the empirical situations, an equally detailed and long depiction of the history and dynamics of the narrated controversies is required. There is a possibility that such a detailed narration overwhelms the discussion on substantive issues. Unfortunately, in this book, on some occasions the author has not been able to strike a right balance between the narration and discussion, and as a result, substantive issues have remained under-analysed. This has happened in both the parts of the book but is especially true in the case of the second part of the book on 'unresolved conflicts.'

Indian Environmentalism: Past and Present

In her introduction to Indian environmentalism, the author makes some important points and comments. First, she points out that the historical context of the current enviro-development debate in India is quite puzzling. The rampant oppression, poverty, and ecological destruction after five decades of Independence is inexplicable when we consider the manner in which Indian leadership decided the development path for this country. The development path chosen by Indian leadership at the time of Independence was not out of some direct or indirect pressure or influence of the colonising power. Rather, it was a mix of two diverging paths and was evolved after an intense debate among well-educated leaders who were exposed to history and world affairs. In short, Indian planners and planning were 'conscious of social and environmental dimensions' of development right from the initial days.

Second, the author rightly mentions that the environmental movement in India emerged as 'a part of what was happening in Indian society and polity as a whole in the post-Emergency period and throughout the 1980s' (p. 33). In fact, it could be argued that barring a few urban conservationists, many current environmentalist activists had been closely related to different movements in the earlier era. Apart from these political linkages, it also had a close relation with the shift in development circles from the 'trickle-down' theory to the 'basic-needs' approach. It was also linked to the somewhat feeble appropriate technology movement within the scientific and technological establishment. Both these threads are still visible in the current debate on environment. Thus, Indian environmentalists are not of an entirely new creed rooted in the influence of the Western environmentalism as many tend to think, but are a part of the long tradition of socially-conscious middle-classes in this country.

After a short but comprehensive history of environmental movement in India, the author passes a comment which is not just premature as far as the development of the book is concerned but is even otherwise quite problematic. The author complains against the lack of 'analysis and

understanding' in current environmental debate because of its overemphasis on 'protest movements among the people most affected by ill-planned and badly executed development projects' (p. 35). It can be argued that the increasing predominance of the protest movements in Indian environmentalism has not been at the cost of 'analysis and understanding'. In fact, previously the environmental debate dominated by urban conservationist concerns and influenced by foreign environmentalism remained limited and removed from the reality experienced by Indian masses. The preponderance of protest movements of affected people has enriched the Indian environmentalism in many ways.

The debate, discussions, and analysis that evolved in the wake of such protest movements did not remain limited to the immediate and limited issues involved in the controversies, but have made serious, fundamental, and long-term impact on various sectoral policies and even on development policies and thinking at broader levels. For example, the DuPont controversy in Goa raised the issue of empowerment of panchayat institutions in order to protect interests of local constituents of the panchayats against the pressures of central institutions. This has special significance in the context of the allegations against Indian environmentalists that they ignore local institutions and always go for 'centralist interventions'. The Enron controversy opened up an entire gamut of power policy issues in the new context of privatisation of power sector. The movement against the Narmada dam has provided a major impetus for rethinking in not just irrigation policy but also forced the governments to take steps toward formulating new rehabilitation policies, especially when a large-scale industrialisation and urbanisation of rural areas is on anvil. The movement has also precipitated a serious debate (with much wider participation) on the issue of fundamental changes in the development strategy adopted after Independence.

Further, the preponderance of protest movements has in fact 'grounded' the environmental debate in India in the reality of lives of millions of deprived Indians. This has provided a real-life context and a concrete agenda for Indian environmentalism. The participation of grassroots people and activists who had direct exposure to the ground-level situations has helped this transformation of the previous Indian environmental debate which was intellectual, abstract, urban, and devoid of an understanding of the Indian ground reality. In this sense, it could be said that the close association with the protest movements has helped Indian environmentalism to move toward the next level of maturity. This is reflected in the departure from an urban understanding of environment, something essentially extraneous, abstract, or removed from the everyday life. In the new understanding, environment is essentially resources in the real nature on which daily life and livelihoods of people are directly and immediately dependent. Thus, using or exploiting resources offered by the surrounding nature and protecting them are not two contradictory demands in this new understanding, as they often are in the understanding of urban-industrial communities which do not depend on the surrounding nature for livelihood. Coming back to the starting question, the author traces the roots of limited impact of environmentalism on development policy in India to two fundamental causes: contradictions within the major environmental approaches, and the unresolved conflicts over major issues in the enviro-development debate. These two fundamental causes are dealt with by the author in two parts of the book.

II. THREE DIFFERENT APPROACHES IN INDIAN ENVIRONMENTALISM

The author has divided Indian environmentalism in terms of three different approaches: popular, managerial, and progressive. Gadgil and Guha [1994] have earlier used a different scheme for this purpose. They have identified three categories in Indian ecological movement: crusading Gandhians, Ecological Marxists, and Appropriate Technologists. Though the two classification schemes are quite similar, Sumi Krishna's categories seem more appropriate though her labeling may not be perfect, especially in the case of the term 'popular'. The dictionary meaning is: favoured by or suited to general masses. The better term would be radical which

means 'favouring drastic political, economic or social reforms'. To distinguish this group from the progressives who are also 'radicals', in this sense they may be called 'radical-traditionalists' as against 'progressive radicals'. This type of terminology will be certainly objected to by many. But it is difficult to arrive at a consensus on this issue. Nonetheless, the original nomenclature from the book is adopted in this review.

As the author explains, the popular approach 'derives its philosophical basis and tactics mainly from Gandhi' (p. 36). According to the popular approach, 'the model of development that India has followed is the primary cause of the environmental crisis . . . (Proponents of the popular approach are) acutely aware that the environmental problem is not a fight against one or two specific dams but a question of how society works, who runs society and what vested interests are involved' (p. 39). Finally, the main tenets of the approach are 'a rejection of Western models of industrial development, an appeal to age-old religious sentiments, and a stress on preserving traditional lifestyles' (p. 40).

As compared to this, the managerial approach does not find anything fundamentally wrong with the model of development currently followed. While appreciating the environmental concerns on the basis of a scientific understanding of environmental problems, the managerial approach seeks 'to anticipate and minimise the adverse environmental consequences. (Therefore, the managerial approach) emphasises appropriate government policies and interventions to mitigate the adverse consequences of development. It seeks to bring about changes in a gradual and incremental manner, through legislation and institutions, rather than through a sharp revoking of processes that have become well entrenched' (p. 37).

The progressive approach, according to the author, shares some elements of the diagnosis with popular approach (for example, the effects of the prevailing mode of industrialisation, imperialism, and colonial hegemony) but it is nearer to managerial approach in its attitude toward modern science and technology. The main features of the progressive approach is its linkages with Marxist thought and its viewing of environmental problems in a political economy perspective. In this perspective, 'environmental problems are a part of a wide spectrum of social problems' and hence they need to be looked through a 'political lens'. Thus, the environmental struggles become parts of larger struggles around political questions such as 'the structure of power, changing power relationships and prospects for the empowerment of marginalised groups' (p. 41).

Finally, the author points out the major difference among the three approaches. The first two approaches assume that they possess correct answers to the enviro-development problems either 'in a new philosophy of development (in the case of popular approach or) in a modified pattern of development (in the case of managerial approach). (However, for the progressive approach), the answers are yet to be found' (p. 43).

As regards the criticisms of all the three approaches, the author points out that '(t)he tendency now is look for universal truths from particular social situations, rather than to derive pragmatic solutions for particular problems. ... Theoretical positions on crucial issues... cannot substitute for practical answers to the problem of how this is to be done' (p. 43). This criticism fits rather to the urban-based environmentalists but certainly not to many grassroots environmental activists and 'progressive' environmentalists. There is growing awareness and practical compulsion for getting down to the brass tacks of the proposed solutions to particular problems. It is a different question whether the activists and other environmentalists have necessary respite and frame of mind in the present state of their struggles to undertake such a task. But many of them, along with the 'progressives' are working on practical solutions such as watershed development in rain-fed areas, rehabilitation of dam oustees, etc. It is true that many proponents of the popular approach, and especially those who are involved in the popular protests, are apprehensive and skeptic precisely about this push for 'practical answers and pragmatic solutions' coming from

the mainstream developmentalists and environmental managers. This is because, often in the past, they have seen how the struggles of the people affected by development projects were trivialised by invoking 'practical' considerations, and how under the cloak of pragmatism, the interests of the established sectors were protected.

Limitations of the Managerial Approach

Though the author identifies three major approaches in the Indian environmentalism, she discusses only two approaches--managerial and popular--in detail. This is because the progressive approach is yet to take roots in the Indian soil. Even between the remaining two approaches, the popular approach, considering the wider acceptance it enjoys, is discussed in more detail. The fundamental belief guiding the managerial approach is that the state can solve most of the environmental problems by acting as an environmental regulator. Environmental management relies on regulatory process and mechanisms which are supposed to 'counteract conflicting private interests and protect collective goals'. It is also argued that state agencies can motivate, pursue, and force other state agencies (especially those involved in development activities) to become environmentally conscious in their functioning.

However, management approach is problematic on many counts. First of all, because it is mostly reactive, only those sections which can force the regulatory agencies to take cognisance of their demands may hope to get their grievances redressed. Second, the managerial strategies rely heavily on administrative and legal procedures. As a result, the real issue of environmental protection versus livelihood security often gets sidelined and the enviro-development conflicts turn into legal battles where the state agencies play a crucial role. In the prevailing situation wherein most laws are not enforced in a competent manner, the laws and the state agencies become tools in the hands of those who wield power. Third, the managerial approach takes the principle of rational use of environment as the starting point. However, ecologists, economists, and other social scientists often sharply disagree over the choice of environmental and social indicators, measuring tools, and threshold levels. This severely limits ability of environmental managers to arrive at decision in a rational manner. Finally, there is lack of an integrated environmental policy guiding the managers and a comprehensive planning process reflecting such a policy. Attention is focused on environmental protection in certain sectors (such as forestry) or through certain programmes (such as pollution control). As a result, the managerial strategy remains fragmentary which severely limits its effectiveness.

There are three kinds of environmental managers: career administrators, career foresters, and professional technocrats (engineers, botanists, zoologists, etc.) The managerial strategy, in many instances, is accused of being paternalistic, elitist and urban in character reflecting the social status of these sections. Further, it is also said that, reflecting the peculiar characteristics of Indian Administrative Service which dominates the environmental machinery, environmental management lacks sensitivity to the human dimension, flexibility, adaptability and long-term thinking, and suffers from short-sightedness.

'Traditionalism' in the Popular Approach

The author analyses the popular approach in terms of its three main characteristics: traditionalism in the approach, its emphasis on community participation, and the movements of local people it supports.

Appeals to ancient traditions and beliefs form the 'cornerstone of the popular approach'. This traditionalism is reflected in multiple themes, the major among them include: nostalgia for the lifestyles of forest-dwelling communities; emphasis on reviving conservationist ethics of pre-modern societies, and ecological interpretations of traditional cultural and religious practices. The key question in this respect is: 'can the cognisable models of the past be revived to produce different forms of behaviours in today's world?' (p. 87).

In traditional or pre-modern societies, cultural artifacts, including myths, symbols and rituals, are often efforts to explain natural phenomena and integrate this knowledge in human activities. The nature-culture or nature-human interactions were, and are, immensely complex, varied and symbiotic and, hence, difficult to capture in a few symbols and myths. However, in trying to resist the destructive development, popular approach, often falls prey to a sort of absolutism and cultural revivalism. This is reflected in tendencies within the popular approach romanticising everything that is traditional and rejecting everything modern. Many traditional perceptions and cultural practices were born out of pragmatism to balance nature and human needs and were rooted in in-depth ecological understanding of nature. But many were essentially cultural customs and mores without any ecological significance. Over the years, society and nature both have been evolving together and again, not all that emerged from this evolution is essentially bad. Further, even the bad products of evolution may hold possibilities of good creations. The populist environmentalists fail to appreciate this dynamic view of evolution of nature and society. As a result, they often neglect or reject new possibilities of melding human aspirations and ecological revitalisation in the context of growing interactions between the Indian society and modern western societies.

The 'Mantra' of Community Participation

In a separate chapter, the author discusses another major theme in popular environmentalism: community participation in local resource management. In this regard, her main objection is that the popular approach has very simplistic ideas about participatory strategies and tend to ignore important issues of 'regional variations and gender and caste inequities'.

The author also questions, on the basis of some studies, the populist assumptions such as: 'the local people managed the forests sustainably until they were alienated (from the forests) when the British took over the forests, (and that) forests are traditionally a community resource equally shared by all' (p. 131).

In this context she analyses some oft-cited 'localised success stories' of community management of local resources like Dasholi Gram Swarajya Mandal in Uttar Pradesh, Pani Panchayat in Maharashtra, and Sukhomajri in Haryana. Her major argument is that the community participation in management of local resources is a complex process and such success stories involve presence of a range of complex factors that contributed to their success. These include: whole-hearted support of the local community, evolution of appropriate village-level institutions, multifarious support over the years by an outside NGO or government agency, inspiration from committed individuals, an effective technological intervention, and adequate and sustained financial support. Replicating these success stories would require reproducing these critical factors which is an immensely difficult proposition.

Though the author does not belittle the achievement of these success stories and 'hundreds of (other) small innovative community projects', her conclusion is: 'No matter how successful localised examples of participatory resource use may be, what we need are systems of equitable resource management that can be applied over a spectrum of situations' (p. 138). However, her confidence that 'revitalised panchayat systems' will be capable of carrying out this responsibility seems unjustifiable. Environmentalists have been correct in pointing out that, in most cases, panchayats are faction-ridden, are controlled by males of elite class/caste in the villages, are closely linked to the partisan politics and, as a result, are insensitive to environmental concerns and the resource needs of the resource-poor sections of populations. This does not mean that environmentalists may bypass local political interests merely through central interventions. Here, strengthening economic activities of various groups of local resource-poor (including women) is the key. This could be achieved by providing these groups with organisational training and financial and policy support especially to secure access to markets, village resources and other raw materials. This, in turn, requires a combination of tactics: pressure by

active NGOs or people's movement at local levels and appropriate policy interventions from the state and central levels.

Limited Politics of People's Movements

The author attempts to expose the limitations of the popular environmentalism by asking why it supports some movements of local people against development while ignoring others completely? She cites examples of the movements by Gonds of Adilabad district in Andhra Pradesh led by Naxalite groups and Jharkhanda movement in Chhota Nagpur area as the movements which were ignored by Indian environmentalism. Both are rooted essentially 'in environmental and economic consequences that the loss of tribal land and forests has entailed' (p. 145). Despite this, neither of these movements has figured in the environmentalist discourse in India whereas the Chipko movement has become a world symbol or 'an environmental icon'. According the author, the root cause of this anomaly lies in limitations of political perception and programme-related capabilities of popular environmentalism in India. She points out that while the social and environmental implications of development are more devastating in Jharkhand and Adilabad, the political activity and militancy of local groups are perceptibly sharper than those in Chipko or Narmada area. Furthermore, both the struggles have been engaged in direct confrontation with the mainstream political system through partisan politics which somehow has remained an anathema for Indian environmentalism led by the urban middle-class cadre.

III. UNRESOLVED CONFLICTS OVER ENVIRO-DEVELOPMENT ISSUES

As mentioned before, apart form the contradictions within various environmental approaches, the author investigates another major lacuna in Indian environmentalism--its failure to resolve successfully the conflicts over major enviro-development issues. The author essentially deals with two major issues in the four chapters in the second part of the book: population and technology for resource use.

Problem of Growing Populations

Chapter 8 is devoted to the discussion on the issue of population. The fundamental Malthusian argument maintains that unchecked populations grow geometrically while food-supplies can grow only in arithmetic proportion. In the same vein, many observers and experts view growing population in developing countries as a serious threat to sustenance of natural resources and, hence, to the future of humankind. This has given rise to many dire prognoses including that of 'triage' (i.e., sacrificing those who have less chance of survival for saving others who have better chances) and 'lifeboat ethics' (i.e., saving those who have been or could be accommodated in the lifeboat with a limited capacity and letting others go down, because trying to accommodate everybody will spell doom for everyone). The opposite camp in the debate over population essentially views 'people as resources'. The main pro-'people' argument from this camp maintains that 'poverty is not caused by large-family size, which (merely) is a coping mechanism (against poverty)' (p. 170).

This debate over population at international level has influenced environmentalism in India. The Indian environmental managers are largely unanimous over and agree to the Malthusian arguments on diagnostic side although they differ in their prognoses. One set of managers advocates 'population control', emphasising technological fixes such as identification and delivery of effective contraceptive methods and/or sterilisation programmes. The other section of managers argues for 'stabilisation of population growth', admits limitations of technological fixes and expands the scope of 'population' programmes to health, nutrition, and even development (which is said to be 'the best contraceptive').

The popular environmental approach takes the pro-'people' view and does not consider population as the problem. According to its position, the resource crunch is not rooted in the size or density of population but in the inegalitarian distribution of resources. As the argument goes: there are adequate resources for satisfaction of everybody's 'needs' but not 'greed'. Thus, the

focus of their criticisms is on the unfettered consumption of affluent sections and wasteful expenditure on defence and other unnecessary sectors and institutions which are thought to be the main cause of environmental destruction. In this thinking, the resource crunch is not a technological or managerial problem but essentially a moral problem of self-control and avarice.

Thus, the managerial approach, while trying to control population, ignores the wasteful consumption of the rich, whereas the popular approach, while focusing on the consumption and wastage by the rich and elite, ignores the growing population of the poor. Although, as the popular approach suggests, the issue of equity in access to and control and use of resources is of prime importance, it, by itself, is not adequate to explain the population-resource conflict. The author rightly points out that popular environmentalism needs to overcome the present blinders and look for effective ways to deal with the conflict from both ends. On the one hand, controlling population cannot be made an emotive issue, and lessons learnt over the years in this regard need to be implemented through the joint efforts of government and non-government agencies. On the other hand, bringing in equity in resource distribution and improving the productivity of the economic activities of men and women from rural and poor sections will create immense opportunities for improving the population and resource situations.

Differing Views on Modern Technology

Modern technology has a prime place in the mainstream development strategy. It is expected to play a critical role in improving productivity and creating surplus that are necessary for economic take-off while reducing human drudgery in industrial and agricultural sectors. Reflecting this status of technology, environmentalism has also made it a prime target of its criticisms. The debate on the issues of technology versus nature and technology versus human beings is certainly not new in India, the land of M.K. Gandhi. In this regard, environmentalists taking popular approach rely on Gandhi for 'inspiration as well as philosophical framework'. This 'traditionalist' position essentially maintains that 'modern technology could and should be bypassed in favour of a quintessentially Indian path of development' (p. 196). This is diametrically opposite to the position of conventional development model. As against this, the managerial approach accepts that the modern technology is not something sacrosanct and does have some undesirable effects. However, it does not dwell much on the social or political context of technology either. Its sole emphasis is on 'mitigating the ill effects of technological development--through technological means, or administrative/legal controls, or a combination of these methods' (p. 202). As against these two positions, the author finds the position of the progressive approach 'curious' which recognises 'that it is not technology which is oppressive but the society that controls it' (p. 202). For progressive environmentalists, political control of technology is the key issue. However, the author's conclusion, that progressives are closer to managers who see in technology the potential for beneficial change, needs some qualifications. This is because, although they are not averse to accepting many scientific and technical elements of modern technology, progressives also agree with the populists that there is an urgent need for fundamental changes in technology to make it decentralised and environmentally sound. In this sense, they are more close to proponents of popular approach than those of managerial approach. The discussion on technology and resource use is further supplemented by the author with a detailed depiction (covering two separate chapters) of controversies over the Green Revolution and over big dams, mainly Narmada Dam.

This part of the book which is supposed to throw light on the second major weakness of environmentalism--unresolved conflicts over major issues in the environmental debates--falls short of delivering the goods. First of all, it discuses only two unresolved issues (population and technology) and fails to even mention a long list of other issues which are hotly debated. This includes markets, property rights, patriarchy, urbanisation, cultural homogenisation, and moral decadence, to list a few. Secondly, even the discussion on these two issues does not cover all

the themes in the debate over these two issues. The author mentions only two themes in the current environmental debate on modern technology--self-reliance and environmental and social impacts. The current debate, in addition to these two, also encompasses some other equally important themes such as dehumanising effects of modern technology, underlying political content of modern technology, epistemological arrogance of modern technology, health hazards of modern technology, etc. Finally, as mentioned in the beginning of this review the discussion on population and technology gets lost in the narration of the chosen empirical situations and fails to bring out the unresolved character of the conflicts over such critical issues in a succinct manner. Neither does it project clearly the points of stand-offs between the environmentalists (led by the populist) and developmentalists (supplemented by the managers) on these important themes. This sort of clarity and understanding is necessary in order to appreciate how some sections of the progressives have taken lead in breaking out of such impasses and why many populists have finally started to moderate their positions and move closer to progressives.

IV. REDIRECTING ENVIRONMENTALISM

In the concluding chapter, the author begins with pointing out three different lacunae in the current environmental debate. First, the author feels that Indian environmentalism has fallen prey to image-building and myth-making tendencies. This could be interpreted as an escape-route to which environmentalism has resorted to when confronted with the insurmountable challenge of societal transformation. Such tendencies give rise to what the author calls 'simplistic iconography' and 'cardboard-dichotomies' such as tradition versus modernity, the East versus the West, the North versus the South, female versus male, nature versus society, holism versus reductionism, etc. The author parallels these with the 'oversized grossly coloured cutouts of politicians that tower over (political) rallies in India' (p. 263). As the author warns, such dichotomies with 'excluded-middles' 'falsif(y) the complex and rich continuum of nature and human condition' (p. 263).

Second, the author argues that environmentalism, hiding behind such symbols and myths, tends to ignore the real-life complexities born out of social stratification. In explaining this, the author cites the now-famous example of *Narmada Bachao Andolan* (NBA). NBA has been successful in organising a coalition of 'prosperous non-tribal patidar land-owners' from the plains of Madhya Pradesh and 'poorer landless tribals' from the hills of Maharashtra. It is argued that, maybe for tactical reasons, the NBA tends to 'show-case' the tribals and gloss over class contractions within the coalition it has built.

Third, according to the author, environmentalism has viewed technology in terms of various dichotomies: big versus small, traditional versus modern, simple versus advanced, etc. The author suggests that it is necessary to go beyond such simplistic dichotomies and search for and adopt 'decisive technologies' which 'have a structural impact on people's lives' (p. 266). Following are the examples from the list of 'decisive technologies' the author has presented: 'labour-saving household technologies for food preparation and preservation, solar technologies for pumping water, biotechnology for water purification, microbial technologies for biofertilisers and biopesticides, and integrated technologies for pest management' (p. 266). According to the author, these 'decisive' technologies are critical because they 'could have a decisive influence on the Indian environment and well-being of the people' (p. 267).

The author, however, agrees that Indian environmentalism has been vibrant and has successfully avoided stagnation. In the wake of new economic policies adopted in the 1990s, a different polarisation is taking place and new collaborations are emerging. Some populist environmentalists are increasingly accepting managerial prescriptions, whereas, some of them, especially those connected with mass movements, are shifting towards progressives and environmentally conscious political and other groups. Despite these recent developments, Indian environmentalism is far from resolving its most critical shortcomings. As the author points out, it 'does not seem to offer an alternative

strategy for human development'. The author feels that in order to enable it to do so, Indian environmentalism needs to be 'redirected' and helped to evolve 'a new environmental perspective'. As a remedy, she points out the following 'four areas of concerns' for further work by environmentalists. First, environmentalists' 'limited' approach to 'the interlinked structural inequities such as gender, caste, and class' needs to be corrected. Second, environmentalists should not ignore the 'decentralised institutions (like panchayats) necessary to achieve sustainable development'. Third, environmentalists need to overcome their tendencies to sentimentalise tradition and eschew change in all respects. The author posits that change in society is inevitable and the issue should be the 'choice and control' over change. Fourth, environmentalism should start thinking about how to create a base of shared values that can bring together those who are threatened by development and those who are not. This is needed to create a wider consensus and a broader coalition that are essential for moving toward an environmentally sound society.

These four directions are certainly worth pursuing but, by themselves, are not adequate for arriving at an 'alternative strategy for human development' that the author is desirous of. In this sense, the book reflects the impasse many experts, journalists, activists and political groups are currently experiencing. They are convinced of severe shortcomings of the present development path, but they do not find appropriate solutions in either the conventional or the radical systems of thought. Many of them are engaged in or connected with various efforts to evolve alternatives at sector levels (e.g., energy, water) or within their discipline of study (e.g., appropriate technologies). These efforts do hold a limited promise but certainly are not much helpful in moving toward a comprehensive alternative strategy for development that is sound on environmental and socio-political criteria. Such a comprehensive alternative strategy involves simultaneous evolution of many components symbiotically supporting each other: appropriate economic and financial systems, technological and management systems that can make the economic ideas possible, a social system that is flexible and capable enough to carry out the desired transformation, and a political coalition supporting such a massive effort. Further, this cannot be a mere drawing-board exercise, neither can it wait for a revolution to translate the ideal design from the drawing board to real-life situations. Various details of these components will have to be evolved and gradually refined through a series of social experiments. This, in turn, will require participation of various kinds of practitioners in the present society who are sympathetic to this cause including activists, NGOs, administrators and professionals. In short, the critical shortcoming of the enviro-development community in India lies in its inability to evolve such a broad collaboration of experts from various fields and practitioners of different types working together to bring about a comprehensive alternative to current development model.

Thus, the book essentially is a rendition of a journalist passionately interested in the topic. It presents various facets of enviro-development crises in India through vivid pictures of real-life situations. It provides an adequately thorough diagnostic analysis of the shortcomings of the current environmentalism. It also sets a goal for 'redirected' environmentalism: 'an alternative strategy for human development'. However, it fails to suggest even preliminary prognostic guidelines to achieve the goal it sets.

REFERENCE

Gadgil, Madhav and Guha Ramachandra, 1994; 'Ecological Conflicts and Environmental Movements in India', *Development and Change*, Vol. 25.

BOOK REVIEWS

Shah, Maya, (Ed.) *Essays on Economic Policy, Methodology and Human Resources,* Published by M.S. University of Baroda, Baroda, 1995, Pp. xi+277, Price not mentioned.

This book contains 17 essays which are a tribute to Prof. V.N. Kothari on his retirement from the M.S. University of Baroda. Prof. Kothari not only built up the economics department of the University but also did research the results of which were published in national and international journals.

Although these essays cover a broad canvas, the bulk of them can be grouped into three areas: Public Finance, Employment and Poverty and Indian Economic Development. Prof. Gulati in his essay, questions the usefulness of the concept of a Fiscal Deficit, which is defined as total expenditure minus total revenue receipts and capital recoveries plus receipts of disinvestment. Prof. Mody in his essay points out its usefulness; it indicates the extent of borrowing which government has to do. This is important in the context of a situation where burgeoning interest charges on past debt are reducing surpluses on revenue account, leading government to a situation where current borrowing goes towards servicing past debt and not creation of capital assets.

K. N. Reddy investigates the impact of three important demographic changes during 1961-91 - large growth in absolute size, rapid urbanisation and change in the structure of population towards older age groups - on public spending. His conclusions are: changes in the absolute size of population had a significant impact on changes in total expenditure and its components such as non-developmental and developmental expenditure, transport, medical, public health and family welfare expenditure. Changes in the size of '60 year plus' dependent population had no less significant impact on growth of public spending on pensions, social security and welfare, medical and public health-care and housing. However, this impact was much smaller than the impact of other variables on public expenditure. It is doubtful if an increase in urban population has led to an increase in spending on urban service facilities. He concludes that if population grows at a slower rate in the nineties than in the eighties there will be a favourable impact on fiscal balance both through a reduction in the demand for basic services and through an increase in revenues because of greater taxable capacity.

The paper by Sudha Deshpande and Lalit Deshpande tries to examine the enigma of unemployment in a developing country like India. This requires time series data which does not exist at present, except for four observations by NSSO. Besides in view of the diversity of the country and the rigidities prevailing in different parts of the country, a national survey may not be all that satisfactory. Hence they seek to get information through a survey only in Maharashtra. They find that those registered with Employment Exchanges are really not without work because they are practical enough to accept whatever comes their way at a wage close to a casual wage. They, however, do not reduce their expectations of an acceptable wage though they are carried on the live registers of Exchanges for a long time. Thus urban unemployment consists in large part of the unemployed so defined by the recognition dimension. It also includes a section which is economically disadvantaged and educationally backward. This lack of homogeneity calls for different types of policies addressed to appropriate groups. The authors find the benefits derived from the expenditure of Rs 46 crore on an incentive scheme to register with Employment Exchanges and Rs 400 crore on the Employment Guarantee Scheme of the Government of Maharashtra not enough to justify such a large expenditure in a cash-strapped state.

Visaria in his brief study of employment structure in Gujarat finds that during 1961 and 1987-88 employment has grown at an annual average rate of 2.5 per cent. There is clear evidence of a slowdown of employment in the agricultural sector but employment in the secondary and tertiary sector has grown at about 3.6 to 3.7 per cent per annum, respectively, over the 27 year period. The decline in the Cotton Textile Industry has been compensated by the growth of other industries in other parts of the state. This slower growth of agricultural employment and

faster growth of secondary and tertiary employment is indicative of the ongoing development process; but an absolute decline in the numbers of agricultural workers is still a distant dream.

Rede in her essay, 'Consumption-Expenditure Studies, Family Welfare and Poverty in India' concludes on the basis of NSS data that rural-urban inequalities in consumption levels have widened between 1970-71 and 1983. The eastern region has the lowest monthly per capita consumption expenditure. In 1961-62 the proportion of population below the poverty line was 39.4 per cent for both urban and rural areas. However, all the development programmes undertaken have not been able to push this ratio down for rural areas; on the contrary, it has been going up steadily. On the other hand it has come down for urban areas from 1973-74. Thus rural urban inequality in consumption is widening and about 40 per cent of the population or a staggering 322 million out of 813 million were below the poverty line in 1988.

Rede also makes the point that poverty studies include food alone while defining poverty. If however account is taken of consumption due to the access of the rural poor to non-market food products, such as forest products, there might be a reduction in the poverty ratio as well as rural-urban inequality.

Hashim and Dhar compare in their paper 'Literacy and the Poverty Trap', the progress in literacy made by India with other developing countries in South East Asia and come to the well known conclusion that even in 1992 India lagged woefully behind others like China, Korea, Sri Lanka, Thailand, Malaysia and Indonesia, even though expenditure on education as a percentage of GDP was not much different from that in these countries. Although enrolment in schools is *stated* to have increased from 43 per cent in 1950-51 to 100 per cent in 1990, not all children in the relevant age groups enrol and the dropout rate is very high. The latter is largely due to participation in household economic activities and other economic reasons. There is a fairly wide variation in literacy rates amongst the different states in the country, due partly to differing economic levels and partly to sociocultural factors.

A study of NSSO data (42nd and 47th rounds) shows that literacy percentages are fairly low in the first two deciles of monthly per capita expenditure and begin to rise only in the higher deciles both in rural and urban areas. Extreme poverty seems to be mainly responsible for such poor literacy rates. Comparison of rural urban rates would however seem to indicate that other factors such as lack of schools, absence of teachers, etc., also play an important role in bringing down rural literacy rates significantly.

B. V. Mehta's paper on the 'New Economic Policy' discusses two issues: (a) the origin of the economic crisis in mid-1991 which apparently gave birth to the new economic policy. Was the crisis rooted in our old economic policy framework or was it the result of economic mismanagement? (b) Factors that will help and those that may retard the progress of this policy in achieving its objectives. Regarding the first, he examines the two main views: (i) 'Government profligacy', held by Surendra Patel and Deepak Nayyar, and (ii) macroeconomic inefficiencies in India's growth model since mid-fifties leading to ever increasing distortions, held by Bhagavati and Srinivasan. The author finds an element of truth in both the views but is inclined to agree with Bhagawati that the crisis was due to our almost total neglect of productivity of investment, particularly in the public sector which was the lynch-pin of our development strategy. The Soviet strategy of industrialisation was adopted without realising that such a course implied a certain stringent and often unpalatable economic discipline, which a soft state like India could not adhere to.

With regard to (b), he discusses three areas which may thwart the progress of economic reform, viz., (i) Exit Policy, (ii) Public Sector Efficiency, and (iii) the enigmatic or even mercurial attitude of the private sector towards reforms. He wants government to hasten slowly with regard to the National Renewal Fund which

has been set up to take care of displaced labour and at the same time ease conditions of closure and retrenchment and give more powers to Board of Industrial and Financial Reconstruction (BIFR) to decide on sick units.

With regard to (ii), he is not optimistic that government will take the necessary steps such as restructuring and privatisation in order to increase Public Sector Undertakings (PSU) efficiency. With regard to (iii), he finds that private sector industry which initially welcomed economic reform now reacts almost like labour to making the system freer and more competitive. The real enemy of greater economic reform seems to be the degradation of our political life.

K. R. Shah examines the 'Positive Aspects of India's Economic Growth during the Eighties' and finds that a growth in excess of 5 per cent per annum during the decade has loosened the so-called nexus between undernourishment, illness and poverty. It enabled households to spend more on essential items of consumption per capita, keeping per capita health expenditure stationary, and (b) the state to spend more on health per capita thus balancing the household's health expenditure. The improvement of health standards was much faster and for the first time since Independence not only did the poverty ratio exhibit a declining tendency but the incidence of poverty turned out to be lower in rural areas than in urban areas. (This seems to contradict Mrs. Rede's conclusion mentioned earlier). Economic growth thus led simultaneously to 'pull up' and 'trickle down' effects. Shah uses the curious *Hinglish* antonym 'trickle up' for the pull up effect!

Vikas Chitre examines in his paper on 'Financial Development and Economic Growth in India' the question of the relationship between finance and economic growth. Using time series from 1969-70 to 1989-90 on the annual rates of saving, incremental productivity of capital, annual growth rates of GDP, stock of financial assets, stock of reproducible tangible assets, total issues, total government borrowing, total government liabilities outstanding, rate of interest on fixed deposits, the weighted average of bank lending rates and annual percentage changes in the wholesale price index, he produces regression equations for the saving rate, incremental productivity of capital, annual growth rate of GDP and the ratio of total issues to GDP. Based on these equations his conclusion is that in the Indian economy financial deepening as well as variations in the real deposit and lending rates during the period do not seem to have directly led to an increase in the saving rate or in incremental productivity of capital. However, financial development seems to have influenced the growth rate of the economy indirectly. Financial deepening and increases in the real lending rate have tended to stimulate the growth of current financial activity and the accompanying development of financial institutions, financial markets, financial instruments and the adoption of financial innovations have produced a favourable effect on the saving rate.

Some of the longer papers on the Indian Economy are indeed interesting. But one gets the feeling that some of the shorter ones were dashed off on receipt of the editor's request letter. The editor also seems to have taken her task a little lightly. Three papers are reprints: one from the *Economic and Political Weekly*, one from a book edited by Kothari himself and one a D. K. Shukla memorial lecture! Sandesara examines the impact of his own work on small industry policy in a tribute to Kothari. The book could also have done with better proof-reading and language editing. One wonders whether Prof. Kothari did not deserve a better tribute!

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Shah, Tushaar, *Catalysing Co-operation - Design of Self-governing Organisations*, Sage publications, New Delhi, 1996, Pp. 315, Price 375/-.

The Cooperative Movement in this country is fast moving towards the centenary of its official launching in 1904. These long years have witnessed both successes and failures of cooperatives. There are some cooperatives which have been remarkably successful and are today more than ninety years strong which is quite heartening to those interested in the success of cooperation. But, on the other hand, there are also failures as seen from the number of cooperatives liquidated, cooperatives which are dormant and cooperatives which are incurring losses year after year and might reach a stage where they may have to close down. This is very depressing indeed. How can failures be avoided and success ensured is the question faced by cooperators.

Government, which launched the cooperative movement in this country with the enactment of a special law for cooperatives - Cooperative Credit Societies Act, 1904 and supported as well as controlled them through the Cooperative Department, anxious to see that the movement developed on proper lines, constituted committees, commissions, study groups, etc., from time to time to study the problems afflicting the movement and to recommend measures for the improvement of the movement. Even when the recommendations were accepted and implemented, they failed to bring about qualitative change to make the cooperatives strong and self-sustaining. Gorwala Committee had declared 'Cooperation has failed but it must succeed'. But the radical recommendation of State Partnership in Cooperatives on implementation, gave rise to new problems, particularly, removal of urge to build up internal resources, greater dependence on Government and greater Government control on them with the resultant erosion of their autonomy.

In the context of the change in the policy of the Government of India from controlling the economy to liberalisation, cooperatives too have been asking for removal of Government control over them, though they want continuation of Government concessions and protection. However, if the policy of the Government to liberalise is pursued logically, the concessions and protection extended to cooperatives so far may be phased out, if not removed immediately. In such a situation cooperators will have to evolve a strategy to survive and succeed in the new liberalised economic environment where competition and survival of the fittest will be the process of economic development. Can cooperatives succeed? What factors can contribute to their success?

Academicians have been attracted to probing into this area. We come across a number of success stories of cooperatives which might be expected to bring out factors making for their success and motivate emulation. But there are few studies of failures which could provide guidance to avoid pitfalls.

Tushaar Shah has undertaken an exercise to study in depth both the successes and failures of cooperatives, mainly in Gujarat, comparing in some cases with similar cooperatives in other regions and also with 'other enterprises' not registered as cooperatives and yet interested in rendering service rather than making profits.

On the basis of these studies he rejects as inadequate, to establish a causal link for success of cooperatives, a number of features observed by research scholars in the successful cooperatives studied by them earlier and held out by them as being responsible for their success. He points out that the socio-political and administrative culture of the region throwing up outstanding leaders and competent managers, considered to be responsible for the success of AMUL in Kheda district of Gujarat, could not ensure success of the Chicory Cooperatives, Tobacco Marketing Cooperatives, Palaj Cooperative Sugar Factory, Fruit and Vegetable Growers' Association, Gujarat Grain Federation, and Canal Irrigation Cooperatives in the same district. On the other hand, many high performing cooperatives and member service organisations other than cooperatives are seen to be having ordinary leaders and managers. He

contends that while favourable socio-political administrative cultural environment might be helpful, it is not sufficient and same is true of 'charismatic leaders and super managers'. According to him, the feature having a causal link with successful performance of cooperatives, not as isolated instances but in large numbers, is that they have a 'robust design' which is conspicuous by its absence in the cooperatives which were found to be unsuccessful or even mediocre.

The 'design' of successful cooperatives showing high levels of energy or drive is stated to have been based on four principles:

1) Purposes of the organisation must be not merely relevant but central to the lives of their members offering them benefits 'here and now'.

2) The operating system devised to achieve the purposes of the organisation must be such as can serve the members and customers satisfactorily and build up and sustain competitive advantage over both the traditional operators, having the knowledge, skill and competence in the trade, developed over generations and the modern private investor-owned firms, having ability to raise large volume of capital and adopt new capital intensive technologies and efficient management systems.

3. The governance structure must be patronage management being empowered by and responsible to the user members, promoting and articulating aggregated priorities of the members in the working of the organisation.

4. A cooperative must secure, retain and nurture member allegiance by conferring benefits on the members whereupon it can have enforceable rights of the members over the cooperative and of the cooperative on the members.

Successful cooperatives designed on these principles were stated to have had three features: i) They were *Swayambhoo* - self-generating, needing little external nudge to come into existence. ii) They fiercely guarded their autonomy. And, iii) they derived their sustenance from the allegiance of their members, constantly searching for better ways of serving their members and earning their allegiance.

Having spelt out what a 'robust design' should be, the author gives in the last chapter outlines of redesigning Dairy Cooperatives outside Gujarat, Sugar Cooperatives in Northern India and the Rural Credit Cooperatives - the largest and the most officialised amongst the Indian cooperative system.

While conceding the contention of the author that the socio-political-administrative culture by itself or charismatic leadership by itself cannot ensure success of cooperatives, it must be pointed out that the 'robust design' itself is impossible in an environment which does not respect autonomy of cooperatives without which 'governance structure' cannot be 'patronage cohesive' in the sense of being 'empowered by and responsible to the user members' - an essential element of the 'robust design'. Tamil Nadu is a glaring example of cooperatives being fully controlled by the Government. In most other states too Governments control the cooperatives in varying degrees. Similarly, it must be pointed out that there is no group action which does not have a leader, whether charismatic or not, who initiates a proposal, motivates others to join and provides the drive to work for attaining the goal. Even for a 'robust design' there must be some person who conceives the idea or gives shape to an idea suggested by someone, mobilises the resources needed for giving effect to the idea. Hence, a 'robust design' cannot be devised without a leader and cannot be operated at all, leave aside being operated successfully, in an environment hostile to the essential elements of the design. So it is a combination of the environment, the leader and the design which makes it possible to have an organisation launched and operated successfully.

Besides the major findings and recommendations of a 'robust design' commented upon above, there are a number of observations of the author which are debatable.

(1) 'The terms "cooperation" and "collective action" are commonly used interchangeably; however, cooperatives are generally advocated as a response to exploitative markets while collective action is indicated in situations of 'missing'

markets' (p. 23). 'Cooperation' and 'collective action' are certainly not synonymous. Cooperatives constitute one form of collective action. They are undoubtedly formed by those desiring to save themselves from their dependence on the operators in the market, who do or can exploit this dependence to their advantage. But they are also formed to provide themselves services which have not attracted any operators in the market as the provision of such service is considered to be uneconomical and not adequately remunerative. A classic example of the latter are the Rural Electrification Cooperatives in the U.S.A.

(2) 'Would cooperatives come up on their own in a world which made no special effort to promote them?' (p. 34) to which question he himself gives the answer- 'Cooperation does not just happen, at least not as often as opportunities for it seem to arise, it has to be catalysed, orchestrated and made to work' (p. 25). This he contrasts with the tube well irrigation companies of Gujarat which he states were *Swayambhoo,* i.e., self-creating or self-generating, which come up on their own without any external catalysis.

But the question that could be asked is - who catalysed the consumer cooperatives in England, the European continent, and America where neither the governments nor any non-government organisations were interested in the promotion of cooperatives? Even in India, who catalysed the urban credit cooperatives, housing cooperatives and the consumers' cooperatives in the early years when the Government was not making any 'special effort' to promote them? It could also be asked why is it that tube-well companies, like those in parts of Gujarat, did not spring up as *Swayambhoo* in other parts of the country and even in other parts of Gujarat when they were so successful in some parts of Gujarat? So it is clear that in some places organisations, whether cooperative or other, get started as *Swayambhoo* without any external catalysis. While, where they do not so spring up, purely through the initiative of those desiring to get their services, external catalysis might help.

(3) 'The equality and voluntarism principles have, in practice, received greater emphasis from cooperators, governments and researchers than self-government ...' (p. 32). Obviously governments in India, which have been controlling the cooperatives in different degrees throughout, would not emphasise self-government in cooperatives. But cooperators and researchers do. One has to refer to the relentless advocacy of 'Deofficialisation' of the cooperative movement by cooperative leaders like the late Prof. H.L. Kazi, even in the pre-Independence days and the protests by the cooperators against the increasing government encroachment on the autonomy of the cooperatives with the ostensible reason of eliminating the 'vested interests' from the cooperatives. Similarly, there have been quite a number of studies by academicians bringing out the extent of erosion of the autonomy of the cooperatives through amendments in Cooperative Laws in different states. In fact, the other aspects of democratic management have not received as much attention.

(4) 'In India, as elsewhere, however, a dogmatic approach to cooperative principles has seriously interfered with popular experimentation and innovation in operationalising cooperative democracy. In many ways, thus, the imposition of cooperative principles through law or hard sell by outside agents has negated the core of democratic self-governance. Instead of serving as guideposts or goals, when cooperative principles are used as acid tests to decide whether a member organisation is a cooperative or not, these principles actually impede rather than promote cooperation' (p. 33). He further asks, if cooperatives come on their own without external catalysis, 'would they naturally choose cooperative principles as useful working rules in organising themselves' (p. 34)?

It must be made clear here that Cooperative Principles were not imposed on cooperatives by any external authority. The Equitable Pioneers of Rochdale had framed their rules of organisation and operations as 'naturally' as any group forming an organisation could. Following the success of these pioneers, others who wanted to organise

themselves similarly, attributing the success of the pioneers to what they considered to be a 'robust design', chose voluntarily to adopt the Rochdale Model regarding membership, capital, operating system and management structure. The main features of the Rochdale 'design' were termed by them as Rochdale Principles. Later, these were considered to be helpful to cooperatives in other fields too and were termed as Cooperative Principles by the International Cooperative Alliance (I.C.A.) formed by the cooperatives themselves without any external authority requiring them to do so. The I.C.A., as an organisation formed by the cooperatives and for the cooperatives, had to determine which institutions could be regarded as being eligible to join it as its members and it prescribed the acceptance and observance of the Principles of Cooperation as a condition for its membership. Cooperatives the world over, while adopting the Cooperative Principles as the broad basis, have wide differences in their operational systems which have been adjusted to suit the requirements of specific cooperatives in specific areas, thus giving proof of Cooperative Principles not inhibiting experimentation and innovations in very widely varying situations. Further, the adoption of Cooperative Principles as features of a 'robust design' for successful cooperatives is in no way different from the tubewell companies of Gujarat adopting a common design commended by the author. If adoption of a common design by the tubewell companies has not impeded their progress, how can the adoption of a common design based on Cooperative Principles by the cooperatives be held out to be a factor impeding their progress?

(5) The author raises further questions - (i) Whether cooperatives are useful to society only if they adhere to Cooperative Principles? And, (ii) are there grounds other than ideological on which society can decide where cooperatives should be preferred?

It is not the contention of cooperators that cooperatives alone are useful to society. There can be, and are, many other organisations, besides cooperatives, which are useful to society. Cooperatives are considered to be useful by society because they are formed by comparatively weaker sections of the society, for promoting their own development on the basis of self-help and mutual aid, who would otherwise have meekly suffered or looked up to the society for solving their difficulties. Cooperative Principles do not determine the usefulness or otherwise of the organisations to the society but they determine the cooperative character of the organisations.

As for preferential treatment extended to the cooperatives, it must be stated that cooperatives have not been given such preferential treatment by the State in all the states and at all times. There have been instances of cooperatives having been declared illegal organisations by the State, as in Tzarist Russia prior to the Russo-Japanese War and again being taken over by the Bolsheviks as capitalistic enterprises with the first flush of Revolution. In England, the government did not have any ideological persuasions in the 19th century, its economic policy was of *laissez faire*, and yet it did extend some help to cooperatives by way of exemption from certain fees and taxes. Even in India, prior to Independence, the Government did not have any ideological commitments which could be considered to have prompted it to enact the special law for the cooperatives, to extend various exemptions and concessions to cooperatives and to issue orders to government officers to promote cooperatives in their respective areas. So cooperatives have received support from society not necessarily on ideological grounds.

(6) 'Normal cooperative theory advocates that the cooperative should retain only the bare essential savings and disburse all surpluses as patronage rebate'.

This is at variance with the 'theory'. The authoritative Commission on Principles of Cooperation (Chairman: Prof. D.G. Karve, 1966) had clearly stated - 'Surplus or savings, if any, arising out of the operations of a society belong to the members of that society and should be distributed in such manner as would avoid one member gaining at the expense of others. This

may be done by decision of the members as follows: a) By provision for development of the business of the cooperatives;
b) By provision for common services; or,
c) by distribution among members in proportion to their transactions with the society'.

The position is more explicitly stated by W.P. Watkins, a former Director of International Cooperative Alliance from 1951 to 1963, in his *Cooperative Principles Today and Tomorrow* published in 1986. 'If the members choose to keep their society's surplus undivided, no one is entitled to condemn them, but if there is division, the only equitable method is according to the individual member's turnover with the society', and further added: 'Confusion arises from the habit of regarding the payment of dividend on turnover as the chief object, the raison d'etre of a cooperative (as a company normally aims at dividends on capital) rather than as a by-product of its successful operation'.

(7) 'Absence of incentives to capital accumulation commonly stunts the growth of a cooperative business'.

It is true that cooperative have difficulties in raising the required amount of capital from the user members. But this is not due to absence of incentives. It is because those who form or join the cooperatives do not have adequate financial resources for investment, even if there should be attractive incentives for investment. They have to build up savings from their modest income. Hence from the beginning of the cooperative movement 'thrift and saving' by the members has been regarded as one of the corner stones of the cooperatives. So cooperatives are expected to have saving deposit schemes. The incentive to save and invest in their cooperatives is not the promise of returns on the investment but provision of services needed by the members. It is through the utilisation of the services that the members are enabled to have their capacity to save generated and augmented through increased income or lowered costs. Further, by placing restrictions on distribution of surplus, retaining part of the surplus as collective saving is made possible. Despite these features, cooperatives, not being organisations of affluent investors, find it difficult to take up capital intensive activities.

(8) 'Seniority of claims of early members often becomes essential to sustain their patronage'.

On what basis can the 'early members' have claims as a condition for their 'patronage'? Those who form cooperatives or join them later do so because they need the services of the cooperatives. The cooperatives are expected to provide the services and the members are expected to utilise the same. So long as the members continue to need the services and the cooperatives provide the same to the satisfaction of the members, these members, whether they formed the cooperative or joined the same in its initial years or later, could be expected to utilise the services according to their needs. Those who do not need the services any longer are free to quit and those who continue to need the same will use the same without any 'special incentives'. It must be borne in mind that the 'promoters' of the cooperatives, the seniormost among the members invite, persuade, induce others, in need of the services like themselves, to join because by themselves they may not be able to have a viable organisation. Due to the members joining later, the turnover of the cooperative would increase reducing the unit cost of service benefitting the 'senior' members as well as those who join later. Hence there is mutuality of support between the 'senior' members and those joining later. There is therefore no basis for 'patronage' by the 'seniors' being dependent on their 'claims' being accepted.

(9) 'Our studies suggest that some amount of inequality seems almost necessary for cooperation; and dogmatic insistence on enforcing equality is often the bane of cooperatives' (p. 41).

As a part of the 'Patronage Cohesive Governance', an element of a 'robust design', the author advocates greater voice in management to those making greater use of the services of the organisation, i.e., voting rights in proportion to the utilisation of the services. This is said to be on the ground that the members making use of the

services have a greater stake and equality of voting rights results in the 'tyranny' of the 'apathetic majority' on the 'intense minority'. This is supported on the ground that those having such greater stake are usually from the upper strata of society and can spare time, money and effort to attend to the management functions in their cooperatives and contribute to their high performance. He refers to 'informal devices' in a number of cooperatives by which such individuals manage to get elected even within the formal rule of 'one member one vote'. In support, he cites the case of the tubewell companies of north Gujarat, where 'members democratically chose the toughest amongst them to lead and to enforce the rules of the game on every one...' (p. 43).

In our country the feudal traditions are still strong. The influence of the big landlord or an affluent person permeates in all types of organisations and institutions, whether cooperatives or Panchayats or other social, cultural organisations. As the author puts it, through informal devices such individuals manage to get themselves 'elected' through 'democratic process'. But to give formal recognition to this social phenomenon, through rules regarding voting rights in proportion to the 'stake', would lead to permanent domination by the affluent minority of members with majority of votes. The consequence would be that even in situations where the affluent minority take decisions favourable to themselves, such as priority in the provision of scarce resources for themselves adversely affecting the interests of the less resourceful majority, or the leaders should betray the trust reposed in them, the majority of members, with minority of voting power, will have no constitutional means to remove them and replace them by others who might be expected to protect their interests. Thus, in the absence of equality of voting rights, the autonomy will be only for the affluent minority, reducing the resource poor majority to a subservient status, subjecting them permanently to the 'tyranny of the minority'.

(10) 'In winning and sustaining the allegiance of members, cooperatives rely excessively on member education and propaganda. ....no matter how good it is, member education cannot rescue a cooperative in the dumps' (p. 253).

It may be stated here that Cooperative Education has been enshrined as one of the Principles of Cooperation because, as the Karve Commission put it, 'No cooperative institution, therefore can, be indifferent in its own interest and for its own survival, to the need for educating its members in appropriate ways'. This is distinguished from propaganda, which is targeted towards the public outside the cooperative membership. Propaganda is aimed at making the public aware of the aims, achievements and plans of the cooperatives in order to motivate them to join cooperatives that can provide them the services needed by them. But cooperative education is targeted towards its members, elected representatives and the employed professionals. It is for making the members, elected office bearers and the employees aware of the specific objects of their cooperative, the methods of financing and operating its activities, processes of management and their respective roles in the working of their cooperative. Unfortunately this important need of the cooperatives is sadly neglected and not 'excessively' attended to. It is due to this neglect that members unaware of their rights and responsibilities, the elected representatives ill equipped for their task of policy formulation, direction, monitoring and controlling and the employees with inadequate skills for the jobs expected to be performed by them are responsible for the unsatisfactory performance and even failures of cooperatives. No serious cooperator would claim that cooperative education is a panacea but it can certainly be used as an effective preventive to many of the ills cooperatives suffer from.

As regards member allegiance, it must be stated that it is not a matter of sentiment to be tackled through propaganda it is an essential element of the working of a genuine cooperative. When some persons form or join a cooperative for getting the

services required by them, financing those activities through their capital contribution, shouldering the responsibilities as members or as elected representatives in the proper management of their cooperative and utilising the services of their cooperative, together constitute their allegiance to their cooperative. Cooperative education is for developing this understanding among the members and emphasis on it cannot be regarded as excessive.

It will be clear from the above that Cooperative Principles properly interpreted do not come in the way of operationalising the basic elements held out by the author as necessary parts of the 'Robust Design' - that the principal objective must be central to the lives of the members, governance structure must be autonomous - control by the user members only, operational system must be designed to achieve the objective, and allegiance of the members must be earned, retained and sustained.

Despite the number of observations of the author commented upon, it must be said that the author has provided a fresh angle to the study of cooperatives - their successes and failures. The publication is very thought-provoking and should be of immense interest to the academicians, cooperators, cooperative executives and all those interested in cooperation.

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Agarwal, Bina, 1994; *A Field of One's Own: Gender and Land Rights in South Asia,* Cambridge University Press, Pp. xxi+572, Price: Rs 195.00.

Even though rural transformation in Asia is marked by a drastic increase in non-farm activities, land still remains the most important means of production, which continues to be the basic parameter determining the quantum of employment, income and well-being in agrarian societies. The control and ownership of land, therefore, are crucial elements in understanding socio-economic transition in Asia. Various cross-cultural and inter-temporal studies have clearly brought out the conceptual significance of class/caste and gender in analysing Asia's rural social structure.

The book under review attempts to bring forth the centrality of independent land rights for women while addressing the question of the empowerment of women. Studies on economic well being, social status and empowerment of women have hitherto been centred around employment. Bina Agarwal makes a radical shift of focus and argues that the single most important economic factor affecting women's situation is the gender gap in command over property. In doing so she has heavily drawn upon a wide range of historical, economic, legal and ethnographic sources and supplements them with her own field research, the outcome of which is *A Field of One's Own* which, without doubt, may be hailed as the first major study on gender and property in South Asia.

Failing to recognise the importance of arable land-ownership and control to women, the development experts often introduce technologies and activities which cut women off from a critical resource. The balance between women and land has to be restored if development plans are to succeed in reducing rural poverty. *A Field of One's Own* describes the importance of land rights to women, the difficulties women now face in gaining access to this resource, and what can be done to improve the situation. Increasing spending on the social sector is welcome but is no panacea for the problems that multitudes of women face. Obviously, something more than higher spending in the social sector is needed to end discrimination against women. Land being the main means of production in agrarian societies, legalising ownership rights in land to women would be a step in the right direction. Land ownership empowers a woman as it provides not only economic security, but also social status and political power. However, land rights for women has been an issue that was grossly neglected by policy makers, development experts, researchers and even activists until recently.

In *A Field of One's Own* the author examines the causes for the gender gap at length, convincingly builds a case for women's land rights, and offers suggestions for transcending the barriers to women's land ownership and control. Her arguments are informed by the historical realities reflected in empirical studies nuanced with the lived experience of rural women in South Asia. The book begins with a powerful preface in which the author explains the back drop of this work. *A Field of One's Own* has been delineated from the author's decade and a half of research experience on rural poverty, agrarian change and the political economy of gender, and her long-standing involvement with the women's movement in South Asia, and interaction with peasant women from across the region, and association with the grass roots activists. The gender and land question addressed in this book is in the context of five South Asian countries: India, Bangladesh, Pakistan, Nepal and Sri Lanka. The book is organised in ten chapters which follow a convincing logical sequence.

In Chapter 1 the author attempts to bring out the conceptual links between gender, property, and land; and persuasively argues out the case for women's independent rights in land. Women experience alienation from their ancestral lands, in many parts of India, to which their brothers have automatic access as they customarily inherit land. Agarwal asserts that women's struggle for their legitimate share in landed property would prove to be the single most critical entry point for women's empowerment in South Asia.

The question of the need for independent rights in land for women became admissible in academic, administrative, and even activist circles, only about two decades ago. However, the discussion on it is rather limited and the answers disputed. This is mainly because the argument that women's economic needs require a specific focus, distinct from those of men, is to challenge a long-standing assumption in economic theory and development policy that the household is a unit of congruent interests, among whose members the benefits of available resources are shared equitably, irrespective of gender. Hence much of the economic development and political science studies which document a strong interdependence between the rural household's possession of agricultural land and its relative economic, political and social position, have largely bypassed the intra-household gender dimension. This is an area which is little theorised and Agarwal's work would seek to fill in this lacuna.

Agarwal postulates that though the relationship between gender, property and land can be explored from several angles, there are six interrelated issues which need particular focus: (1) gender relations and a household's property status, (2) gender relations and women's property status, (3) the distinction between ownership and control of property, (4) the distinction of land as property, (5) what is 'rights in land', and (6) prospects of non-land based livelihoods. Agarwal's starting point is the standard Marxist analysis, particularly, Engel's *The Origin of Family, Private Property and the State,* where intra-family gender relations are seen as structured primarily by two overlapping economic factors; the property status of the households to which the women belong, and women's participation in wage labour. She takes this analysis forward to include a very critical point, property 'control' alongside 'ownership'. The contention of Agarwal is that the advantage of property stems not only from ownership, but also from effective control over it. Though in socialist societies private property was legally abolished, control over wealth-generating property largely remained with men; it precluded any positive effects on gender relations that could have stemmed from the change in ownership if accompanied by gender egalitarian mechanisms of control.

In Chapter 2, the author attempts to develop a theoretical framework for conceptualising the dynamics of gender relations, using the bargaining approach. She gives a fairly comprehensive definition of the term 'gender relations': it refers to the relations of power between women and men which are revealed in a range of practices, ideas, and representations, including the division of labour, roles and resource sharing between women and men and the ascribing to them of different abilities, attitudes, desires, personality traits, behavioural patterns, and so on. Agarwal suggests that gender relations are characterised

by both cooperation and conflict, and that their hierarchical character in any given context is maintained or changed through a process of (implicit or explicit) contestation or bargaining between actors with differential access to economic, political and social power. And this contestation can vary in form (covert or overt, individual acts or group acts, etc.), content (relating to a spectrum of economic, social or political rules, practices and institutions) and in the arenas within which it takes place (the household, the community, the market and the State).

Standard economic theory assumes that the family is an undifferentiated unit that is governed primarily or solely by altruism. Agarwal critiques this by quoting a former Minister of Agriculture. The quote runs this, 'Are you suggesting that women be given rights in land? What do women want? To break up the family?' (Minister of Agriculture to the author at an Indian Planning Commission Seminar on Land Reform, June, 1989) (p. 53). This reaction implies two assumptions about the family: (1) that the stability of the family as an institution is linked to the maintenance of unequal resource positions between women and men, and (2) that economic self-interest plays a significant role in intra-family gender relations, which may be revealed with particular starkness in gender conflict over a critical form of property such as land. Some recent feminist critiques have pointed out that there is similarity between neoclassical and Marxist economic theories in this regard [Folbre, 1986, Pp. 245-255; Hart, 1990]. The ground reality of the persistent marginalisation of women within the household calls for a very different conceptualisation of the household, one that takes account of the multiple actors, with varying (often conflicting) preferences and interests, and differential abilities to pursue and realise these interests.

Amartya Sen [1983, Pp. 14-26; 1985, Pp. 195-223; 1990, Pp. 123-49] has popularised the term 'cooperative conflict' to describe the nature of intra-household interaction which simultaneously contains elements of both cooperation and conflict. Each family member negotiates her/his position in the household subject to the constraints set by gender, age, type of relationship (kinship), tradition, etc. How the household is characterised - as an arena of bargaining and contestation, or the typically assumed unitary model where all decisions are made by consensus or by an altruistic household head - critically influences policy decisions regarding whom resources and programmes get directed toward. Agarwal elaborates on the bargaining approach as conceptualised by Sen, but carries it forward to encompass gender relations in arenas outside the household as well. She also argues that though a woman's earnings outside the home has considerable importance in determining her fall-back position in intra-household bargaining (as postulated by Sen), some variables such as land rights are determinants of bargaining at one level but outcomes at another.

In explaining intra-household gender inequalities and gender gaps in measures of well-being, Sen's emphasis is on women's perceptions of their own self-interest, while Agarwal places more emphasis on the external constraints to their (women's) acting on those interests. The notion of contestation implies that the disadvantaged perceive the conflict between their self-interest and the socially defined order. The author posits the question whether they (the disadvantaged) comply with the ideologies and practices of the dominant groups, because they have internalised them through a process of socialisation, or because of a lack of choice, or some combination of both. She evokes Gramsci's discussion on hegemony with its emphasis on consent via internalisation [Gramsci, 1971] and Sen's observation that deprived groups may comply for many different reasons (habit, hopelessness, resignation, etc.) which would result in their willingness to accept the legitimacy of the established order instead of covertly resisting it. These points, that is, consent via internalisation, compliance due to lack of options, etc., are being actively debated in the feminist formula of Kerala, in the given context of a favourable sex ratio for women, high female literacy, high health status of women, high female work participation and other indicators apparently favourable to women, that is, a situation which potentially improves Kerala women's fall-back position. One must concede that these are complex issues which do

not lend themselves to simple theoretical solutions. In Joan P. Mencher's [1995] account of her revisits to Kerala, she states that even in a state like Kerala, the increase in the number of educated women and girls has not led to any noticeable improvement in the status of women. An insider's view on this aspect also would not be drastically different.

Agarwal suggests that a rural person's fall-back position and associated bargaining strength within the family would depend mainly on (1) private ownership and control over assets, especially arable land; (2) access to employment and other income-earning means; (3) access to communal resources such as village commons and forests; (4) access to traditional external social support systems; and (5) access to support from the state or NGOs. Inequalities among family members in respect of these factors would place some members in a weaker bargaining position. Gender is one such basis of inequality. Effective independent rights in land could strengthen rural women's fall-back position. She argues that land-ownership provides more than employment can, including a stronger base for social and political participation, and so, for challenging gender inequality on several other fronts. However, she hastens to add that this recognition does not in any way weaken the case for enhancing women's employment opportunities.

Chapter 3 is a historical analysis of gender and property rights in patriarchal communities in the pre-colonial period, as well as communities which indisputably gave women customary rights in land. The author has taken pains to trace in detail the Hindu inheritance and marriage practices as well as Muslim women's inheritance rights in South Asia. Three spatial regions are identified where some communities customarily practised matrilineal and/or bilateral inheritance: (1) North east India - the tribal communities, viz., the Garos, Khasis, and Lalungs (matrilineal); (2) South India - Nangudi Vellalars of Tamil Nadu (bilateral); Nayars and Tiyyars of Kerala; Mappilas of North Kerala and the Lakshadweep Islands, Bants of Karnataka and the Phadiyas and Chettis of Wynad district (matrilineal); and (3) Sri Lanka - Sinhalese and Jaffna Tamils (bilateral) and Muslim Moors (matrilineal). The traditional inheritance, marriage and livelihood patterns in these communities are outlined at length. These case studies provide the empirical basis for understanding and analysing the structural conditions associated with women's traditional land rights, and why, in the absence of these conditions, women are likely to face strong resistance in gaining shares in landed property in spite of the contemporary legal changes in their favour, and the possible connections between women's land rights and other important aspects of gender relations. The author takes Goody's [1973, Pp. 1-58; 1976] propositions as the point of departure for discussing the structural conditions or norms historically linked to women's land rights, in terms of post-marital residence, choice of marital partner, and sexual freedom. The dowry versus inheritance question is also addressed in a lucid manner. The author suggests that the contemporary recognition of female inheritance in land (where it was not recognised earlier) is likely to produce greater conflict and opposition among communities which forbid both close-kin marriage and village endogamy than those which allow both. The new law granting equal rights in land for sons and daughters among the Syrian Christians of Kerala is a case in point. This was highly contested by the males in the community, supported by the Church and the State structures. The Supreme Court made null and void the inheritance laws in vogue among Syrian Christians denying women ownership rights on family property. Political circles and religious organisations are considering legal and constitutional mechanisms through which implementation of the court order can be prevented or reversed.

Agarwal's analysis reveals that property rights neither altered the overall gender division of labour, nor guaranteed women the same sexual freedom as men. So also, formal managerial authority over land in a number of matrilineal communities lay mainly with men (as husbands, brothers, maternal uncles and so on). A study conducted by this reviewer in rural Kerala revealed that though in 52 per cent to the households surveyed women had titles to land, they had only 36 per cent participation in decisions

regarding farm management [Jose and Shanmugaratnam, 1995]. This study and the insights thrown up by Agarwal effectively raise serious doubts about the truth of the almost mythical characterisation of the 'autonomy' supposedly enjoyed by Kerala women.

Sreekumar [1996], in a report on an interdisciplinary workshop on *Revisiting Village Asia* opines that the Asian village was, and still is an engendered terrain. He adds that the key to power in the Asian village is control of land, and the exclusion of women from land-ownership consistently excludes them from power in the extra-domestic public world. A study by Rahman and Schendel [1995] showed that the centrality of inheritance in determining gender relations become clearer when placed in the context of its far-reaching implications. Even in situations when women, by virtue of the prevailing legal structures, had the right to inherit property, it is seen that this, by and large, remains symbolic while men have actual control.

Chapter 4 analyses the gradual erosion of women's land rights in the traditionally matrilineal and bilateral communities, by looking at the historical process of change in three communities - the Garos, the Nayars and the Sinhalese. Shift from *jhum* cultivation to settled paddy cultivation, changes in gender division of labour, privatisation of communal land, changes in marriage patterns, have all led to the erosion of matrilineal inheritance practices among the Garos. Agarwal argues that the traditional organisational structure followed by the Garos of communal land ownership and individual and family-based farming, with a clear recognition of women's rights in land, can still serve as a model of an alternative institutional arrangement for land ownership and use 'when promoting women's land rights today. She departs from the Boserupian thesis [Boserup, 1970], in that, land scarcity and technological change need not inevitably result in the loss of women's rights to land. She attributes it (the loss of rights in land) to the male bias shown by State agencies in the transfer of skills and technology related to settled farming, and the land scarcity caused by privatisation of land, not by population growth alone.

The historical process of contestation by which contemporary property laws in relation to women came to be formulated, the contents of these laws today, and the gender inequalities still inherent in them are elaborated in chapter 5. The author rightly suggests that for removing legal inequalities, a continuing process of contestation and struggle is required. This struggle should be conducted not only from outside the State apparatus, but also from within. This warrants increased representation by gender-progressive women in the legislature, the judiciary, etc. Above all creation of a favourable ideological climate is also a part of this process. Agarwal concedes that although legal transformation is a critical step forward, it forms only one of many steps that must be taken.

Chapters 6 to 8 are devoted to identifying the obstacles faced by women in claiming their legal shares in land and the constraints in exercising control over the land they possess, and the cross regional variations in these matters. These chapters also demonstrate how women's struggle for effective land rights needs simultaneously to be a struggle to change existing ideological construction of gender. Women's ability to claim as well as control and manage land seems to be a function of a number of factors. Some of these are apparently uniform across regions, viz., taboo on female ploughing; while others such as *purdah* practices, norms of post-marital residence, and female illiteracy rates vary across regions. However, the author emphasises that the severity of the constraints women face in controlling and managing their land cannot in any way justify depriving them of their claims. The situation calls for institutional support to increase women's access to inputs and technology, and support systems to strengthen women's ability to challenge the social norms that restrict their autonomous functioning.

The chapter on 'Tracing cross-regional diversities' is packed with information, which Agarwal very meticulously uses for bringing out a regional picture. Four regions seem to be more conducive to women being able to exercise their rights in land - North-East India, South India, Sri Lanka and Nepal. Women are likely to encounter the most resistance to their claims in North-West

India, Bangladesh, and Pakistan. Interestingly, her analysis brings out the strength of cultural commonalties over religious differences. The patterns in Hindu North-West India seems closer to those of Muslim Pakistan than to those of Hindus in Sri Lanka or South India. Likewise, the Sri Lankan communities - Buddhist, Muslim and Hindu - show greater similarity to one another than the people of these religious persuasions in the northern part of the subcontinent. Agarwal highlights the point that the identities sought to be constructed by religious and ethnic fundamentalists today, thus, often move in contradiction to these historically forged cultural links.

Though the conditions for women inheriting and managing land in South India and Sri Lanka are relatively favourable, not all who are legally eligible do so. The gap between law and practice in the traditionally patrilineal communities in South India is also marked. So also land control. The author suggests three reasons for this: (1) there exists a wide gender gap in all the regions, including southern South Asia, in the roles that women play and the bargaining power they have in public decision-making bodies at every level, which directly and indirectly ensures predominant male ownership and/or control over significant economic resources, including land; (2) women in all the regions are subject to restrictions imposed by the social structuring of appropriate female roles and behaviour and the gendering of public space, though less in southern and south eastern South Asia; and (3) favourable social conditions cannot substitute for women themselves taking the initiative in fighting for their land rights, but can be complementary.

In Chapter 9 the author takes us to the thick of struggles over resources and struggles over meanings, i.e., struggle at the levels of the material and the ideological. The arenas of the struggle are the family, the community and the State; and across the barriers of class, caste, religion and ethnicity. Agarwal contends that the issue of land rights cannot be seen in isolation from the diverse dimensions of women's multiple ongoing struggles over both resources and meanings in the subcontinent. She elaborates on the individual-covert, individual-overt, group-covert and group-overt acts of resistance by women, and perceives that a shift to the group-overt stage in gender resistance is crucial, since this implies a combination of things: a recognition by women of their common gender interests, a willingness to collectively pursue those interests, and a challenging of the structures of inequality. A detailed unfolding of land related grass root movements in which women played key roles, viz., the Tebhaga struggle, the Telengana struggle and the Bodhgaya struggle, is also attempted by the author. Agarwal argues that the ideological construction of gender can be the result of ongoing processes of negotiation and struggle between multiple actors. South Asia is currently witnessing women's struggles for land at three levels - struggles to establish legitimacy of the need for land, those to interpret how that need should be satisfied, and those to secure satisfaction of the need (p. 466).

In Chapter 10 we join the women in their journey to gain effective land rights. The issues which need particular focus in the long and difficult struggles for realising land rights are highlighted. Agarwal particularly dwells upon points like reforming the laws (inheritance laws, land reform related legislation, etc.), non-acceptance of dowry as a substitute for inheritance (of course she leaves the decision to individual women), establishing *de facto* inheritance rights in land, strengthening land claims through channels other than inheritance (state interventions like distribution of land to women, etc.), exploring joint management and promoting infrastructural support, and building group support among and for women. Agarwal closes the book with a vision of hundreds of thousands of women peasants on a long march across the countryside, gathering new members to their cause, i.e., independent rights in the fields they have nurtured.

The central concern of the book, as it evolves, is empowerment of women which the author presumes, can be achieved only by answering the question of ownership rights in land which, in turn, can be achieved by revising the agenda of inheritance and land reforms, especially by engendering it. The land reforms argument is extended to address the gender question also, not theoretically but politically. The central question

of practical political significance is how caste-class differences affect strategies of women's struggles toward this.

A lucid and down-to-earth discussion of the caste-class-gender nexus in the rural social milieu is the corner stone of Agarwal's analytical discourse. Unlike her critics like Indu Agnihotri [1996, Pp. 526-28], I find the presentation of this theme in the book quite convincing and well intended. Agnihotri's dismissal of the contention made by Agarwal that class divisions between women could be less sharp and divisive than those among men as naive appears to be based on a partial reading of the book (Agarwal herself has explained her position in the June 8, 1996 issue of the *Economic and Political Weekly*). The ambiguous nature of women's class position and the divisive forces, viz., class, caste, religion which could impinge on women's collective struggles have been dwelt upon in detail by the author. She also points out arenas where women as a class stand to benefit by collective action. One could always put a poser whether more articulate women would pose their problems as the problems of women as a class. Nevertheless, a close reading of the history of the Women's Movement in India would prove that the Movement itself has been cause-specific, context-specific, disjointed and incremental which intrinsically rules out such fears and misgivings. And the common thread running through the fabric of these disjointed struggles would form the potential *terra firma* for women's collective action.

I would tend to concede that Agarwal's dominant framework is one of identifying the patriarchal underpinnings of control of land as pointed out by Agnihotri [1996, Pp. 526-528]. However, I would also argue that this does not preclude or exclude the argument for the rights of *dalits* and landless women. Agarwal's argument is in a way mirroring the Marxist argument, that it is the ownership of the means of production which really matters. However, she stretches it out to enfold control of the property by women as crucial in empowering them. Rejection of any socialism which is gender insensitive is implicit in her work. The author's angst over the class question subsuming the gender concerns, as has been the case with the dominant Left political parties, is all-pervasive, and understandable to anyone who is sensitive to the gender question. This reviewer's own work among the farming community of Kerala reveals that declassing the society *per se* is not a sufficient condition, though necessary, for obtaining a balanced gender equation [Jose and Shanmugaratnam, 1955].

A Field of One's Own comes to us at a juncture when the debate on land reforms is in doldrums, and the academia and the politicians at large are complacent about the situation obtaining. In one shot, the author catapults the question of land reforms back into the agenda, and places the issue of women's empowerment in the context of engendering land reforms and inheritance.

In conclusion, I must mention that this book abounds in profoundness and originality, concentrating on the inequality in property rights in general and land ownership in particular, as regards women. The 500 odd foot notes and the massive bibliography (about 1,000 entries) make the book a cornucopia of information. Her analytical skills, and intuitions as a woman of high scholarship, sensitive to gender issues and committed to the cause, go a long way in making the book a major contribution to the disciplines of economics, sociology and gender studies. She is very powerful in her arguments, well substantiated with historical and empirical evidence, breaking the barriers of disciplinary rigidities. The book could thus be hailed as an example of a most successful interdisciplinary study.

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Jalal Ayesha, *Democracy and Authoritarianism in South Asia,* Cambridge University Press, New Delhi, 1995; Pp. xiii+295, Price: Rs 385/-.

Ayesha Jalal, Associate Professor of History in the Columbia University, is a specialist in the history of South Asia and has written extensively on the subject. The theme of this particular book has been explained in the Introduction to the main book as well as in the introduction to the last chapter, which is entitled 'Bibliographical Essay'. The author says that while several books have been written on the separate histories of the post-Independence states in South Asia, viz., India, Pakistan and Bangladesh, there is very little comparative study of the similarities and differences between the three countries. She has therefore, in this book, embarked upon a comparative study.

An interesting question which the author raises is 'why a common British colonial legacy led to apparently contrasting patterns of development', namely, 'success of democracy in India and its failure in neighbouring Pakistan' (p. 1). She says that the question of democracy versus authoritarianism can be studied in the context of a two-fold dialectics - one between centralism and regionalism, and the other between nationalism and communalism (p. 258).

The jacket-overview of the book tells us that this book is an 'original and provocative study', which only means that the author's perceptions are not shared by the general community of scholars. The reader need not therefore feel lost if he finds it difficult to accept the author's analyses and interpretations. The reader will be in good company.

Why should there be different developments in India and Pakistan is an interesting question but the author's treatment of it is quite unsatisfactory because she has virtually downplayed this difference. She does not think much about the democracy in India and has some rationalisation to offer for the developments in Pakistan.

The point at issue, so far as a comparative study is concerned is not whether India has a perfect and substantive democracy but whether there is a qualitative difference between what happened in India and what happened in Pakistan. That there is such a difference cannot be denied. In India, elections have been held from time to time at different levels, in which voters have changed their rulers; India has a free press and a strong and independent judiciary. India is generally recognised as an open society. India's democracy, with all its drawbacks, stands in vivid contrast with the lack of democracy, in fact long periods of dictatorship, in Pakistan. Ayesha Jalal seems to be blind to this difference and has therefore been unable to explain it. It we are to explain that difference, we must understand the nature of the freedom struggle which occupies the ground between the legacy of the past and the developments of the future. This the author has not done and has missed an important element which

shaped the two-fold dialectics mentioned by her, i.e., one between centralism and regionalism and the other between nationalism and communalism.

It is inconceivable that the freedom struggle could have been carried out separately for each region and each community. The whole of geographical India was under the British; the struggle against them had to be on an All-India scale. This necessitated a sense of one-ness. Those who had an in-born sense of one-ness became the dominant motivators of the society. Ayesha Jalal says that since this one-ness was predicated on the Hindu view of history and expressed in a Hindu idiom, this had the 'unwitting effect of appearing to set Hindus apart from non-Hindus, Muslims in particular' (p. 25). One can readily agree with her, since she has used that word: 'unwitting'. But it must be emphasised that (i) the freedom struggle was not for the grabbing of power by a few people or only by a section of the society, (ii) its ideological content was: the ushering of democracy, the empowerment of the masses and the spread of knowledge and a scientific spirit, and (iii) its leaders did not represent class interests. The second characteristic involved secularism of both types: (i) reliance on human intellect rather than on the so-called divine revelations, and (ii) tolerance and respect for all religions, which were seen as emphasising the same ethical norms. Because of the respect for religions, the use of Hindu or Muslim symbols for the reformation of society was not precluded. The nationalism conceived under this ideology was not a Hindu or a Muslim nationalism but the sense of one-ness generated through the intermixing over the ages, the unification under the British rule and the unification in the freedom struggle. The sense of one-ness had certainly not reached the masses as yet. India was still a nation in the making. That process would have been aborted if the Indian National Congress had agreed to a power-sharing based on the two-nation theory of the Muslim League. Partition was a lesser evil which the Congress accepted. Ayesha Jalal does not appear to have understood and accepted this characteristic of the freedom struggle and has been led to proposing an absurdistic interpretation of the phenomenon of Partition, already commented on in this Journal (Vol. 6, No. 1, p. 181). Her analysis of post-Independence developments has then acquired, to quote her own words, a 'statist orientation', (p. 6) so that she has all along dealt with, primarily, the sharing of state power among the political, bureaucratic and military wings, with some passing references to the judiciary. She has, in her own words, felt 'unease with studies of political process' wherein the analysts seem 'enamoured by the chequered political history of the premier political party, the Indian National Congress', and have put up 'unresearched and uncritical eulogies of the Nehruvian era' (p. 6). She goes to the other extreme and calls Nehru and Patel as 'machine politicians' (p. 28) who sacrificed everything 'for control over the colonial masters' satanic institutions of oppression' (p. 28). Heady words these, and she has used such words throughout the book. That is perhaps the result of a minority complex - being in a minority in the world of scholars.

To return to the question of the difference between the developments in India and in Pakistan, the answer is that the values which informed India's freedom struggle and for which support was drawn from India's pluralistic past, enabled democracy to flourish in India. Pakistan, on the other hand, was a product, not of any emancipatory, liberalising movement, but of an opportunistic strategy aimed at sharing the power which was on its way to going into Indian hands. The ideology behind this strategy was of a monolithic, Islamic nationalism so that the social pluralism existing in the Muslim-majority region did not receive any recognition or accommodation.

Now we come to Ayesha Jalal's depiction of the post-Independence period from 1947 to 1971. She finds that Gandhi, 'in giving primacy to politics as a vehicle against the centralised colonial state, unintentionally laid the basis for corruption' (p. 30), as this politics turned out to be only a 'self interested pursuit of power' which 'eventually found expression in Indira Gandhi's emergency' (p. 30); that India's Constitution was decided by 'a coterie of about a dozen individuals' giving 'short shrift to Gnadhian ideas' (p. 33); that it equips the centre 'with all the requisite powers to

govern India as a unitary state' (p. 34), authorises the state to confiscate property after paying compensation, to qualify or curtail several of the fundamental rights and to detain a citizen without any trial for at least three months (p. 34). On top of this Ayesha Jalal finds that the politicians in India had an alliance with the bureaucracy, the police and the army for ruling India in an authoritarian way (Pp. 19, 42, 72, 82, 94, 97, etc.), and that Indian parliamentary democracy depended on such an alliance (p. 42). In her view there was *regional* resistance to this centralised 'formal' democracy, which was reflected in Punjab, Kashmir and the North-Eastern states (Pp. 95, 161, 179, 180, 228, 229, etc.). An interesting comment is that the centre so devised its economic relations with a state like Kashmir that the economic cost of seceding was kept high (p. 180). Thus has Ayesha Jalal downplayed India's democracy and brought it down to the level of authoritarianism in Pakistan.

The author has not downplayed the authoritarianism in Pakistan. She has depicted it in all its starkness. But she has found some rationalisation for it: Poor Pakistan had to *create* a central authority where India had *inherited* one and it had to bear a heavy defence burden because of an early outbreak of belligerence with India (Pp. 37 and 184). The first hurdle seems exaggerated. What the central authority in new-born Pakistan lacked was probably only a well-known postal address. It had everything else: persons trained in governance from the centre, copies of all the rule-books and records, and provincial governments well used to obeying commands from the centre. As regards the outbreak of belligerence with India, Ayesha Jalal, is hardly objective in her assessment. The belligerence with India was Pakistan's own choosing and cannot be counted as one of their inherited difficulties.

Ayesha Jalal's downplaying of Indian democracy is not accompanied by any supporting historical material or a critique of alternative and more acceptable explanations of the historical events. Thus we have not been provided with the evidence to hold that there was some *undemocratic* alliance between the politicians on the one hand and the bureaucracy, the police and the military on the other. In fact in the period under review (1947-71), the political authority in India had such a strong public support (at least upto 1966) that the non-elected institutions were totally under the control of the elected representatives, as is proper in a democracy. The problems like Punjab, Kashmir and the North-Eastern states are not one-dimensional problems of *regional* autonomy as depicted by the author. In Punjab the problem was that a section of the Sikh community wanted to establish a hegemony over the non-Sikh population of the *same region.* In Kashmir the problem is more of Indo-pak rivalry than of domestic democracy. The problem in North-East India is that it is still a melting pot of several tribal identities, to which has been added a massive influx of outsiders throughout the 20th century. None of these problems can be solved by the withdrawal of the centre from the scene.

In considering the post-1971 developments, Ayesha Jalal sees some convergence of the political processes in India, Pakistan and Bangladesh, reflected in what she calls populism, the common policy followed by Indira Gandhi, Bhutto and Mujibur Rehman. The author's line of thinking is that these populist policies were a response to the growing discontent and mobilisation at the *regional* level; that these could not be managed by normal political processes because party organisations had gone weak; and that therefore these leaders turned to more centralisation of power through the projection of charismatic personalities and the manipulation of party structures and elective processes; that when these populist promises also failed to contain the discontent and mobilisation at the regional level, there was recourse to overt authoritarianism. - military rule in Pakistan and Bangladesh and a period of Emergency rule in India. The author has in general tried to link everything to a supposed tendency among the power-holders to concentrate power in their own hands.

Since the concern of the present book is with democracy and authoritarianism it is necessary to see how these developments stand with relation to democracy. Ayesha Jalal has looked upon populism as a means of centralising power, which she considers to be against normative democracy. In this concept of normative democracy, she also includes redistributive justice. It is submitted that these two aspects need not be brought into consideration when we are highlighting only the distinction between democracy and authoritarianism. Firstly, in any on-going democracy, political games will be played in such a way that the maximum advantage can be extracted from the rules of that game. Populism has to be accepted as falling within the rules of democracy. Secondly, the convergence of the politics of Pakistan, Bangladesh and India into populism in the post-1971 period was short lived. In Pakistan and Bangladesh it was followed by a long period of military dictatioship. In India, the Emergency rule was of a short duration; democracy reasserted itself quite quickly.

Moreover, the question to be asked, at least in respect of India, is whether popular discontent and an anti-establishment ferment by themselves (as the contents of Jayaprakash Narayan's movement can be described) qualify to be called democracy, which by definition is a particular kind of *government* and not of *anarchy*. The futility of 'J.P.'s' movement was proved within a few months of the fall of Indira Gandhi. It must also be remembered that discontent and populism have an economic dimension which is not a part of political democracy. Ayesha Jalal initially proposes only four parameters for the study of democracy and authoritarianism, viz., centralism, regionalism, nationalism and communalism. But at several places (Pp. 45, 97, 145) she talks of redistributive justice as part of democracy. Unless we want to use 'democracy' as a catch-all word, we must use it consistently in the limited sense indicated by the author herself, i.e., 'empowerment of the people, not as abstract legal citizens but as concrete and active agents capable of pursing their interests with *a measure of autonomy* from entrenched structures of dominance and privilege' (p. 3, emphasis added). The concept of autonomy is inconsistent with the expectation of a pro-active role on the part of the state. Moreover, neither redistributive justice nor economic growth which is its prerequisite, depends on democracy. The erstwhile USSR achieved redistribution and China achieved even growth without political democracy. India may not have achieved either but it has still a lively political democracy, which is the subject of this book.

Ayesha Jalal has identified centralisation as the main sinner against democracy in all the countries of South Asia. Monolithic nationalism is seen as a handmaid of this sinner (p. 245). Ayesha Jalal proposes a banishment of this sinner through a recognition of the multiple identities within the society and a division of the society's sovereignty (Pp. 256-257). She lists four such identities, caste, clan, class and community (p. 202). She also recognises regional and linguistic divisions. She has however not put forward any model of how to distribute political power among all sorts of overlapping identities. There are two things to be considered in this connection. Firstly, how many of the identities listed above are long-lasting and how many are giving way under the pressure of modernisation. It would be going against the current of history, and therefore futile, to make the latter class of identities eternal through unchangeable constitutional structures. Secondly, if we go deeply into the idea of a shared and layered sovereignty, we will find that under that scheme, sovereignty is not just *shared*, it is *destroyed*, in as much as nobody is left with the power to change a permanently fixed constitutional structure; everybody today and every generation of the future will become slave to a fixed, unalterable constitution.

The only way to accommodate multiple identities is for a sovereign people to design and redesign the distribution of power among its constituents. The sovereignty of the people remains unharmed. This necessarily involves the concept of one nation. How has India dealt with this problem? Well, it has adopted a federal constitution distributing power among regional-cum-linguistic units. It has not given formal recognition to the passing identities of caste, clan,

class and community, which is quite right. The distribution of powers between the centre and the states has been made after due deliberations by a representative body. That scheme is not a closed one and is under review from time to time. In the course of such a review, at least one scholar has held that 'the existing constitutional arrangements are basically sound and no radical changes are necessary' (*JISPE*, Vol. VI, No. 3, p. 574). We have to go along this process of democratic discussion without any help from Ayesha Jalal. Her recipe of sharing of sovereignty among various identities does not seem to be workable.

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Dandekar, Kumudini, *The Elderly in India*, Sage Publications, New Delhi, 1996, Pp. 295, Price: Rs 295/-.

This pioneering book on the Elderly in India has come out at a right moment, when India has just started graying. Due to rapid increase in the expectation of life, the number and the proportion of elderly persons (of age 60 and above) in India is increasing rapidly. It is expected that by 2001 the population of the aged persons in India would be around 76 million and their proportion in the total population would be around 8 per cent. Thus one in 12 persons will be an elderly person. It is important to note that the population of old in India is increasing at considerably faster rate than the total population. In most parts of the world there is a very striking numerical excess of female population in the elderly population. In India, although, males still outnumber females among the aged, the sex ratio among them (981 females per 1000 males in 1981 in age group 60-69) is not so male dominated as it is in the total population (934 females per 1000 males in 1981). Again among elderly the widows predominate - in 1981 they were 56 per cent in age group 60 to 65, 58 per cent in the age group 65 to 69 and 78 per cent among persons of age 70 years and above. This demographic scenario although of 1981 gives clear idea about the magnitude of demographic status of the elderly in India.

This book of Kumudini Dandekar - a renowned demographer in India and abroad - has been brought at the juncture when the country is just awakening to the problems of the aged and the attention of the demographers, social workers, social scientists, gerontologists, and government policy-markers is slowly turning to the aged. Knowing Dandekar's interest in the aged and her expertise in handling research topics, it was expected that she would study the elderly in India from various angles and come out in her usual forthright manner with some concrete suggestions. The book *Elderly in India* does not belie the expectations.

Perhaps this is a unique study of non-biological features of aged in India. It is unique in several ways. The author has tapped various sources to study the elderly persons, such as the Indian Census and the National Sample Survey Organization (NSSO), she has also studied Old Age Homes and elderly persons in rural Maharashtra by collecting first hand information. She has examined the Old Age Pension Schemes in various states including Maharashtra. One can realise the contribution of Dandekar when one finds the dearth of such comprehensive studies on the elderly.

Very few studies dealing with the old people exist, although some stray articles and some M.Phil. and Ph.D. dissertations deal with the elderly. Besides, most of the studies on the elderly population are primarily demographic in nature as data are easily available from various Indian Censuses and some large-scale sample surveys. However, few have touched upon other aspects of old persons. Dandekar in her book covers an impressive canvas of various aspects of the elderly in India. She deals with the socio-demographic features of the elderly which are basic to the study of the elderly using Census data. Using enormous amount of data available from the 42nd round of the National Sample Survey Organisation (July 1986 to June 1987) she tries to compare the rural-urban and interstate situations regarding some important aspects of the elderly about which precious little information is available, for example, living arrangements and

conditions of the elderly, their economic dependence or independence and support in the old age, health and morbidity including chronic illnesses, activity status and levels, and old age security. While discussing family life-cycle for the Indians in 1990, the author warns that in future the longevity of Indians is bound to increase and by that time if people do not learn to save for their old age they will face dire consequences. For saving it is essential to reduce the burden of the children. The author advocates, 'small family is a must if in future longevity is going to increase' (p. 46). The author has brought one pertinent point that retirement enhances poverty and increases dependence on children.

At the end of the analysis of the elderly based on the NSSO data the author finds that only 4 per cent of the elderly were ready to move to Old Age Homes out side their village or town as they were very closely integrated with the local society. On the basis of this finding the author points out the need to open an Old Age Home in each village or town. Then she moves on to study the functioning of the Old Age Homes (OAH) in Maharashtra.

Her detailed study (spread over some 59 pages) of the OAH has added one more dimension to the study of the elderly which hitherto was neglected. While dealing with OAH, the author states that this is a western concept which is not familiar in India. As OAH indicates the segregation of the old from their homes, it is not looked upon very favourably in India. In the West itself where this idea of OAH originated, there is an unresolved debate over the 'age group isolation' and 'social integration' of the old. The author has at the beginning of her chapter on OAH reproduced very useful guidelines for starting an OAH in India (Pp. 110-12), as given by Goel and Jain in their publication of 1988. The author has surveyed 19 OAHs in Maharashtra from two angles: (1) The study of the settings of the OAHs and how far did they conform to the existing guidelines, and (2) The study of the inmates of the OAHs. Various features of the OAHs such as location, availability of open ground, the lodging and boarding arrangements of the inmates, recreation facilities, library facilities, daily routine of the inmates and medical facilities have been reviewed. One important point has emerged while dealing with the medical facilities available to the aged. Some OAHs which accepted regular payment from the inmates, however, did not take their responsibility when they were bedridden. It is atrocious that the old, more likely to fall ill with serious illnesses, are not allowed to stay in the homes at this critical juncture when the help of the OAH is most needed. Such OAHs, according to the author, function as some cheap hotels where one interacts with only peer groups.

Part two of the study of the OAHs deals with socio-cultural and demographic profile of 541 inmates of the OAHs. With the help of the questionnaires the author has studied various aspects of the inmates in which informed persons might be interested.

The author then moves on to portray the rural old from 8 villages of 4 regions of Maharashtra. After describing the villages in terms of geographical location, number of households, drinking water sources, facilities for primary schooling, medical and health facilities, economic conditions, types of agricultural produce, and other amenities, the author has recorded reactions of the villagers towards Old Age Homes and saving for old age. Some of them are quite revealing. For example, in Sangavi village, the villagers perceive that moving to old age home amounts to going to beggar's home. Or 'we never have enough for the present how can we think of saving for the old age?' 'What will we eat when we stopped working?' The elderly in villages did not seem to be worried about the problems of the aged. Here there is no notion of age of retirement as they continue to work past retirement age. As such, old age did not present a very distinct phase in their life. They had lived in poverty and continue to live in poverty in the old age. The author concludes that among rural poor the problem of poverty is more serious than that of aging and suggests, 'there is a need to provide old-age pensions to the helpless villagers - an inexpensive way of solving their problems of want' (p. 193).

In the next Chapter the author has reviewed old-age pension schemes in various states of India and critically examined Sanjay Niradhar Anudan Yojana (SNAY) of Maharashtra which is mostly for the old. Although she has found some problems with the SNAY which are worth looking into by the authorities of the SNAY, she concludes that SNAY pension scheme in Maharashtra is quite good and with improvements it can become a model of old age pension scheme for other states.

According to Dandekar, Old Age Home can be a practical solution for the urban old particularly in the face of acute housing scarcity resulting in the harsh conflicts between generations and adverse economic conditions. In rural areas, however, the thrust of the government programmes should be to provide reasonable old-age pension to the old. For one reason, this is a cheaper alternative and villagers are also not favourably inclined towards living in the OAHs as they are well integrated in their village atmosphere.

Unique in its kind in several ways *The Elderly in India* is a definite contribution to the field of the study of the old in India. There are, however, some problems with the presentation of the matter in the book. Most important is the absence of the date of the Study of the OAH and that of the Rural Old in Maharashtra. Non-availability of the year of the study is a serious point and is not expected from any researcher. Tables 1.2 and 2.2 are exactly the same. This repetition could have been avoided by arranging the text properly. Further, though all figures of the two tables are the same the figure on per cent increase in population 60 years of age and above is 38.02 in Table 1.2 and 29.00 in Table 2.2. One does not know which one is correct.

There is no chapter on conclusions and policy implications based on the observations of such an important study. It would have been extremely useful if the author had ended her study with important findings and policy implications (which are many) accruing from the study.

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FORM IV

(See rule 8)

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