CHAPTER XII

CONCLUSIONS

EDUCATIONAL DEVELOPMENT :

Elementary Education :

1. Primary Education (6-11 age Group) :- At Primary Level, Maharashtra stood first, followed by Gujarat, Orissa and Bihar in that order, during the decade under study. But no State achieved a hundred per cent success in enrolling the children in this age group.

2. Middle Education (11-14 age group) :- According to the enrolment as percentage of population at the middle level in the age group 11-14, Maharashtra stood first followed by Gujarat, Bihar and Orissa in 1960-61. While Maharashtra stood first followed by Gujarat, Orissa and Bihar in 1970-71 respectively. It means that the retention capacity of Orissa at middle level is higher than that of Bihar.

3. In the field of Elementary Education, during the decade 1960-61 - 1970-71, Maharashtra led the rest with Gujarat, Orissa and Bihar occupying the last three positions respectively.

Secondary Education :

4. During 1961-71, Maharashtra topped in Secondary educational development (enrolment as percentage of population : age group 14-17) with Gujarat as second, Bihar third and Orissa fourth respectively. It means
that there are some other factors which have an impact on growth of secondary education in Bihar and Orissa.

Higher Education :-

5. At higher level of education, on the basis of the number of students receiving education per 10000 of total population, Maharashtra stood first, Gujarat second, Bihar third and Orissa held fourth position respectively during the decade under study.

6. According to the enrolment in professional colleges as percentage to total enrolment at higher level of education, Gujarat stood first and Maharashtra second, followed by Orissa and Bihar during the decade 1960-61 - 1970-71.

Educational Development (at all the three levels) :-

7. If the percentage of aggregate population in the four States is considered, total education was highest in Maharashtra, while Gujarat was second, Orissa third and Bihar fourth.

Internal Factors :-

1. Educational Institutions :-

This comparative study of four States does not show the volume of institutions as an effective force for the spread of elementary or secondary education. But at the higher level of education, a direct relation between the number of colleges and enrolment is established.
2. **Institution Managed By Different Agencies:**
There is a positive relationship between the schools managed by local bodies and enrolment at elementary level of education. There is a positive relationship between private secondary schools and enrolment at secondary level of education.

3. **Girls' Enrolment:**
At the elementary level of education, a close affinity exists between the enrolment of girls and the development of education. But the same degree of relationship is not evident at the secondary and higher levels because the number of girls enrolling themselves at these levels is far less as compared to the enrolment at the elementary level of education.

**Relation Between Education and Economic Growth:**

(A) **Population (as an economic factor):**

1. The size of population is not a factor in the educational development of a state.

2. The study of these four States show that the total density does not seem to have played any effective role in educational development.

3. It seems that at the post-primary education level, rural education and bigger proportion of small villages are more inversely related with the enrolment than at the elementary education stage.
4. The growth of urbanisation plays an important role in the spread of elementary, secondary and higher as well as professional education.

5. There is a close relationship between literacy and primary education. But, it does not have any direct effect on the secondary and higher education. This is because the middle strata of the society always proceed further towards secondary and higher education, but the population of middle class is so small, that the percentage of literacy does not show any vital influence.

6. The Study of the development of education in these States does not establish any direct relationship between the spread of female literacy and the enrolment of girls on the one hand and the percentage of female teachers on the other.

7. Backward Population: The ranks of the States in backward population are adversely related with the development of their elementary education, but Orissa is an exception. Thus, social backwardness of population does not seem always to be a handicap at the elementary level of education.

An inverse relationship seems to exist between the rate of backward population and spread of education at the post-primary level. But this correlation has no logical meaning because the percentage of total population
going to secondary schools or to higher institutions is so insignificant that in no way does it influence percentage.

(B) AGRICULTURE SECTOR

1. It is the commercial crop that shows positive correlation with expansion of education.

2. It is seen that the States where the share of agriculture is bigger in State income have less expansion of education at the post-primary level.

3. It is clear that the proportion of workers employed in agriculture can be linked in inverse relation particularly with the expansion of elementary education.

4. The State where there is a greater number of landless labourers in agricultural sector has naturally a low or expansion of education.

5. Where the pressure of population on land is less, agricultural productivity is higher. The order of the States in this regard is directly linked with the development of elementary education.

6. The expansion of agricultural credit societies helps an individual farmer. Thus, it indirectly helps in the expansion of elementary education.

7. If two industrially advanced States, Maharashtra and Gujarat are compared, the agricultural productivity may not affect positively the overall development in the field of primary education. In case of agriculturally dominated economy, the higher productivity may help in the growth of primary education.
Relationship between Primary Education Development and Agriculture

Coefficient correlation between the development of Primary Education and the various indicators agricultural development for the year 1971 are as under.

(i) The proportion of agricultural income to total state income and primary educational development are negatively correlated (-0.8).

(ii) Agricultural labour force and primary education development are perfectly negatively correlated (-1).

(iii) The proportion of landless labourers in agriculture sector is also negatively related to primary education development (-0.4).

(iv) Man-land-ratio is perfectly positively correlated with the development of primary education (1).

(v) Facilities of agricultural credit societies also show positive correlation with the expansion of primary education (0.3).

(vi) Agricultural productivity also shows positive correlation with primary education development in 1971 (0.8).

The multiple correlation coefficient between primary education development rank and variables (six) of agricultural development ranks in 1971 is 0.6543 which is significant at 5% level and thus establishes the fact that primary education development is linearly related with the agricultural development of the four States under study.
INDUSTRIAL SECTOR

(i) It seems that wherever there is industrial expansion, primary education has also expanded. However, though there is more industrialization in Bihar than in Orissa, it lags behind in primary education.

(ii) The share of industrial income of a state can be more directly linked with the enrolment at post primary level than elementary level of education.

(iii) It is found that the income from large scale sector correlates with post primary development rank perfectly in 1970-71. But in 1960-61, it does not correlate in the case of Bihar and Orissa.

(iv) The states where a bigger industrial labour force exists, there is a scope for the expansion of not only secondary but also higher education.

(v) Industrialization must also be a powerful influencing factor as far as the spread of professional and technical education is concerned.

(vi) The proportion of factory workers engaged in factories other than house-hold is directly related with post-primary level of education.

(vii) There is a direct relationship between industrial productivity and post-primary level of education in 1971 but in 1961 Orissa was an exception in this regard.
Post Primary Educational Development and Industrialization:

Coefficient of correlation between post primary education development and variables (indicators) of industrialization (for the year 1971). The coefficient correlation is obtained as under:

(i) The proportion of Industrial Income of the State is perfectly positively correlated with post primary development rank. (+1).

(ii) Industrial Labour force ranks are positively correlated with post primary development rank (+0.8).

(iii) Industrial productivity rank is also positively correlated with post primary development rank (+1).

(iv) Mineral wealth is somewhat negatively related to the post primary development rank (-0.4).

(v) Income from large scale sector rank is perfectly positively correlated with the post primary development rank (+1).

(vi) Factory workers engaged in factories other than household and post primary development rank are positively correlated (+1).

The multiple correlation coefficient between post primary education development rank and six variables (indicators) of industrialization is 0.9093 for the year 1971. This is highly significant and shows that both the factors are linearly related.
1. It is seen that the ranks of post primary enrolment can be linked better to the income from the tertiary sector.

2. The study of the four States, also reveals that road development can be linked directly more intensely with the primary education enrolment than with that as the post primary level.

3. Post primary enrolment can be linked intensely with the consumption of electricity than at the primary education level.

4. Bank availability index is more intensely linked with the order of States in post primary education enrolment rather than their orders of enrolment for primary education.

Post Primary Education and Tertiary Sector:

The following correlation coefficient for the year 1971 between post primary education development rank and (six variables) tertiary sector development are obtained.

(i) Income from the tertiary sector and post primary development are perfectly positively correlated (+1).

(ii) The per capita electricity consumption is positively related with post primary enrolment (+1).

(iii) The bank availability index rank and post primary enrolment rank are also positively correlated (+1).
(iv) Road availability and Railway availability index are also positively correlated with post primary enrolment.

(v) Percentage of electrified villages is positively related with enrolment at post primary level of education.

The multiple correlation coefficient between post primary enrolment and six variables of tertiary sector development is 0.9379 which is highly significant and thus it predicts that the post primary enrolment is linearly related with the tertiary sector development.

(B) STATE INCOME AND EDUCATION EXPENDITURE:

(i) Orissa and Bihar spend a greater percentage of their total educational budget for the elementary level. These are the States where the agriculture sector is the chief source of income.

(ii) In Maharashtra and Gujarat the major part of income is obtained from the secondary and tertiary sectors and as a consequence, the expenditure at secondary and higher stages of education is comparatively bigger in Gujarat and Maharashtra.

(iii) The distribution of State income is a measure of the level of economic progress, the distribution of education expenditure of various levels is a measure of education progress. A direct and close relationship is apparent between these two factors. (See Chart : B.)
(iv) **Ability-Effort-Achievement**: At elementary level of education, a direct relationship is established between effort and achievement in 1960-61, while a close direct relationship is established between each of the three factors - ability, effort and achievement of the four States under study in 1970-71.

(v) At secondary level of education, a direct relationship is established between effort and achievement in 1960-61 while in 1970-71 Orissa ranked third in respect of ability and effort but fourth in respect of achievement. Thus, Orissa increased its effort with the increase in ability, but the effort is not fruitful as far as achievement is concerned.

(vi) A direct relationship between effort and achievement is established at higher level of education during the decade, Bihar is a little ahead in effort and achievement than Orissa though its ability is less than that of Orissa.

(vii) In 1960-61, direct relationship is established between effort and achievement in the four States in the field of education (include all the three stages) while in 1970-71, a close relationship is established between all the three factors - ability, effort and achievement of the four states under study.

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**Ability** :- Per capita income of the State.

**Effort** :- Per capita expenditure on education.

**Achievement** :- Enrolment as percentage of total population of the State.
(F) DISTRICTS : EDUCATIONAL AND ECONOMIC DEVELOPMENT :-

(a) Educational Development (X) and Economic Development (Z) :-

<table>
<thead>
<tr>
<th>Year</th>
<th>ORISSA</th>
<th>GUJARAT</th>
<th>MAHARASHTRA</th>
<th>BIHAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>4.2476**</td>
<td>6.3227**</td>
<td>8.5658**</td>
<td>2.9466*</td>
</tr>
<tr>
<td>1971</td>
<td>7.6291**</td>
<td>5.5463**</td>
<td>8.56317**</td>
<td>7.4059**</td>
</tr>
</tbody>
</table>

Thus \( t_c > t_T \)

Educational Development is definitely linearly related with the Economic Development in the Four States under study for both the years (i.e. 1961 and 1971).

(b) Educational Machinery and Background (Y) and Economic Development :-

<table>
<thead>
<tr>
<th>Year</th>
<th>ORISSA</th>
<th>GUJARAT</th>
<th>MAHARASHTRA</th>
<th>BIHAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>5.0179**</td>
<td>6.9287**</td>
<td>8.1373**</td>
<td>4.3658**</td>
</tr>
<tr>
<td>1971</td>
<td>5.6725**</td>
<td>7.6248**</td>
<td>5.1177**</td>
<td>6.3587**</td>
</tr>
</tbody>
</table>

Thus \( t_c > t_T \)

Educational Machinery and Background are also definitely linearly related with the Economic Development in all the Four States under study for both the years (i.e. 1961 and 1971).

* Indicates that the value is significant at 5% level of significance (i.e. Reject Ho at 5% level).
** Indicates that the value is (highly) significant of significance (i.e. Reject Ho at 1% level).
(c) Regression Lines :-

(i) ORISSA :-
   (a) Year 1961 :-
      (i) \( X \) on \( Z \) : \( X = 1.4268Z - 110.6175 \)
      (ii) \( Y \) on \( Z \) : \( Y = 1.3129Z - 30.65 \)
   
   (b) Year 1971 :-
      (i) \( X \) on \( Z \) : \( X = 0.7959Z + 23.6223 \)
      (ii) \( Y \) on \( Z \) : \( Y = 1.0376Z - 8.5939 \)

(ii) GUJARAT :-
   (a) Year 1961 :-
      (i) \( X \) on \( Z \) : \( X = 1.4268Z - 110.6175 \)
      (ii) \( Y \) on \( Z \) : \( Y = 1.3129Z - 30.65 \)
   
   (b) Year 1971 :-
      (i) \( X \) on \( Z \) : \( X = 0.7959Z + 23.6223 \)
      (ii) \( Y \) on \( Z \) : \( Y = 1.0376Z - 8.5939 \)

(iii) MAHARASHTRA :-
   (a) Year 1961 :-
      (i) \( X \) on \( Z \) : \( X = 0.6606Z + 45.95 \)
      (ii) \( Y \) on \( Z \) : \( Y = 0.97kZ - 3.775 \)
   
   (b) Year 1971 :-
      (i) \( X \) on \( Z \) : \( X = 0.7346Z + 62.75 \)
      (ii) \( Y \) on \( Z \) : \( Y = 0.9573Z - 1.9149 \)
(iv) **BIHAR** :–

(a) **Year 1961** :–

(i) \( X \text{ on } Z : X = 0.6496Z + 34.74 \)

(ii) \( Y \text{ on } Z : Y = 0.9833Z - 10.92 \)

(b) **Year 1971** :–

(i) \( X \text{ on } Z : X = 1.1232Z - 41.59 \)

(ii) \( Y \text{ on } Z : Y = 1.2735Z - 88.08 \)

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