CHAPTER - VI

FINDINGS HYPOTHESES
TESTING AND POLICY
IMPERATIVE
6.1 Introduction:

There are three sections in this chapter; section A presents the major findings of the study. In the section B an attempt has made to test the hypotheses of the study. Section C gives policy imperatives.

Section A

6.2 Major Findings:

The major findings of the study have been summarized below;

- The first chapter was introductory in nature and it has paved the way and laid down the foundation for the present study.
- The second chapter presented the review of literature related to regional disparities in social infrastructure, education and resource allocation, education and economic development. It has been found from the review of literature that positive relation between education and economic development.
- It has been also found from the review that there is a close association between resource allocation for education and development of education. Investment in education has significant impact on educational development and inter it leads to economic development.
- In the third chapter an attempt has been made to examine the contribution of government for the promotion of primary education in general and primary education in particular.
- The Karnataka Government has introduced and implemented number of programmes and schemes for the development of primary education.
  - Appointment of primary school teachers
  - Distributed of free uniforms, text books and school bags
  - Akshara dasoha scheme
  - Providing Bicycles to students
  - Fee Reimbursement
  - EDUSAT Pragramme
  - Suvarna Argya health check up programme
  - Under the National flagship programme of Sarva Shiksha Abhiyan for universalizing elementary education, the State has accorded special
significance for the provision of infrastructure facilities such as school buildings, additional classrooms, maintenance and repairs of school buildings. The State has made efforts to comply with the national norm for provision of MHRD-defined 8 basic facilities comprising of common toilets, girls' toilets, electricity, playground, ramps, library, compound and drinking water for schools. The State government has identified 5 facilities as most essential for schools. These are drinking water, toilets, playgrounds, compound wall and the school building.

- Provided hostel facilities to SC, ST and OBC children at district and taluk level in association with social welfare department and back ward class department.
- Provided student scholarship for different categories of students under central and state government programmes.
- *Kasturaba Gandhi balika vidyalaya*, introduced to promote girls education particularly those from the SC /ST,OBC and minorities.
- The following important programmes are being implemented in order to bring the out of school children in to schools.
  - Children census
  - Enrolment drive
  - Summer bridge course camps- *chinnaraangala*
  - *Cooliyinda shalege* (from labour to school)
  - *Beediyinda shalege* (from street to school)
  - *Baa Balle shalege* (from girls to school)
  - *Baa marali shalege* (come back to school)
  - *Sadaa shale* (flexi schools)
- The numbers of teachers have been increased from 204250 to 320888 during 2001 and 2014.
- The numbers of enrollment have been increased from 53.19 lakh to 74.12 lakh during 2001 to 2014.
- The numbers of schools have been increased from 46135 to 60036 from 2001 to 2014.
- The dropout has been reduced from 32 percent to 8 percent from 2001 to 2014.
The chapter four examined the relationship between investment in primary education and economic development in Karnataka.

The long run relationship has not been found between total allocation for primary education and gross state domestic product.

The long run relationship has not been found between total allocation for primary education and per capita income.

The long run relationship has been found between total allocation for primary education and primary sector income.

Errors in the long run relationship between total allocation for primary education and primary sector income will be corrected in short run.

The long run relationship has been found between total allocation for primary education and secondary sector income.

Errors in the long run relationship between total allocation for primary education and secondary sector income will be corrected in short run.

The long run relationship has not been found between plan allocation for primary education and gross state domestic product.

The long run relationship has not been found between plan allocation for primary education and per capita income.

The long run relationship has not been found between plan allocation for primary education and primary sector income.

The long run relationship has been found between plan allocation for primary education and secondary sector income.

Errors in the long run relationship between plan allocation for primary education and secondary sector income will be corrected in short run.

The long run relationship has not been found between non plan allocation for primary education and gross state domestic product.

The long run relationship has not been found between non plan allocation for primary education and per capita income.

The long run relationship has been found between non plan allocation for primary education and primary sector income.

Errors in the long run relationship between non plan allocation for primary education and primary sector income will be corrected in short run.

The long run relationship has been found between non plan allocation for primary education and secondary sector income.
Errors in the long run relationship between non plan allocation for primary education and secondary sector income will be corrected in short run.

Gross state domestic product significantly causes Total allocation for primary education.

Per capita income significantly causes Total allocation for primary education.

Total allocation for primary education significantly causes primary sector income.

Secondary sector income significantly causes Total allocation for primary education

Tertiary sector income significantly causes Total allocation for primary education

Gross state domestic product significantly causes plan allocation for primary education.

Per capita income significantly causes plan allocation for primary education.

Secondary sector income significantly causes plan allocation for primary education.

Tertiary sector income significantly causes plan allocation for primary education.

Gross state domestic product significantly causes non plan allocation for primary education.

Per capita income significantly causes non plan allocation for primary education.

Primary sector income and non plan allocation for primary education have bi-directional causation.

Secondary sector income significantly causes non plan allocation for primary education.

Tertiary sector income significantly causes non plan allocation for primary education.

The chapter five has been examined the regional disparities in resource allocation and educational development in Karnataka.

The plan allocation for primary education in South Karnataka has been significantly increased higher than North Karnataka. However, the growth of plan allocation was quite high in Belgaum division and quite low in Gulbarga division.
Mean time, there are no significant differences in plan allocation between south Karnataka and north Karnataka. However, plan allocation was significantly high in Bangalore and Belgaum divisions and low in Mysore and Gulbarga divisions.

The Non-plan allocation for primary education in North Karnataka has been significantly increased higher than South Karnataka. However, the growth of non plan allocation was quite high in Belgaum division and quite low in Mysore division.

At the same time, there are no significant differences in non plan allocation between South Karnataka and North Karnataka. However, non plan allocation was significantly high in Bangalore division and low in Gulbarga division.

The total allocation for primary education in North Karnataka has been significantly increased higher than South Karnataka. However, the growth of total allocation was quite high in Gulbarga division and quite low in Bangalore division.

At the same time, there are no significant differences in total allocation between South Karnataka and North Karnataka, and among the divisions.

Teachers in primary education in north Karnataka have been increased higher than south Karnataka. However the growth of teachers in primary education was quite high in Gulbarga division and quite low in Mysore division.

At the same time, there are more number of teachers in south Karnataka then the North Karnataka. However there are more number of teachers in Bangalore and Belgaum divisions compare to Mysore and Gulbarga divisions.

Enrolment in primary education in north Karnataka has been positively increased and decreased in South Karnataka. However the rate of growth of enrolment was high in Gulbarga division and negatively it was very low in Mysore division.

At the same time, there are no significant differences in enrolment between South Karnataka and North Karnataka. However, enrolment was quite high in Bangalore and low in Mysore divisions.

Primary schools in North Karnataka have been significantly increased higher than South Karnataka. However, the rate of growth of schools was quite high in Gulbarga division and negative in Mysore divisions.
At the same time, there are more number of primary schools in south Karnataka compare to North Karnataka and more number of primary schools in Bangalore division and less number of primary schools in Gulbarga division.

The significant differences have not been found in plan allocation per student between the regions and among the divisions.

The significant differences have not been found in non-plan allocation per student between the regions but allocation per student was quite high in Mysore division and low in Bangalore division.

The significant differences have not been found in total allocation per student between the regions and among the divisions.

The significant difference has not been found in plan allocation per primary school between South Karnataka and North Karnataka and among the divisions.

The significant difference has not been found in non-plan allocation per school between South Karnataka and North Karnataka and it was quite high in Gulbarga and low in Bangalore divisions.

The significant difference has not been found in total allocation per school between South Karnataka and North Karnataka but it was quite high in Gulbarga and low in Bangalore divisions.

The teachers school ratio was high in North Karnataka and specifically Gulbarga and Belgaum divisions.

The student school ratio was high in North Karnataka and specifically Gulbarga and Belgaum divisions.

Student teachers ratio was high in North Karnataka and specifically Gulbarga and Belgaum divisions.
6.3 Testing of Hypotheses:

In the following section presents testing of hypotheses.

**Hypothesis 1**

H0: Total allocation to primary education does not has long-run relationship with gross state domestic product

H1: Total allocation to primary education has long-run relationship with gross state domestic product.

**Co-integration between TAPE and GSDP**

<table>
<thead>
<tr>
<th>Unrestricted Cointegration Rank Test (Trace)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesized</td>
</tr>
<tr>
<td>No. of CE(s)</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>At most 1</td>
</tr>
</tbody>
</table>

1 Cointegrating Equation(s): Log likelihood -427.9318

Normalized cointegrating coefficients (standard error in parentheses)

<table>
<thead>
<tr>
<th>TAPE</th>
<th>GSDP</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000000</td>
<td>-6.772821</td>
<td>96827.17</td>
</tr>
<tr>
<td></td>
<td>(0.75147)</td>
<td>(49169.0)</td>
</tr>
</tbody>
</table>

Adjustment coefficients (standard error in parentheses)

| D(TAPE) | -0.479905 |
|         | (0.12357) |
| D(GSDP) | -0.027730 |
|         | (0.01264) |

Note: Not Significant at five percent level.
It has been found from the co-integration test that total allocation for primary education and GSDP do not have long-run relationship even at ten percent level. Therefore, there has not been significant long-run stable relationship between total allocation for primary education and GSDP in Karnataka. Therefore, the null hypothesis cannot be rejected. Accordingly, total allocation to primary education does not have long-run relationship with gross state domestic product

**Hypothesis 2**

H0: Gross state domestic product has not been significantly caused planned allocation to primary education.

H1: Gross state domestic product has been significantly caused planned allocation to primary education.

**Causality between TAPE and GSDP**

<table>
<thead>
<tr>
<th>Pairwise Granger Causality Tests</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample: 1991 2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lags: 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Null Hypothesis:</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSDP does not Granger Cause TAPE</td>
<td>21</td>
<td>5.31561</td>
<td>0.0333</td>
</tr>
<tr>
<td>TAPE does not Granger Cause GSDP</td>
<td></td>
<td>0.74508</td>
<td>0.3994</td>
</tr>
</tbody>
</table>

The Granger Causality Test has been identified the causation of the GSDP on TAPE in Karnataka at one lags. Therefore, GSDP significantly causes TAPE at five percent level. Hence, current year TAPE has been determined by last one year GSDP of Karnataka. Therefore, the null hypothesis is rejected and alternative hypothesis is accepted.
Hypothesis 3

H0: There is no regional disparity in resource allocation to education

H1: There is regional disparity in resource allocation to education

**Comparison of TAPE between SK and NK**

<table>
<thead>
<tr>
<th>Regions</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Karnataka</td>
<td>14</td>
<td>124368.3758</td>
<td>52628.29228</td>
<td>14065.50275</td>
</tr>
<tr>
<td>North Karnataka</td>
<td>14</td>
<td>112367.7116</td>
<td>55211.33727</td>
<td>14755.85057</td>
</tr>
<tr>
<td>F-value: 0.058</td>
<td></td>
<td>t-value: 0.589</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig: 0.811</td>
<td></td>
<td>Sig: 0.561</td>
<td></td>
<td>df: 26</td>
</tr>
</tbody>
</table>

During the last fourteen years, the average total allocation for primary education in South Karnataka is 124368.3 lakh rupees and it is 112367.7 lakh rupees in North Karnataka. It is found from the F-test that difference in the variance between the series is not significant. Hence, equal variance assumed. It is found from the t-test that difference in the mean value between South Karnataka and North Karnataka is not significant. Hence, there are no significant differences between South and North Karnataka in terms of total allocation to primary education. Therefore, in absolute terms there is no regional disparity in Karnataka in terms of total allocation to primary education. Therefore null hypothesis cannot be rejected.
Hypothesis 4

H0: There is no regional disparity in educational infrastructure development

H1: There is regional disparity in educational infrastructure development

**Comparison of STDSC between SK and NK**

(In Numbers)

<table>
<thead>
<tr>
<th>Regions</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Karnataka</td>
<td>8</td>
<td>112.350</td>
<td>5.5289</td>
<td>1.9548</td>
</tr>
<tr>
<td>North Karnataka</td>
<td>8</td>
<td>154.163</td>
<td>10.9832</td>
<td>3.8832</td>
</tr>
</tbody>
</table>

F-value: 3.411  
Sig: 0.086  
t-value: -9.618  
Sig: 0.000  
df: 14

Source: 1. Economic survey of Karnataka  
2. Budget reports of Karnataka

During the last eight years, the average students per school in South Karnataka are 112 and it is 154 in North Karnataka. It is found from the F-test that difference in the variance between the series is not significant. Hence, equal variance assumed. It is found from the t-test that difference in the mean value between South Karnataka and North Karnataka is significant. Hence, there are significant differences between South and North Karnataka in terms of average students per school. Therefore, in absolute terms, there are more number of students per school in North Karnataka compared to South Karnataka. Hence, there is regional disparity in Karnataka in terms of average students per school. Therefore the null hypothesis is rejected and alternative hypothesis is accepted.
**Hypothesis 5**

H0: Gulbarga division has not been suffering from shortage of teachers.

H1: Gulbarga division has been suffering from shortage of teachers.

**Multiple Comparisons of STDTEC among Divisions of Karnataka**

*(In Numbers)*

<table>
<thead>
<tr>
<th>(I) divi</th>
<th>(J) divi</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangalore Division</td>
<td>Mysore Division</td>
<td>-.1000</td>
<td>2.0511</td>
<td>.961</td>
</tr>
<tr>
<td></td>
<td>Gulbarga Division</td>
<td>-7.7375*</td>
<td>2.0511</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Belgaum</td>
<td>-3.4125</td>
<td>2.0511</td>
<td>.107</td>
</tr>
<tr>
<td>Mysore Division</td>
<td>Bangalore Division</td>
<td>.1000</td>
<td>2.0511</td>
<td>.961</td>
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<tr>
<td></td>
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<td>-7.6375*</td>
<td>2.0511</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Belgaum</td>
<td>-3.3125</td>
<td>2.0511</td>
<td>.118</td>
</tr>
<tr>
<td>Gulbarga Division</td>
<td>Bangalore Division</td>
<td>7.7375*</td>
<td>2.0511</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Mysore Division</td>
<td>7.6375*</td>
<td>2.0511</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Belgaum</td>
<td>4.3250</td>
<td>2.0511</td>
<td>.044</td>
</tr>
<tr>
<td>Belgaum</td>
<td>Bangalore Division</td>
<td>3.4125</td>
<td>2.0511</td>
<td>.107</td>
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<tr>
<td></td>
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<td>3.3125</td>
<td>2.0511</td>
<td>.118</td>
</tr>
<tr>
<td></td>
<td>Gulbarga Division</td>
<td>-4.3250</td>
<td>2.0511</td>
<td>.044</td>
</tr>
</tbody>
</table>

*. The mean difference is significant at the 0.05 level.

Source: 1. Economic Survey of Karnataka

2. Budget Reports of Karnataka
It has been found from the multiple comparisons that the average student teacher ratio is significantly less in Bangalore division compared to Gulbarga division and no difference with Mysore and Belgaum divisions. The average student teacher ratio is significantly less in Mysore division compared to Gulbarga division but no difference found with Bangalore and Belgaum divisions. The average student teacher ratio is significantly high in Gulbarga division compared to all other divisions. The average student teacher ratio is significantly less in Belgaum division compared to Gulbarga division but, significant difference not found with Bangalore and Mysore divisions.

Therefore, student teacher ratio is significantly high in Gulbarga division and relatively high in Belgaum division and significantly less in Bangalore and Mysore divisions. Accordingly alternative hypothesis is accepted.
Section-C

6.4 Policy Imperatives:

The following policy imperatives have been made based on the findings of the study;

- The total allocation made by government of Karnataka (GOK) is not according to the needs of primary education and more-over, total allocation in primary education by GOK has not been leading to economic development of the state. Hence, there is a need to re-orientation of total allocation to primary education.

- It has been found from the literature review that there is a positive relationship between investment in education, and economic development. But, it has not been identified in the case of Karnataka. Therefore, there is need to establish the linkages between investment in education and economic development.

- GSDP has positive impact on resource allocation. At the same time investment in education does not has significant positive impact on GSDP of Karnataka. Therefore, allocation to education has to be increased in order to strengthen use of education for better GSDP of Karnataka.

- Even with all programmes and schemes enrollment in Mysore division has been declined gradually. Therefore, the necessary steps have to be taken to improve the enrolment in Mysore division.

- It has been identified by the study that Gulbarga division has acute shortage of teachers and schools. Schools and teachers are the important determinants of educational development. Therefore, it is the responsibility of government to be made available of more teachers and schools to Gulbarga division.

- Within the Northern Karnataka, Belgaum is quite ahead in terms of availing educational investments compared to Gulbarga division. Therefore, in future days to come, government needs to concentrate more on educational development of Gulbarga division.
6.5 Conclusion:

Resource allocation play a vital role in economic development and it also has significant impact on educational development. The disparity in resource allocation leads to disparities in educational development. At the same time the effective government intervention could solve the regional disparities in education. Hence, the study suggests that area specific programmes need to be implemented to reduce the regional disparities and provide infrastructural facilities with sufficient resource allocations.