## PART II

## BANKING GROWTH AND DISTRIBUTIONAL ANALYSIS

Section 1 Non - Statistical Analysis

Section 2 Statistical Analysis

Section 3 Productivity Analysis during Growth Period

Section 4 Profitability Analysis during Growth Period

Section 5 Effect of changes in CRR and SLR on Lending Capacity

PART II : GROWTH AND DISTRIBUTIONAL ANALYSIS

In this part, an attempt has been made to analyse the growth and distributional aspects of commercial banking in India during the post-nationaliazation period. The main objects of this analysis are to test the following hypotheses :

H1 - The growth in commerical bank lending has lagged behind the growth in the number of branches, volume of deposit and total business of banks;

H2 - There are significant regional imbalances in the growth of commercial banking;

H3 - The imbalances in the distribution of banking facilities across the regions, state and bank groups are significant;

H4 - The official regulation has adversely affected the lending porformance of banks and resultantly, there productivity and profitability.

To test the above hypotheses, secondary data drawn from various official sourses have been analysed first. At a subsequent stage, the growth and distributional efficiency of the commercial banks have been analysed statistically through factor analysis and Herfindahl Index. At the end, the productivity and profitability aspects of this banks have been examined and the impact of official regulatory policies on these two has been ascertained. This part is divided into

three sections. Section II.1 contains a non-statistical analysis of growth and distribution while the statistical analysis is given in the section II.2. In the last section, the productivity and profitability aspects have been examined.

Section II.1 Non-Statistical Analysis

The measurement of banking development is a difficult and challenging job. A number of growth measures can be used independently, such as, aggregate deposits, aggregate advances, number of branches, number of employees, population served per branch, total working funds, number of deposit accounts, number of advances acounts, number of transactions and so on. At the out set we propose to measure the growth of banking in India during post nationalisation period in terms of selected parameters which have been used as growth indicators.

Marginal and Percentage-growth

The following table depicts the marginal and percentage growth in respect of the identified indicators during 1977 to 1986. The data reflects the performance of all the Public sector Banks taken together in respect of the identified indicators.

TABLE II.1

PERFORMANCE OF PUBLIC SECTOR BANKS

(Amount Rs. in Lakhs
Branches in Number

| Key-Areas | BRANCHES | | | TOTAL ASSETS | | | DEPOSITS | | | ADVANCES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Total | Marginal Increase | %age of increase | Total | Marginal Increase | %age of increase | Total | Marginal Increase | %age of increase | Total | Margina Increas | %age of increase |
| 1977 | 20246 | - | - | 2323699 | - | - | 2051151 | - | - | 1334859 | - | - |
| 1978 | 21582 | 1336 | 6.6 | 2884906 | 561207 | 24.2 | 2549440 | 498289 | 24.3 | 1632574 | 297715 | 22.3 |
| 1979 | 22651 | 1069 | 5 | 3567056 | 682150 | 23.6 | 3082954 | 533514 | 20.9 | 1933300 | 300726 | 18.4 |
| 1980 | 27317 | 4666 | 0.6 | 4504664 | 937608 | 26.3 | 4015315 | 932361 | 30.2 | 2498761 | 565461 | 29.2 |
| 1981 | 29302 | 1985 | 7.3 | 5505298 | 1000634 | 22.2 | 4877384 | 862069 | 24.5 | 3104940 | 606179 | 24.3 |
| 1982 | 30585 | 1283 | 4.4 | 6484657 | 979359 | 17.8 | 5658486 | 781102 | 16 | 3650281 | 545341 | 17.6 |
| 1983 | 32035 | 1450 | 4.7 | 8820622 | 2335965 | 36 | 6727916 | 1069430 | 15.9 | 4184185 | 533904 | 14.6 |
| 1984 | 33654 | 1619 | 5.1 | 10390876 | 1570254 | 17.8 | 7929720 | 1201804 | 17.9 | 4989147 | 804962 | 19.2 |
| 1985 | 36002 | 2343 | 7 | 12302885 | 1912009 | 18.4 | 9430002 | 1500282 | 18.9 | 5626555 | 637408 | 12.8 |
| 1986 | 36304 | 302 | 0.8 | 14347894 | 2045009 | 16.6 | 11158058 | 1728056 | 18.3 | 6432132 | 805577 | 14.3 |

Continued

| Key-Areas | BUSINESS | | | TOTAL INCOME | | | SPREAD | | | PROFIT | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Total | Marginal Increase | %age of increase | Total | Margina Increas | %age of increase | Total | Marginal Increase | %age of increase | Total | Margina Increas | %age of increase |
| 1977 | 3385010 | - | - | 193731 | - | - | 45663 | - | - | 3646 | - | - |
| 1978 | 4182014 | 796004 | 23.5 | 224361 | 30630 | 15.8 | 53892 | 8229 | 18 | 3857 | 211 | 5.8 |
| 1979 | 5016254 | 834240 | 19.9 | 279828 | 55467 | 24.7 | 66936 | 13044 | 24.2 | 4465 | 608 | 15.8 |
| 1980 | 6514076 | 1497822 | 29.9 | 383551 | 103723 | 37 | 89998 | 23062 | 34.5 | 5595 | 1130 | 25.3 |
| 1981 | 7982324 | 1468248 | 22.5 | 492807 | 99256 | 25.8 | 108762 | 18764 | 20.8 | 6447 | 852 | 15.2 |
| 1982 | 9308767 | 1326443 | 16.6 | 569982 | 87175 | 18.1 | 127474 | 18712 | 17.2 | 7757 | 1310 | 20.3 |
| 1983 | 10912101 | 1603334 | 17.2 | 650933 | 80951 | 14.2 | 154484 | 27010 | 21.2 | 8435 | 678 | 8.7 |
| 1984 | 12918867 | 2006766 | 18.4 | 808781 | 157848 | 24.2 | 199745 | 45261 | 29.3 | 8253 | -182 | -2.2 |
| 1985 | 15056557 | 2137690 | 16.5 | 959254 | 150473 | 18.6 | 239639 | 39894 | 20 | 11777 | 3524 | 42.7 |
| 1986 | 17590190 | 2533633 | 16.8 | 1124925 | 165671 | 17.3 | 267298 | 27659 | 11.5 | 19228 | 7446 | 63.2 |

Source: Compiled from different sources and various issues of 'Financial Analysis' Published by Indian Banks Association.

The table indicates a steady increase in total branch expansion, deposit mobilisation, credit deployment, total income, total assets and spread, in absolute terms. But the percentages of marginal increase related to these indicators show wide fluctuations. In 1980, six more banks were brought under public sector. Despite this, the percentages of increase show a downward trend.

The marginal growth percentage in deposits, advances, total business, branches and profit show a sudden increase in 1980. This improvement during the year was not due to the real growth but simply on account of the inclusion of six banks in the 'Public Sector Banks' group.

The table also depicts an impressive growth of banking in terms of three indicators namely deposits, advances and total business. So far as the growth in total business is concerned it reflects the exact growth in the other two growth indicators, namely, deposits and advances. While it has been asserted by many researchers that branch expansion leads to growth in deposits and advances of banks, in the case of India, may be due to policy constraints, we find a higher degree of correlation between branch expansion and growth in deposits compared to the degree of correlation between branches and growth in advances. This is confirmed by a decline in the percentage rate of marginal increase in advances related to percentage increase in deposits during the period. Thus, so far as Bank lending is concerned the growth is not consistent with the growth in other indicators and it can be concluded that the growth in advances has

lagged behind the growth in other key business variables. On this basis, it may be confirmed that the H1 is sustained.

PC Ratio

An overview of the behaviour of growth indicators reveals that the increase in the total assets and business of banks during the period was mainly due into an increase in the expansion of bank branches. The following table depicts the PC Ratio for the country has a whole and state-wise and the changes in the same during the post-nationalisation period.

TABLE II.2

STATWISE POPULATION COVERAGE OF COMMERCIAL BANKS OFFICES
(POPULATION IN '000 PER OFFICE)

| S T A T E | 1969 | 1971 | 1981 | 1989 |
|---|---|---|---|---|
| Andhra Pradesh | 75 | 59 | 20 | 14 |
| Arunachal Pradesh | - | - | - | 13 |
| Assam | 198 | 121 | 39 | 22 |
| Bihar | 207 | 125 | 29 | 19 |
| Gujarat | 34 | 24 | 14 | 12 |
| Haryana | 57 | 39 | 16 | 13 |
| Himachal Pradesh | 80 | 40 | 12 | 7 |
| Jammu & Kashmir | 114 | 46 | 13 | 10 |
| Karnataka | 38 | 26 | 13 | 10 |
| Kerala | 35 | 25 | 11 | 10 |
| Madhya Pradesh | 116 | 74 | 24 | 15 |
| Maharashtra | 44 | 34 | 17 | 14 |
| Manipur | 497 | 2 | 29 | 28 |
| Meghalaya | 147 | 68 | 23 | 12 |
| Mizoram | - | - | - | 11 |
| Nagaland | 205 | 104 | 20 | 16 |
| Orissa | 212 | 127 | 27 | 16 |
| Punjab | 42 | 24 | 11 | 9 |
| Rajasthan | 70 | 49 | 21 | 15 |
| Sikkim | - | 210 | 107 | 16 |
| Tamil Nadu | 37 | 30 | 16 | 13 |
| Tripura | 276 | 131 | 24 | 16 |
| U.P. | 119 | 77 | 27 | 16 |
| West Bengal | 87 | 65 | 25 | 17 |
| Union Territories | 56 | 13 | 8 | 7 |
| All India | 65 | 46 | 19 | 14 |

The rapid branch expansion during the post-nationalisation period brought down the population coverage ratio (population in '000/number of Bank offices), which declined from 65 for the country as a whole in 1969 to 14 per cent in 1989. While it appears a great achievement, the benefit of this growth in the number of bank offices is not available to all the section of the community and the regions of the country, uniformly.

While the national PC ratio average was fourteen, only two states, namely, Andhra Pradesh and Maharashtra were representative of this banking expansion. As against this, eleven states have an inferior population ratio in the terminal year. The table shows a very favourable ratio in seven states but a careful examination of the scenario reveals that this ratio is favourable not on account of a faster rate of banking growth in these states but due to many other socio-economic-political factors such as a comparatively slow rate of growth in population, smaller territorial boundaries, and political discretion. It is a well established fact that certain political factors and administrative factors have influenced the expansion of the bank branches in the past, especially in the case of Union Territories, and Hilly states, such as Himachal Pradesh and Jammu & Kashmir, or sparcely populated states like Rajasthan.

Concentration Analysis

The inference drawn from the analysis of PC Ratio has confirmed that the regional imbalances that prevailed 20 years ago in 1969 continue to be so even in 1989. This aspect of banking development, therefore, deserves a little more sophisticated and technical analysis. For the purpose, it is proposed to do the concentration analysis. The following table depicts the concentration ratios (CR) of banking among different locations.

TABLE II.3

CONCENTRAION OF BANKING BUSINESS OF SCHEDULED COMMERCIAL BANKS

| Category | December 1985 | | December 1986 | | December 1987 | | December 1988 | | December 1989 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Shares in | | | | | | | | | |
| | Deposits | Advances | Deposits | Advances | Deposits | Advances | Deposits | Advances | Deposits | Advances |
| First Ten Cities | 39.8 | 47.0 | 39.6 | 47.4 | 38.6 | 45.8 | 39.1 | 45.5 | 39.5 | 46.9 |
| Next Ninety Cities | 20.2 | 18.0 | 20.7 | 17.7 | 20.5 | 18.1 | 20.2 | 18.1 | 20.0 | 18.0 |
| Total 100 Cities | 60.0 | 65.4 | 60.3 | 65.1 | 59.1 | 63.5 | 59.3 | 63.6 | 59.6 | 64.9 |
| All other Centres including rural and semi urban areas | 40.0 | 34.6 | 39.7 | 34.9 | 40.9 | 36.5 | 40.7 | 36.4 | 40.5 | 35.1 |
| All India | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source : Compiled from Different issues of Banking Statistics - Handouts,published by Reserve Bank of India.

The table shows that the first ten cities viz. Bombay, Calcutta, Madras, Bangalore, Hyderabad, Ahmedabad, Pune, Lucknow and Kanpur account for a major share of total deposits as well as advances to the tune of 40 per cent and 47 per cent, respectively. Next ninety cities account for 20 per cent of the total deposits and roughly 18 per cent of the total credit. Thus, it is very clearly evident that banking in India is largely concentrated and advances especially are highly concentrated in the top ten cities. Further, the share of rural and semi-urban areas in total deposits and lendings are 40 per cent and 35 per cent respectively. Inspite of planned and regulatory efforts, siphoning of funds to big cities has not changed markedly, over the period of time. The following table shows distribution of advances and deposits area-wise.

TABLE II.4

AREA-WISE CREDIT DEPOSIT OF ALL SCHEDULED COMMERCIAL BANKS

(Rs. in Crores)

| YEAR | RURAL | SEMI-URBAN | URBAN | METRO. | TOTAL |
|---|---|---|---|---|---|
| June-1969 | | | | | |
| Deposits | 306.3 | 1053.7 | 1279.2 | 2183.3 | 4822.5 |
| | (6.4) | (21.8) | (26.5) | (45.3) | (100.0) |
| Credit | 115.3 | 453.0 | 755.8 | 2143.3 | 3467.4 |
| | (3.3) | (13.1) | (21.8) | (61.8) | (100.0) |
| C.D.R. | 37.64 | 43.0 | 59.08 | 98.17 | 71.90 |
| June-1979 | | | | | |
| Deposits | 3538.3 | 7078.9 | 7827.6 | 12992.7 | 31437.5 |
| | (11.3) | (22.5) | (24.9) | (41.3) | (100.0) |
| Credit | 2016.4 | 3434.6 | 4603.4 | 11421.4 | 21475.8 |
| | (9.4) | (16.0) | (21.4) | (53.2) | (100.0) |
| C.D.R. | 56.99 | 48.52 | 48.81 | 87.91 | 68.31 |
| June-1989 | | | | | |
| Deposits | 21984.42 | 31568.85 | 36917.29 | 57085.94 | 147556.52 |
| | (14.90) | (21.39) | (25.02) | (38.69) | (100.0) |
| Credit | 14133.59 | 16143.91 | 21652.11 | 44658.31 | 96587.87 |
| | (14.63) | (16.71) | (22.42) | (46.24) | (100.0) |
| C.D.R. | 64.29 | 51.14 | 58.65 | 78.23 | 65.46 |

Note : Figures in brackets are percentages to total

Source : RBI Publications

The above table reveals that nearly 27 per cent of total deposits were from rural segments (rural and semi-urban) in the year 1969, but this improve to 36 per cent by 1989. In case of advances also, a similar trend is visible. Credit-Deposit ratio in rural areas was 37 compared to 98 in matropolitan areas before the nationalisation of banks. However, by 1989 the credit-deposit ratio in rural areas showed remarkable growth-64, while in metropolitan areas it revealed a considerable fall-78. Still it can be concluded that more then two-thirds of advances go to urban and metropolitan areas. The following table presents the analysis of the banking business in terms of credit-deposit ratio during 1969 to 1989.

TABLE II.5

STATEWISE CREDIT DEPOSIT RATIO ALL SCHEDULED COMMERCIAL BANKS

| REGION/STATE | JUNE - 1969 | JUNE - 1979 | JUNE - 1989 |
|---|---|---|---|
| NORTHERN REGION : | 40.17 | 84.57 | 53.07 |
| Haryana | 47.24 | 63.90 | 58.94 |
| Himachal Pradesh | 27.27 | 27.13 | 35.22 |
| Jammu & Kashmir | 19.73 | 37.12 | 35.22 |
| Punjab | 33.30 | 37.86 | 41.40 |
| Rajasthan | 49.86 | 66.73 | 61.66 |
| Chandigarh | 63.84 | 318.19 | 90.84 |
| Delhi | 40.62 | 104.86 | 55.80 |
| NORTH-EASTERN REGION : | 39.25 | 36.54 | 52.59 |
| Assam | 43.22 | 41.24 | 58.55 |
| Manipur | - | 23.79 | 61.70 |
| Meghalaya | - | 18.21 | 24.11 |
| Nagaland | 8.06 | 28.26 | 42.64 |
| Sikkim | - | 2.49 | 28.22 |
| Tripura | 5.96 | 48.73 | 66.92 |
| Arunachal Pradesh | - | 9.63 | 19.81 |
| Mizoram | - | 7.47 | 26.58 |
| EASTERN REGION : | 84.01 | 55.55 | 53.35 |
| | | 39.20 | 40.58 |
| Bihar | 27.18 | 64.17 | 88.04 |
| Orissa | 49.47 | 60.61 | 55.23 |
| West Bengal | 100.60 | 25.50 | 34.07 |
| Andaman & Nicobar Island | - | | |
| CENTRAL REGION : | 47.29 | 49.76 | 52.60 |
| Madhya Pradesh | 55.90 | 54.41 | 70.10 |
| Uttar Pradesh | 44.77 | 48.20 | 46.18 |
| WESTERN REGION : | 79.75 | 68.96 | 73.56 |
| Gujarat | 50.61 | 52.08 | 59.46 |
| Maharashtra | 92.10 | 76.43 | 80.11 |
| Dadra & Nagar Haveli | - | 63.46 | 62.73 |
| Goa, Daman & Diu | 45.07 | 38.53 | 32.79 |
| SOUTHERN REGION : | 98.24 | 77.97 | 87.96 |
| Andhra Pradesh | 94.20 | 70.38 | 86.90 |
| Karnataka | 72.71 | 77.65 | 92.18 |
| Kerala | 74.46 | 65.84 | 65.37 |
| Tamil Nadu | 133.52 | 91.26 | 100.25 |
| Lakshadweep | - | 8.25 | 18.21 |
| Pondicherry | 86.96 | 65.76 | 54.53 |
| ALL INDIA | 71.90 | 69.11 | 65.45 |
| Coefficient of Variation | 56.89 | 51.522 | 40.960 |

The above table shows that the CDR for all India in 1969 was 72 which came down to 65 by 1989. It is very clearly visible that CDR in southern and western regions are higher than the CDR available for the all India. However, in the northern regions, the ratio was least and seems to have a high concentration in Chandigarh and Delhi.Further, it can be inferred that regional imbalances in banking industry in terms of the credit-deposit ratios appear to have reduced during 1969 to 1989 period. The co-efficient of variation (C.V) showed a declining trend from 57 per cent in 1969 to 41 per cent in 1989.

Further, the per capita advances of commercial banks alongwith the CD ratios are presented state-wise in the following table.

TABLE II.6

CD RATIO AND PER CAPITA CREDIT OF
ALL SCHUDELED COMMERCIAL BANKS : STATE-WISE

| STATES | June-1969 C.D. Ratio | June-1969 per capita Credit | June-1989 C.D. Ratio | June-1989 per capita Credit |
|---|---|---|---|---|
| Haryana | 47.24 | 39.89 | 58.94 | 1103.34 |
| Himanchal Pradesh | 22.27 | 13.86 | 35.22 | 744.12 |
| Jammu & Kashmir | 15.73 | 11.79 | 35.22 | 684.59 |
| Punjab | 37.30 | 69.88 | 41.40 | 1674.27 |
| Rajasthan | 49.35 | 23.13 | 61.66 | 569.43 |
| Chandigarh | 63.84 | 2173.33 | 90.84 | 14870.58 |
| Delhi | 40.62 | 753.32 | 55.80 | 9211.99 |
| Assam | 43.22 | 19.05 | 58.55 | 400.62 |
| Meghalaya | - | - | 24.11 | 358.50 |
| Nagaland | 8.06 | 2.71 | 42.64 | 634.67 |
| Tripura | 5.96 | 2.36 | 66.92 | 578.32 |
| Bihar | 27.18 | 10.88 | 40.58 | 339.70 |
| Orissa | 49.47 | 10.13 | 89.04 | 542.67 |
| West Bengal | 100.60 | 205.15 | 55.23 | 1229.40 |
| Andaman & Nicobar Island | - | - | 34.07 | - |
| Madhya Pradesh | 55.80 | 21.78 | 70.10 | 624.90 |
| Uttar Pradesh | 44.77 | 25.83 | 46.18 | 530.32 |
| Gujarat | 50.61 | 112.59 | 59.46 | 1340.78 |
| Goa | 45.07 | 398.47 | 32.79 | 3110.52 |
| Maharashtra | 92.10 | 286.34 | 80.11 | 2946.22 |
| Andhra Pradesh | 94.20 | 45.80 | 86.90 | 1123.51 |
| Karnataka | 72.71 | 78.67 | 92.19 | 1487.20 |
| Kerala | 74.46 | 67.26 | 65.37 | 1275.91 |
| Tamil Nadu | 133.52 | 124.14 | 100.25 | 1721.27 |
| Pondichery | 86.96 | 130.08 | 54.53 | 1849.17 |
| ALL INDIA | 71.90 | 84.89 | 65.49 | 1189.76 |
| Coeffient of Variation | 56.693 | 225.03 | 35.340 | 157.211 |

* Figures relate to June-1988.

Source : RBI Publications

The above table indicates that the per capita advances were of sizable magnitude in the states of Chandigarh, Delhi, Goa, Maharashtra in the years of 1969 and 1989, respectively. The per capita advances from backward states seem to be low and they appear at the bottom when ranks are given on the banks of highest per capita advances. These are the states, namely Orissa, Bihar, Assam, Madhya Pradesh, Nagaland, Meghalaya and Tripura. However,the coefficient of variation shows a fall in the concentration of per capita advances during 1969 to 1989. Thus, there seems to be concentration of banking business in urban areas, developed regions and states.

Thus, the non-statistical ratio analysis of the banking parameters reveals that,

(1) Advances have not grown in proportion to the growth in deposits and resources available with the banking system have been diverted under policy constrains for financing the government deficits.

(2) While PC ratio has improved during the period, the concentration of banking in a few states and in the urban - metropolitan centres is still of a very high magnitude.

(3) The efficiency of the system measured in terms of CV reveals that the distributional efficiency over regions and rural - urban centres has improved during the post nationalization period

These findings, in short, and to some extent atleast, sustain our hypothesis nos. H1, H2 and H3.

## Section II.2 Statistical Analysis

### Composite Index of Performance (CIP)

While each of the measures discussed above, provides indication of banking development in a country or a region of a country or over a period of time, their utility, when used separately may be limited as the same may not be capable of providing a comprehensive and composite index of banking development.

A number of analysts have, therefore, used more than one of these indicators together to examine the level of banking development in different regions. Kannan (4), for example, in his study on Banking Development and Regional Disparities (1987) used three indicators, viz., the population per bank office, the per capita credit, and the per capita deposits. This study however, according to Subba Rao (10) is confined only to the three factors which are not truly representative of the nature of banking development since nationalisation. This study fails to give importance to certain policy-oriented factors such as rapid branch expansion in rural and semi-urban areas or the development of credit to priority sectors. The three variables used by Kannan (4) are insufficiently representative and have failed to capture and consider the structural changes. In his study on 'Indicators of Banking Development' Subba Rao (10) states that the rate of growth of deposits or bank advances per se is not an appropriate measure of banking development and a multitude of factors such as the geogrphical spread of Bank branches,

functional indicators with reference to priority sectors, growth of deposits in rural areas, etc. must be considered in the context of the socio-economic objectives.
As such, a composite index of performance (CIP), covering various factors should be worked out through the technique of factor analysis, which can be used to represent a given set of indicators into a smaller set of factors, which could convey all the essential information of the original set of observations and substantial part of the total variance of all indicators. In their study on 'Operational Efficiency and Profitability of Public Sector Banks'(1978) Divatia and Venkatachalam(2) applied this analysis for evaluating the performance of Public Sector Banks. An important objective of the policy measures and regulation in respect of banking development during the post-nationalisation period has been to reduce inter-regional disparities in the banking development. Accordingly, the measurement of banking development in the country and across the various regions should be done taking into consideration the relevant indicators in respect of spatial and functional social objectives. For this exercise, we propose to draw heavily on the Factor Analysis as applied by Divatia and Venkatachalam (2) and accept the indicators of banking development identified by Subba Rao (10) in a slightly modified manner as presented below :

Group A : Business Indicators

1. Per capita deposits ;
2. Per capita advances ;
3. Credit Utilisation - deposit ratio ;

4. Ratio of Rural and Semi-urban Deposits to Aggregate Deposits ;
5. Ratio of Rural & Semi urban credit to Aggregate credit ;
6. Share of deposits of each state in total deposits; and
7. Share of credit of each state in total credit

Group B : Spatial Indicators

1. Number of bank branches per lakh of population;
2. Number of bank branches per lakh of Rural population;
3. Number of bank branches per lakh of urban population, and

Group C : Sectoral Indicators

1. Percentage share of Agriculture in priority sector advances; and
2. Percentage share of small-scale Industries in priority sector advances.

The 12 indicators identified above have been used to work out a composite index of performance in the base as well as terminal years. At the second stage of analysis, the growth rates of the indicators during the post-nationalisation period have been worked out.

In this study, factor analysis taking all the identified indicators together as well as for each group of indicators separately has been done. In factor analysis the factor scores have been computed by,

Considering a set of variables $X_1$ , $X_2$ ..... $X_k$ , and the corresponding standardised variables, i.e, deviations of the Xs from the mean values divided by standard deviations, called $Z_1$ , $Z_2$ .....$Z_k$ . We may then replace these standardised variables by principal factors, which are linear combination of the Zs.

$$F_1 = a_{11} Z_1 + a_{12} Z_2 + \ldots\ldots\ldots\ldots + a_{1k} Z_k$$

$$F_2 = a_{21} Z_1 + a_{22} Z_2 + \ldots\ldots\ldots\ldots + a_{2k} Z_k$$

$$F_k = a_{k1} Z_1 + a_{k2} Z_2 + \ldots\ldots\ldots\ldots + a_{kk} Z_k$$

or in matrix notation, we may write as (F) = (A) (Z).

The problem is to estimate the co-efficients a ij's, called factor loading; Let R be the correlation matrix between Z;s.

$$(R) = \begin{matrix} 1 & r_{12} & r_{1k} \\ r_{21} & 1\ldots\ldots & r_{2k} \\ r_{k1} & r_{k2} & 1 \end{matrix}$$

The system of linear equations which yields the first and largest component is (R) (A) = ($\lambda$ A)

or (R $-\lambda$) (A) = 0

The system of linear homogeneous equations can have nontrivial solutions only if the determenant equation becomes zero,

i.e if (R - -/I) = 0

Let $-\lambda$, to be the larges root. Corresponding to this largest root (called as eigen value or latent root of characteristic root) the associated vector representing the factor loadings may be derived.Similarly, for the next largest root, the corresponding factor loading vector can be worked out. Generally it will suffice to work out two latent roots which will explain a major part of the variance of the explanatory variables. The percentage contribution of each principal

factor in total variance of the standardised X; is given by /k where k is the number of variables. The standardised variables matrix multiplied by factor loading matrix will give the factor scores' (10).

For measuring the overall concentration and dispersion of various characteristics, the Herfindahl Index is used which can be written as

$$HI = \frac{E\ X^2_j}{(E\ X_j)^2} \qquad (j - 1,\ldots,m)$$

The value of H I lies between 1 and 1/m which may be derived and given by ;

$$O^2 = \frac{1*E*(X_j - X)^2}{m} > 0$$

$$= \frac{1*E*(X_j^2 - X)^2}{m} > 0$$

$$= 1*E*X_j^2 - \frac{E*X_j}{m} \times \frac{E*X_j}{m} > 0$$

i.e $$\frac{1*E*X^2_j}{m} \quad \frac{(E*X_j)^2}{m^2}$$

OR $$\frac{E*X^2_j}{(E*X_j)^2} > \frac{1}{m}$$

Further $$(E*X_j)^2 = E*X^2_j + E\ E\ X_i\ X_j\ X_i,\ X_j \neq 0$$

i.e $$(E*X_j)^2 > E\ X^2_j$$

OR $$\frac{E*X^2_j}{} < 1$$

$$(E^{*}X_j)^2$$

Thus $$\frac{1}{m} < H < 1$$

The value of unity depicts complete concentration and 1/m complete dispersion. A decline in the coefficient of variation of each of the indicators among the states in the two years 1969 and 1986 will give an idea of the deduction in the imbalances in respect of each indicator over the years.

Findings

CIP: Cross-Section Analysis

The performance index (CIP) of the States with reference to the indicators in 1986 alone, reveals that the variation explained by the first principal component was about 62 per cent for the first group and over 70 per cent for each of the other two groups as per the table II.7 given below.

TABLE II.7

Ranking of States with Reference to Banking Development 1985-86

| Sr. No. | State | Functional | | Spatial | | Sectoral | | Total of Ranks | Rank |
|---|---|---|---|---|---|---|---|---|---|
| | | Factor Score | Rank | Factor Score | Rank | Factor Score | Rank | | |
| 1. | Andhra Pradesh | 46.92 | 7 | 47.73 | 8 | 70.48 | 3 | 18 | 3 |
| 2. | Assam | 18.42 | 14 | 18.88 | 15 | 37.9 | 11 | 40 | 15 |
| 3. | Bihar | 13.39 | 15 | 30.56 | 13 | 67.49 | 5 | 33 | 14 |
| 4. | Gujarat | 57.99 | 5 | 59 | 4 | 29.54 | 13 | 22 | 7.5 |
| 5. | Haryana | 45.92 | 8 | 54.46 | 5 | 65.54 | 6 | 19 | 4 |
| 6. | Karnataka | 63.54 | 4 | 78.66 | 3 | 52.96 | 9 | 16 | 2 |
| 7. | Kerala | 30.79 | 10 | 85.58 | 2 | 42.46 | 10 | 22 | 7.5 |
| 8. | Madhya Pradesh | 29.73 | 11 | 40.9 | 10 | 62.88 | 7 | 28 | 11 |
| 9. | Maharashtra | 138.98 | 1 | 43.88 | 9 | 4.8 | 15 | 25 | 9 |
| 10. | Orissa | 26.21 | 13 | 38.22 | 11 | 71.9 | 2 | 26 | 10 |
| 11. | Punjab | 56.25 | 6 | 94.52 | 1 | 73.43 | 1 | 8 | 1 |
| 12. | Rajasthan | 34.35 | 9 | 47.87 | 7 | 68.27 | 4 | 20 | 5 |
| 13. | Tamil Nadu | 74.87 | 3 | 49.07 | 6 | 37.72 | 12 | 21 | 6 |
| 14. | Uttar Pradesh | 28.71 | 12 | 34.8 | 12 | 59.49 | 8 | 32 | 13 |
| 15. | West Bengal | 83.94 | 2 | 25.86 | 14 | 5.14 | 14 | 30 | 12 |
| | Factor Loading | 0.7447 | | 0.9906 | | 0.9295 | | | |
| | | 0.9226 | | 0.8348 | | 0.8527 | | | |
| | | 0.3989 | | 0.6476 | | 0.7959 | | | |
| | | -0.8451 | | | | | | | |
| | | -0.904 | | | | | | | |
| Eigen value | | 3.0963 | | 2.0976 | | 2.2245 | | | |
| Percentage variation explained | | 61.92 | | 69.92 | | 74.15 | | | |

When the indicators in the first group are revised taking into consideration the share of each State in the total deposits/credit, about 73 per cent on the total variation of the factors is explained by the principal component. As such, the modified group is taken into consideration for interpretation of results as given in the table II.8.

TABLE II.8

Ranking of States with Reference to Banking Development 1985-86
(Revised Version)

| Sr. No. | State | Functional | | Spatial | | Sectoral | | Total of Ranks | Rank |
|---|---|---|---|---|---|---|---|---|---|
| | | Factor Score | Rank | Factor Score | Rank | Factor Score | Rank | | |
| 1. | Andhra Pradesh | 51.34 | 7 | 47.73 | 8 | 70.48 | 3 | 18 | 3 |
| 2. | Assam | 15.86 | 15 | 18.88 | 15 | 37.9 | 11 | 41 | 15 |
| 3. | Bihar | 0.95 | 13 | 30.56 | 13 | 67.49 | 5 | 31 | 14 |
| 4. | Gujarat | 53.1 | 6 | 59 | 4 | 29.54 | 13 | 23 | 7 |
| 5. | Haryana | 27.17 | 10 | 54.46 | 5 | 65.54 | 6 | 21 | 5.5 |
| 6. | Karnataka | 59.68 | 4 | 78.66 | 3 | 52.96 | 9 | 16 | 2 |
| 7. | Kerala | 17.26 | 14 | 85.58 | 2 | 42.46 | 10 | 26 | 12 |
| 8. | Madhya Pradesh | 35.5 | 8 | 10.9 | 10 | 62.88 | 7 | 25 | 9.5 |
| 9. | Maharashtra | 157.68 | 1 | 13.88 | 9 | 4.8 | 15 | 25 | 9.5 |
| 10. | Orissa | 23.86 | 12 | 38.22 | 11 | 71.9 | 2 | 25 | 9.5 |
| 11. | Punjab | 25.85 | 11 | 94.52 | 1 | 73.43 | 1 | 13 | 1 |
| 12. | Rajasthan | 33.72 | 9 | 47.87 | 7 | 86.27 | 4 | 20 | 4 |
| 13. | Tamil Nadu | 75.44 | 3 | 49.07 | 6 | 37.72 | 12 | 21 | 5.5 |
| 14. | Uttar Pradesh | 53.11 | 5 | 34.8 | 12 | 59.49 | 8 | 25 | 9.5 |
| 15. | West Bengal | 96.49 | 2 | 25.86 | 14 | 5.14 | 14 | 30 | 13 |
| | Factor Loading | 0.9164 | | 0.9906 | | 0.9295 | | | |
| | | 0.9544 | | 0.8748 | | 0.8527 | | | |
| | | 0.2647 | | 0.6476 | | -0.7959 | | | |
| | | 0.9515 | | | | | | | |
| | | 0.9475 | | | | | | | |
| Eigen value | | 3.6238 | | 2.0976 | | 2.2245 | | | |
| Percentage variation explained | | 72.47 | | 69.92 | | 74.15 | | | |

It may be observed from the rankings for each group in the table that there has been a considerable divergence in the ranks of the states in different groups, which were arranged in the order of factor scores. Thus the five states, viz., Maharashtra, West Bengal. Tamilnadu, Karnataka and Uttarpradesh get the first five ranks in Group A. By and large, this pattern is observed even if only the share of each state in total deposits/credit alone is considered among the variables in Group A, and thus the two indicators seem to be dominant in influencing the ranks of the states in Group A. In Group B, Punjab, Kerala, Karnataka and Gujarat get the top four ranks while in Group C, Punjab, Orissa, Andhra Pradesh and Rajasthan have the high ranks. In the composite ranking, Punjab, Karnataka, Andhra Pradesh and Rajasthan get the better ranks. At the other extreme, Kerala, West Bengal, Bihar and Assam are assigned relatively low ranks from the point of view of overall performance.

CIP: Compound Growth Analysis

In ranking the states with reference to Banking Development(Compound growth rate) for the proper assessment of the relative performance of each of the states, it is necessary to consider not only the levels attained but also the growth of different characteristics over a period of time. The following table provides the information in this regard.

TABLE II.7

Ranking of States with reference to Banking Development
(Compound Growth Rates)

| Sr. No. | State | Functional | | Spatial | | Sectoral | | Total of Ranks | Rank |
|---|---|---|---|---|---|---|---|---|---|
| | | Factor Score | Rank | Factor Score | Rank | Factor Score | Rank | | |
| 1. | Andhra Pradesh | 82.49 | 2 | 50.38 | 8 | 57.65 | 6 | 16 | 4 |
| 2. | Assam | 57.06 | 7 | 72.5 | 3 | 1.33 | 15 | 25 | 7.5 |
| 3. | Bihar | 37.63 | 11 | 91.5 | 2 | 60.98 | 4 | 17 | 5.5 |
| 4. | Gujarat | (-)1.29 | 15 | 23.4 | 15 | 38.58 | 13 | 43 | 15 |
| 5. | Haryana | 37.68 | 10 | 38.46 | 9 | 54.3 | 8 | 27 | 10 |
| 6. | Karnataka | 28.14 | 12 | 31.54 | 12 | 47.21 | 10 | 34 | 13 |
| 7. | Kerala | 62.59 | 5 | 33.75 | 11 | 48.15 | 9 | 25 | 7.5 |
| 8. | Madhya Pradesh | 78.97 | 3 | 63.93 | 5 | 65.16 | 2 | 10 | 2 |
| 9. | Maharashtra | 15.46 | 14 | 34.93 | 10 | 39 | 12 | 36 | 14 |
| 10. | Orissa | 107.13 | 1 | 86.74 | 1 | 82.84 | 1 | 3 | 1 |
| 11. | Punjab | 55.01 | 8 | 31.39 | 13 | 60.06 | 5 | 26 | 9 |
| 12. | Rajasthan | 73.57 | 4 | 52.6 | 7 | 64.06 | 3 | 14 | 3 |
| 13. | Tamil Nadu | 39.21 | 9 | 27.24 | 14 | 40.72 | 10 | 33 | 11.5 |
| 14. | Uttar Pradesh | 57.59 | 6 | 64.18 | 4 | 56.67 | 7 | 17 | 5.5 |
| 15. | West Bengal | 19.59 | 13 | 57.38 | 6 | 88.28 | 14 | 33 | 11.5 |
| | Factor Loading | 0.8827 | | 0.9986 | | 0.9479 | | | |
| | | 0.7989 | | 0.9986 | | 0.9479 | | | |
| | | 0.8822 | | | | | | | |
| | | 0.767 | | | | | | | |
| Eigen value | | 2.7838 | | 1.9744 | | 1.797 | | | |
| Percentage variation explained | | 69.59 | | 98.72 | | 89.85 | | | |

It can be seen from the above table that the first principal component accounted for 70 per cent in the first group and more than 90 per cent in the second and third groups. It is interesting to note that the composite ranking of each state is influenced by ranking under group A. Quite contrary to the one time point position, the picture that emerges by considering growth rates of selected indicators is entirely different.

Thus, the states, Orissa, Madhya Pradesh and Rajasthan emerge as important states under composite ranking, while Maharashtra and Gujarat are relegated to the lower rung. This is supported by the data on growth rates in respect of each of the indicators under reference. However, if the absolute increase in deposits/credit, only is considered for the purpose, Maharashtra, West Bengal, Uttar Pradesh and Tamil Nadu emerged as the relatively important states. A possible explanation for the relatively low ranks in respect of states like Maharashtra and Gujarat may be that the levels of various indicators may be very high in the initial year, i.e. even at the time of nationalisation, and as such the growth rates may not show a significant rise. The relatively high pace of development in some of the backward states may be due to branch licensing policy with thrust on rural/semi-urban areas and unbanked centres in underdeveloped regions in the post-nationalisation period.

CIP : Average Ratio and CGR

Now it would be of interest to examine the correspondence in the ranks of the states obtained according to average ratios at one time point and also the growth rates over the time period under consideration. The following table depicts the same.

Table II.10
Ranks According to Average Ratio and Compound Growth Rate

| Sr. No. | State Groups | Functional | | Spatial | | Sectoral | | Composite | Rank |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B | A | B | A | B | A | B |
| 1. | Andhra Pradesh | 7 | 2 | 8 | 8 | 7 | 6 | 3 | 4 |
| 2. | Assam | 15 | 7 | 15 | 3 | 11 | 15 | 15 | 7.5 |
| 3. | Bihar | 13 | 11 | 13 | 2 | 5 | 4 | 14 | 5.5 |
| 4. | Gujarat | 6 | 15 | 4 | 15 | 13 | 13 | 7 | 15 |
| 5. | Haryana | 10 | 10 | 5 | 9 | 6 | 9 | 5.5 | 10 |
| 6. | Karnataka | 4 | 12 | 3 | 12 | 9 | 10 | 2 | 13 |
| 7. | Kerala | 14 | 5 | 2 | 11 | 10 | 9 | 12 | 7.5 |
| 8. | Madhya Pradesh | 8 | 3 | 10 | 5 | 7 | 2 | 9.5 | 2 |
| 9. | Maharashtra | 1 | 14 | 9 | 10 | 15 | 12 | 9.5 | 14 |
| 10. | Orissa | 12 | 1 | 11 | 1 | 2 | 1 | 9.5 | 1 |
| 11. | Punjab | 11 | 9 | 1 | 13 | 1 | 5 | 1 | 9 |
| 12. | Rajasthan | 9 | 4 | 7 | 7 | 4 | 3 | 4 | 3 |
| 13. | Tamil Nadu | 3 | 8 | 6 | 14 | 12 | 10 | 5.5 | 11.5 |
| 14. | Uttar Pradesh | 5 | 6 | 12 | 4 | 8 | 7 | 9.5 | 5.5 |
| 15. | West Bengal | 2 | 13 | 14 | 6 | 14 | 14 | 13 | 11.5 |
| | Rank Correlation | 0.4750+ | | -0.4750+ | | 0.8411* | | 0.1125+* | |

A - Based on average ratios.
B - Based on compound growth rate.
* - Significant at 5% level.
+ - Not significant.

The table reveals that, when the group of sectoral indicators is considered, the rank correlation between the two variables works out to 0.84 and is significant. In respect of the other two groups (functional and spatial), the rank correlations are negative and significant. Thus,the results indicate that the states assigned high ranks according to the average ratios might have got lower ranks, when growth rates over a period of time are considered. The close correspondence in the sectoral indicators may be possibly due to the fact that targets for priority sectors were laid down from time to time which the banks are supposed to achieve and as such, inter se ranking of the states may not get vitiated, even if the growth rates are considered. For measuring the overall concentration and dispersion of various characteristics, the Herfindahl Index ( ) is used which can be written as

$$HI = \frac{E*X^2_j}{(E*X_j)^2} \qquad (j - 1,\ldots,m)$$

The value of HI lies between 1 and 0 . The value of unity depicts complete concentration and complete dispersion. A decline in the coefficient of variation of each of the indicators among the states in the two years 1969 and 1986 will give an idea of the reduction in the imbalances in respect of each indicator over the years. Among the indicators under the functional group, the coefficient of variation declined substantially in case of per capita deposits(from 77 percent to 58 percent) and per capital

credit (from 93 per cent to 64 per cent). The reduction in the coefficient was not so pronounced in the case of rural and semi-urban deposits/credit, which are the other two variables in Group (A). Similarly, the coefficient of variation remained broadly the same, when geographical spread of bank branches is concerned. With refernce to sectoral indicators, it is observed that the coefficient of variation declined considerably in each of the indicators. Thus, it would appear that the imbalances in respect of the various indicators under consideration, in particular, the per capita deposits and per capita credit and the deployment of credit to the priority sectors, have declined and they are more evenly distributed among the states in the post-nationalisation period. These were also corroborated by the decline in the HI index.

Productivity of banks

In the contest of a general complaint that the productivity are declining in public sector banks, there is an urgent need to assess the productivity and profitability and give the desired directed for sustained improvement in the performance and future growth of the public sector banks. Here it is imperative to note that there seem to be no significant improvement in the position of a few public sector banks when they are grouped on the basis of average figures for various banking indicators. The following table deplicts the average figure for all public sector banks and number of banks below national average.

As can be seen from the above table that though the average figures for different indicators have shown a marked improvement, the number of banks below such average has increased considerably between 1977 and 1986. Some of the banks which were below the average in 1977, continued to remain show in 1986 also, while some others though stood below the average in 1977, managed to go up above the average by 1986 due to their improved productivity. However, the number of such banks is quite small. All the banks whose figures are less than the national average exhibit the poor performance and low productivity. They should put forth concerted and consistent efforts to raise their productivity and profitability.

## Section II.3 Productivity Analysis during Growth Period

### Productivity ratio

An analysis of the productivity ratios should enable us to have an insite into the levels of efficiency of banking operations in India. The productivity ratios have been computed for the period 1977 to 1989 for the public sector banks. The identified ratio are priority sector advances to total advances, priority sector advances to total business, priority sector advances to working funds, total income to working funds, total income to total assets, and total income to total expenditure. The computed data for the above productivity ratios are presented in the following table :

TABLE II.11

Table showing the number of banks which are below the national average figures for all public sector banks

| Sr. No. | Indicators | Average figure for All public sector banks | | Number of Banks below average (Numbers) | | Percentage of number of banks (to the total public sector banks) which are having a figure below national average (percentages) | |
|---|---|---|---|---|---|---|---|
| | | 1977 | 1986 | 1977 | 1986 | 1977 | 1986 |
| 1 | Total Business | Rs.211625.62 lakhs | Rs.799554.09 lakhs | 10 | 14 | 62.5 | 63.6 |
| 2 | Total Deposits | Rs.128196.93 lakhs | Rs.507184.45 lakhs | 10 | 15 | 62.5 | 68.2 |
| 3 | Total Advance | Rs. 83428.69 lakhs | Rs.292369.63 lakhs | 10 | 14 | 62.5 | 63.6 |
| 4 | Total Income | Rs. 12108.19 lakhs | Rs. 51132.95 lakhs | 10 | 15 | 62.5 | 68.2 |
| 5 | Total Profit | Rs. 227.88 lakhs | Rs. 873.77 lakhs | 10 | 15 | 62.5 | 68.2 |
| 6 | Per branch - Business | Rs. 167.24 lakhs | Rs. 484.52 lakhs | 11 | 16 | 68.8 | 72.7 |
| 7 | Per Branch - Deposits | Rs. 101.31 lakhs | Rs. 307.35 lakhs | 11 | 16 | 68.8 | 72.7 |
| 8 | Per branch - Advances | Rs. 65.93 lakhs | Rs. 177.17 lakhs | 11 | 15 | 68.8 | 68.2 |
| 9 | Per branch - Income | Rs. 9.57 lakhs | Rs. 30.99 lakhs | 10 | 15 | 62.5 | 68.2 |
| 10 | Per branch - Profit | Rs. 18008.49 lakhs | Rs. 52950.08 lakhs | 8 | 13 | 50.0 | 59.1 |
| 11 | Per employee Business | Rs. 8.49 lakhs | Rs. 21.63 lakhs | 8 | 12 | 50.0 | 54.5 |
| 12 | Per employee Deposits | Rs. 5.14 lakhs | Rs. 13.72 lakhs | 7 | 12 | 43.8 | 54.5 |
| 13 | Per employee Advances | Rs. 3.35 lakhs | Rs. 7.91 lakhs | 8 | 14 | 50.0 | 63.6 |
| 14 | Per employee Income | Rs. 48591.64 | Rs.138356.77 | 6 | 14 | 37.5 | 63.6 |
| 15 | Per employee Profit | Rs. 914.49 | Rs. 2393.71 | 7 | 14 | 43.8 | 63.6 |

Note : 1 To calculate the percentages for 1977 total units in the public sector banks are taken at 22 i.e. State Bank of India + Associates + 14 Nationalised Banks and in 1986 number of units taken at 28. i.e. State Bank of India + Associates + 20 Nationalised Banks.

Source : Table constructed out of data collected.

TABLE II.12

Table showing the productivity ratios of public sector banks during 1977-86

| Years / Ratios | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | "Z" Value | Table Value of 't' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Priority Sector Advances to Total Advances | 0.35 | 0.37 | 0.41 | 0.32 | 0.33 | 0.32 | 0.34 | 0.35 | 0.37 | 0.37 | 0.16 | 1.96 |
| 2. Priority Sector Advances to business | 0.14 | 0.15 | 0.16 | 0.12 | 0.13 | 0.13 | 0.13 | 0.13 | 0.14 | 0.14 | -0.83 | 1.96 |
| 3. Priority Sector Advances to Working Funds | 0.22 | 0.24 | 0.26 | 0.18 | 0.19 | 0.18 | 0.18 | 0.19 | 0.19 | 0.19 | 1.45 | 1.96 |
| 4. Total Income to Working Funds | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.09 | 0.09 | 0.09 | 1.45 | 1.96 |
| 5. Total Income to Total Assets | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.07 | 0.08 | 0.08 | 0.08 | 0.79 | 1.96 |
| 6. Total Income to Total Expenditure | 1.01 | 1.02 | 1.02 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.02 | -0.82 | 1.96 |

1. Table values of 't' are at 0.05 % level of significance at 9 df.
2. Calculated 'z' values are found 'not significant in all cases.

S O U R C E : Table constructed out of data collected from different sources

The table shows that income to working funds ratio remained stagnant at 0.09 during 1977-86. Similar is the case of stagnance with regard to total income to total expenditure. The former indicates the return on investible funds, while the latter shows return on money spent.

The ratios of priority sector advances in relation to total business, total advances and working funds reveal a mixed trend. However, in majority of the cases a downword trend is visible. Thus, it can be concluded that there is a fall in the productivity of public sector banks in our country, during the period. However, State Bank Of India, Indian Overseas Bank, Indian Bank, Bank of Baroda, Bank of India, Punjab National Bank and Canara Bank appear to be doing better than the other public sector banks. This calls for a further analysis on the basis of various productivity parameters, that follows.

Productivity Parameters

With productivity parameters certain aspects of growth and productivity can be studied. The 12 parameters identified for this study are relational in character, as given below.

1. per employee establishment expenses and per employee business
2. per employee establishment expenses and per employee deposits
3. per employee establishment expenses and per employee advances

4. per employee operating expenses and per employee business
5. per employee operating expenses and per employee deposits
6. per employee operating expenses and per employee advances
7. per employee business and per employee spread
8. per employee deposits and per employee spread
9. per employee advances and per employee spread
10. per employee assets and per employee business
11. per employee assets and per employee deposits
12. per employee assets and per employee advances

The above relationships have been examined for the 20 nationalised banks during 1977 to 1986 period both by gross and marginal increases. In other words, two correlations are worked out for each set of relations between absolute and marginal increase figures.

The values of correlation coefficiets are presented in the following table II.13.

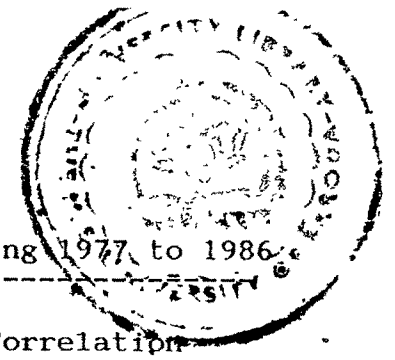

Table II.13

Productivity Parameters In Public Sector Banks During 1977 to 1986

| Variables | Correlation value for absolute increase | Correlation value for marginal increase |
|---|---|---|
| 1. Establishment Expenses and Business | 0.99* | 0.55 |
| 2. Establishment Expenses and Deposits | 0.99* | 0.49 |
| 3. EE and Advances | 0.89* | 0.19 |
| 4. Operating Expenses and Business | 0.99* | 0.50 |
| 5. Operating Expenses and Deposits | 0.99* | 0.44 |
| 6. Operating Expenses and Advances | 0.89* | 0.23 |
| 7. Business and Spread | 0.99* | 0.55 |
| 8. Deposits and Spread | 0.99* | 0.05 |
| 9. Advanses and spread | 0.89* | 0.56 |
| 10.Assets and Business | 0.99* | 0.58 |
| 11.Assets and Deposits | 0.99* | 0.65 |
| 12.Assets and advances | 0.89* | 0.63 |

Note : * indicates level of significance at 5%

The table shows that the `performance variables' are highly correlated and statistically significant at 5% level in case of absolute or gross value but it turns out not significant in case of marginal changes.

## Section II.4 Profitability Analysis during Growth Period

In any the exercise of profitability analysis, usually profit is considered as 'output' and other selected variables as 'input'. The profitability ratio computed for the public sector banks are presented in the following table II.14.

TABLE II.14

Table showing profitability ratios of public sector banks during 1977 - 86.

| Years | Ratio of net profit to | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Operating Expenses | Working Funds | Establishment Expenses | Deposits | Assets | Advances | Spread | Priority sector advances |
| 1977 | 0.06 | 0.002 | 0.08 | 0.002 | 0.002 | 0.003 | 0.08 | 0.008 |
| 1978 | 0.05 | 0.001 | 0.07 | 0.002 | 0.001 | 0.002 | 0.07 | 0.006 |
| 1979 | 0.05 | 0.001 | 0.06 | 0.001 | 0.001 | 0.002 | 0.07 | 0.006 |
| 1980 | 0.04 | 0.001 | 0.06 | 0.001 | 0.001 | 0.002 | 0.06 | 0.007 |
| 1981 | 0.04 | 0.001 | 0.06 | 0.001 | 0.001 | 0.002 | 0.06 | 0.006 |
| 1982 | 0.04 | 0.001 | 0.06 | 0.001 | 0.001 | 0.002 | 0.06 | 0.007 |
| 1983 | 0.04 | 0.001 | 0.06 | 0.001 | 0.0009 | 0.002 | 0.05 | 0.006 |
| 1984 | 0.03 | 0.0009 | 0.04 | 0.001 | 0.0008 | 0.002 | 0.04 | 0.005 |
| 1985 | 0.04 | 0.001 | 0.05 | 0.001 | 0.001 | 0.002 | 0.05 | 0.006 |
| 1986 | 0.06 | 0.002 | 0.08 | 0.002 | 0.001 | 0.003 | 0.07 | 0.008 |
| 't' value | -1.24 | -0.98 | -1.32 | -1.18 | -1.84 | -0.77 | -1.92 | -0.6 |
| Table value of 't' | 1.96 | 1.96 | 1.96 | 1.96 | 1.96 | 1.96 | 1.96 | 1.96 |

Note: 1. Table value of 't' at 0.05 percent level of significance.
2. Calculated 't' value is found 'not significant' in all cases.

Sources: Table constructed out of data collected from different sources.

A careful perusal of the above table indicates that the profit deposits ratio stood at 0.002 in 1977, 1978 and 1986. During rest of the years between 1977 and 1986 it remained at 0.0001. The net profit to advances ratio also showed the same trend. During 1977 and 1978 the ratios were generally high due to 'emergency effect'. In 1982, due to foreign surplus profitability ratio showed a better picture.

A review of profit ratios of banks reveals that during 1977 and the period between 1981 and 1983, the condition seemed to be slightly better. But such profit growth during this period could be attributed largely to the changes in the interest structure during 1974-76 and 1981-83.

Between 1973-76 and 1981-83 there was a significant hike in the lending rates. In December 1973 the minimum general lending rate was raised to 11% from 10% and to 16.5% in March 1981. At the same time, the minimum rate for items covered under selective credit control was raised to 13% from 12% and again to 19.5% in March 1981. In November 1973 interest rate on export credit was raised from 7% to 8% and to 11% in 1974. It was further hiked to 17.5% in March 1981. During the same period, interest on term loans also increased. Though, the interest rates on deposits were also raised, their impact was much less than the improvement registered by interest hikes on advances.

Thus, the remarkable improvement of all groups of banks may be attributed mainly 'to the improvement in the field of

earning assets made possible by the sharp hike in the interest rate structure for advances.

Profitability Parameters

Further, correlations have also been worked out for profitability parameters identified as given below :

1. Total expenses and profit,
2. Total advances and profit,
3. Establishment expenses and profit,
4. Total assets and profit,
5. Interest paid on Deposits and Borrowings and profit,
6. Operating expenses and profit, and
7. Working funds and profit

The above relations have been worked out for each set of relations between absolute and marginal increase figures per employee and the results are presented in the following table II.15.

Table II.15

Correlations Of Profitability Variables Relating to Public Sector Banks During 1977 to 1986

| Variables per employee | Correlation value for absolute or gross increase | Correlation value for marginal increase |
|---|---|---|
| i. 'Total Expenses' and profit | 0.85* | 0.48 |
| ii. Total advances and 'profit' | 0.82* | 0.40 |
| iii. Establishment expenses and 'profit' | 0.84* | 0.04 |

| Variables per employee | Correlation value for absolute or gross increase | Correlation value for marginal increase |
|---|---|---|
| iv. Total assets and profit | 0.84* | 0.36 |
| v. 'Interest paid on deposits and borrowings' and profit | 0.85* | 0.55 |
| vi. Operating expenses and profit | 0.83* | - 0.02 |
| vii. Working funds and profit | 0.84* | 0.64 |

* Significant at 5% level

The relationships between profitability variables indicate high degree of correlation in case of variables which are in absolute or gross value. Not only the correlation values in these cases are high but statistically significant also at 5% level.

However, in case of variables introduced with marginal changes, correlation values turn out to be poor and hence not significant implying that marginal increases in variables do not have a strong bearing on the profitability of public sector banks. Thus, it is clear from the above analysis of different productivity and profitability parameter also, that the Public Sector Banks have been plauged by low profitability.

Section II.5 Effect of Changes in CRR and SLR on Lending Capacity

During 1973 and 1989, the Reserve Bank of India had made variations in Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) several times. The changes made in these ratios can be seen from the following table II.16.

TABLE II.16

Variations in Cash Reserve Ratio and Statutory Liquidity Ratio

(Units Percentages)

| Date of variation | Percentage of variation in | |
|---|---|---|
| | Cash reserve ratio | Statutory liquidity ratio |
| June 1973 | + 3 to 5 | - |
| September 1973 | + 5 to 6 | - |
| September 1973 | + 6 to 7 | - |
| December 1973 | - | 32 |
| December 1974 | - 7 to 5 | 33 |
| December 1974 | - 5 to 4.5 | - |
| September 1976 | - 4.5 to 4 | - |
| September 1976 | + 4 to 5 | - |
| November 1976 | + 5 to 6 | - |
| November 1978 | - | 34 |
| September 1981 | + 6 to 7 | - |
| October 1986 | - | 35 |
| June 1983 | + 7 to 8 | - |
| August 1983 | + 8 to 8.5 | - |
| April 1984 | + 8.5 to 9 | - |
| July 1985 | - | 37 |
| February 1987 | + 9 to 9.5 | - |
| August 1987 | - | 37.5 |
| October 1987 | + 9.5 to 10 | - |
| January 1988 | + 10 to 10.5 | 38 |
| July 1988 | + 10.5 to 11 | - |
| July 1989 | 11 to 15 | - |

Source : Compiled from different sources.

As a result of above variations as much as 47% of the bank deposits were impounded. It has been estimated that a 4 per cent rise in the minimum CRR would reduce credit by about Rs.400 crores. Hence, as a result of high ratios, the lendable resources of commercial banks have been considerably reduced.

After this provision, banks have to ensure deployement of 40 per cent of aggregate advances in the priority sector which

yield a meagre earnings of 12.5% to 13%. Thus, on the one hand the cost of borrowings and expenditure have gone up and on the other, the yield on funds maintained as per statutory requirements has come down which has adversely affected the profitability of funds.