PROBLEM AND PROSPECT OF ELEMENTARY EDUCATION IN INDIA

ABSTRACT
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Abstract

Education is very vital for the development of an individual as well as that of a nation. It is supposed to bring all round development of an individual through well-designed, conscious process. It is also important for the nation as the development of a nation depends on the natural resources, physical resources and last but not the least on the quality of the human resources. Through well trained and skilled human resources, a nation can develop and it is the role of education system to provide trained and skilled human power, constantly. The recognition of this fact created awareness on the need to focus upon literacy and elementary education not simply as a matter of social justice but more to promote economic growth, social welfare and social stability.

Soon after the attainment of independence, free and compulsory elementary education was given prime importance by the framers of the Constitution of India. The Constitution envisaged the Right to Education for all children of India by incorporating Universalisation of Elementary Education (UEE) in its framework. UEE means making education available to all the children in the age group of 6 to 14 years, where every child, possesses basic skills such as the ability to read and write with fluency, numeracy, comprehension, analysis, reasoning and social skills such as teamwork.

Undeniably, India has made tremendous progress in all spheres, but the educational scenario is rather dismal. It has a very large and well developed education system but still faces lots of obstacles to ensure universalisation of elementary education. Despite the continued efforts made at national and state level, the universalisation of free and compulsory education has not so far been achieved in full. In spite of quantitative expansion in elementary education system in India, large variation in literacy as well as elementary education has been observed across the states and spread of literacy has not been uniform all over the country. Although, the educational system has increased its coverage at the elementary level phenomenally and enrolment rates have increased substantially, the high dropout rate continues to deplete the system. In addition, there is huge gender disparity at elementary level. Though the literacy rate for girls continues to improve, still they have lower
enrolment, lower attendance rates as well as higher dropout rates compared to boys. The learning outcome amongst student is also not very encouraging. A sizable number of children dropped out from school without completing their eight years of schooling and those who are somehow able to complete their schooling, their ability to read, write and mathematical calculations is very poor. Thus, the low quality of education and high dropout rate at primary and upper primary levels continues to be a matter of great concern even though the rates are decreasing steadily.

The quality of schooling and learning ability of students generally depends on two parameters namely, on the teachers and basic infrastructural facilities in schools. Though the number of teachers has increased considerably during the last two decade particularly at the upper primary level, still there are large number of single teacher schools and Pupil Teacher Ratio (PTR) is high in the schools. However, now a days, 'Para-teachers' (Shiksha Mitras) have been appointed to fill vacancies left by regular full-time teachers in schools. But replacing regular teachers with Para-teachers is in general detrimental to the quality of education and the effectiveness of schools as these Para-teachers are often not trained and paid much less than the regular teacher. In addition to this, condition of basic infrastructural facilities is also very poor in the schools. Apart from building and classrooms, drinking water facility and toilets are the basic infrastructure input that must be provided in every school, still in India many primary schools are not endowed with even such basic facilities.

Public Expenditure on education is essential for realising the education goals and for the progress of education, but it has been increasingly realised that government is not investing adequate resources on education particularly on elementary education. The government of India launched the Sarva Shiksha Abhiyan (SSA) as a countrywide programme for realising the goal of UEE. SSA was launched to provide additional finances over and above the existing state expenditures for elementary education to invest in various components of education infrastructure, quality improvement and capacity building. But, despite the continued efforts made at national and state level the goal of universalisation of free and compulsory education in India still eludes.

In the light of these issues, the present study entitled "Problem and Prospect of Elementary Education in India" has following objectives:
1. To analyse the growth, problems and gaps in elementary education at all India level and in the selected states.

2. To analyse the trends in public expenditure on education particularly on elementary education at all India level and in the selected states.

3. To analyse the relationship between public expenditure and outcome (in terms of attainment and improvement in infrastructural facilities) in elementary education at all India level and in the selected states.

4. To assess the progress of elementary education under SSA and spending pattern between centre and state on elementary education in the selected states of India.

5. Finally to come out with the findings and conclusion and to suggest solutions.

The Hypothesis of the study are:

1. There is no significant relationship between public expenditure and the enrolment at elementary level.

2. There is no significant relationship between expenditure and growth in number of schools at elementary level.

3. There is no significant relationship between expenditure and growth in number of teachers at elementary level.

The study relies entirely on secondary sources of data collected from various official sources such as Report, Surveys and Periodicals and websites of the government of India. The data on enrolment, dropout and other educational variables have been compiled from Education in India, Ministry of Human Resource Development (MHRD), Selected Education Statistics (SES), Ministry of Human Resource Development (MHRD) and State Report Cards, District Information System on Education (DISE), NUEPA. Data of expenditure on education have been taken from Analysis of Budgeted Expenditure on Education, MHRD. Other important data of educational variables are taken from National Sample Survey Organisation (NSSO) 2007-08 which is available on the website www.mospi.gov.in. Public Report on Basic Education in India (PROBE), 1999 and 2006, ASER a Report by PRATHAM have also been used. Data of Sarva Shiksha Abhiyan are compiled from the website of SSA. Data on literacy rate are taken from census of India which is available at the website www.censusindia.gov.in.
Furthermore, the data on Gross Domestic Product, Net State Domestic Product and Gross Fiscal Deficit are collected from Centre for Monitoring Indian Economy (CMIE), Handbook of Statistics for State Government Finances, RBI, Handbook of Statistics on Indian Economy, RBI and Economic Survey. The data on educational variables at international level are compiled from various issues of Global Monitoring Report and data for 1991 has been taken from the Institute of Statistics, UNESCO.

The study uses Compound Annual Growth Rate to analyse the growth in the variables. Beside this, the study also uses coefficient of correlation technique in developing the nature of relation between the variables.

The compound annual growth rate is calculated by two formulas. The first one is:

For computing the compound annual growth rate, in a regular time series (say $y_t$) with an interval of generally one year, compound annual growth rate in the series is usually obtained by estimating an exponential equation of the type:

$$y_t = b_0 b_1^t e^{u_t}$$

where,

'e' stands for the base of natural logarithm.

'u_t' represents disturbance term associated with 'x' variable at time 't'.

The unknowns 'b_0' and 'b_1' are estimated through the ordinary least squares (OLS) method as applied to the linearized version (achieved through logarithmic transformation) of the given function. The growth rate 'r' in $(y_t)$ is then computed as:

$$r = \left[ (b_1)-1 \right] * 100$$

where,

'r' represents compound annual growth rate

The study examines the constancy, acceleration or deceleration in the rates of growth in the educational variables during the post-SSA period in India. The conventional approach for such analysis is to carry out the usual growth rate analysis over the sub-periods (for pre-SSA period from 1991-92 to 2000-01 and, for the post-SSA period from 1991-92 to 2009-10). The above mentioned conventional approach has two major drawbacks:
- The number of observations available for estimation of rates of growth should be fairly large (say ≥ 14). However, sub-periodisation may result in a severe loss of degrees of freedom available for estimating of the rates of growth.

- The approach pre-assumes constancy in the rates of growth within each of the sub-periods which, however, may be far from reality in a multiplicity of situations (Sethi, 2008).

Keeping in mind these limitations associated with the conventional approach, the following alternative approach has been undertaken.

For this purpose, we may estimate an exponential equation of the type:

\[ y_t = b_0 b_1^{(1-D)t} b_2^{D_t} e^{ut} \] \hspace{1cm} (i)

Where, \( D \) stands for a dummy variable, assuming values of 0 and 1 during pre and post-SSA periods respectively. During the pre and post-SSA period, equation (i) would be equivalent respectively to:

\[ y_t = b_0 b_1^t e^{ut} \text{ and } x_t = b_0 b_2^t e^{ut} \] \hspace{1cm} (ii)

Providing rate of growth in the corresponding periods as:

\[ r_1 = [(\hat{b}_1)-1] \times 100 \text{ and } r_2 = [(\hat{b}_2)-1] \times 100 \] \hspace{1cm} (iii)

Where, \( r_1 \) represents the compound annual growth rate during the pre-SSA period and \( r_2 \) denotes the compound annual growth of the post-SSA period. In fact, these two rates of growth would be computed respectively from the two sub-parts of the series. Nevertheless, as could be easily seen, the two rates could be obtained in a single stroke from the estimation involving the entire series. The equation (i) could be rewritten as:

\[ y_t = b_0 b_1^{(1-D)t} b_2^{D_t} e^{ut} \]

\[ y_t = b_0 b_1^t (b_2 b_1)^{D_t} e^{ut} \]

\[ y_t = b_0 b_1^t c_2^{D_t} e^{ut} \] \hspace{1cm} (iv)

where,

\[ c_2 = b_2/b_1. \]
From the entire series, the unknowns \( b_0, b_1 \) and \( c_2 \) [Hence, \( b_2 = b_1/c_2 \)] could be obtained through the OLS technique, as applied to the log-linear version of (iv). Therefore, the rates \( r_1 \) and \( r_2 \) are obtained through (iii).

Another formula which has been used for computing CAGR is the well-known compound interest formula

\[
Y_t = Y_0 (1+r)^t \quad \text{(i)}
\]

Where \( r \) is the compound (i.e., over time) rate of growth of \( Y \). Taking the natural logarithm of the equation (1) can be written as

\[
\ln Y_t = \ln Y_0 + t \ln (1+r) \quad \text{(ii)}
\]

Let consider \( \beta_1 = \ln Y_0 \) and \( \beta_2 = \ln (1+r) \) then we can write eq (2) as

\[
\ln Y_t = \beta_1 + \beta_2 t \quad \text{(iii)}
\]

Adding the disturbance term from eq (3) then obtained

\[
\ln Y_t = \beta_1 + \beta_2 t + u_t \quad \text{(iv)}
\]

This formula has been used for computing CAGR where period has not been divided into sub-periods.

Correlation coefficient is a measure of the strength of linear association between two variables. Correlation will always between -1.0 and +1.0. If the correlation is positive, we have a positive relationship. If it is negative, the relationship is negative. Hence, in order to know the degree of association between two variables like public expenditure and enrolment at elementary level etc. the correlation coefficient is calculated by using the following formulae:

\[
r = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{[N \sum x^2 - (\sum x)^2][N \sum y^2 - (\sum y)^2]}}
\]

Where,

- \( N \) = number of values or elements
- \( \sum xy \) = sum of the product of the paired score
- \( \sum x \) = sum of x score
- \( \sum y \) = sum of y score
- \( \sum x^2 \) = sum of squires x score
\[ \sum y^2 \] - sum of squared y score

To incorporate many variables simultaneously, correlation matrix has been calculated by using Microsoft Excel.

In order to know the level of significance of correlation coefficient, t-values have been calculated by using the following formulae:

\[ t = \frac{r}{\sqrt{1-r^2}} \cdot \sqrt{N - 2} \]

The study has the following limitations:

➢ The present study is limited to the period from 1991-92 to 2009-10 and the whole study is divided into two sub periods:

- Period I from 1991-92 to 2000-01 (Pre SSA Period)
- Period II from 2001-02 to 2009-10 (Post SSA Period)

➢ Further, the present study is confined to only eight selected states amongst which six are educationally backward states viz. Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, Andhra Pradesh and West Bengal and remaining two are educationally better performing states namely Kerala and Himachal Pradesh. The selection of states is mainly due to the fact that these six major educationally backward states - Bihar, Uttar Pradesh, Madhya Pradesh, West Bengal, Andhra Pradesh and Rajasthan, accounts for 60.5 per cent in the country's total 6-14 age group child population. 7th All India Educational Survey estimated in 2002-03 that nearly 69 per cent of out of school children were concentrated in these six states. There are several other states such as Orissa, Assam and Gujarat which are also educationally backward, further research can be carried out on these states.

➢ In the study for the analysing growth in enrolment, we have taken Gross Enrolment ratio (GER) as an indicator of educational attainment but GER has some flaws as overage and underage children as well as repeaters are also get counted into it. Net Enrolment Ratio (NER) is more accurate and also acceptable internationally. But due to non-availability of time series data on NER, GER has been considered in the study.

➢ The study included expenditure as an explanatory variable to determine enrolment in the states. Other factors such as parental and child interest, poverty, socio-cultural and demand side factors which also determine...
enrolment are not included in the study. The reason being, these factors cannot be quantified and as expenditure on elementary education can affects these factors by increasing incentives and infrastructural facilities in schools to boast enrolment, we have used expenditure as an explanatory variable.

- The study is mainly based on different Reports of MHRD such as Selected Educational Statistics and Analysis of Budgeted Expenditure on Education. However, when this work was at the stage of compilation, actual data on some parameters were yet to be published, hence some provisional as well as revised estimates have been used in the study.

- Apart from this, data on educational variable like net enrolment ratio, retention rate and single teacher schools is not available since 1990s; it was available only after 2000-01. Hence, they have been taken up from the year they were available.

- Finally, since this research relies on secondary sources so it has to be taken with all its limitations.

The whole study is organised into six chapters.

The First chapter deals with the introductory background as well as theoretical aspects of the study and outlines the objectives, hypothesis to be tested, database used and methodology adopted in the study.

Second chapter makes an in depth study of review of literature.

Third chapter discusses growth, problems and gaps in elementary education in India.

Chapter fourth analyses the financing of education particularly elementary education in India. The relationship between public expenditure on elementary education and educational attainment as well as educational infrastructure development is also analysed and hypothesis are tested.

Chapter five examines the achievement made in elementary education since the initiation of the Sarva Shiksha Abhiyan (SSA) and also analyses the centre and state government’s financing on elementary education under SSA.

Chapter six summarises the findings with concluding remarks and makes suggestions.
The major findings of the study are listed in the following points:

1. There has been remarkable growth in enrolment at elementary level and GER at primary level exceeded above 100 per cent. However GER above 100 per cent is not very convincing. GER exceeding 100 per cent shows the presence of overage and underage children. NER is more accurate and is regarded as ideal indicator of enrolment. Our analysis shows GER of the states is much higher as compared to NER and there is large gap between GER and NER of students at primary level across the states.

2. The study found that enrolment has increased to a great extent but enrolling all children into school does not guarantee that the goal of universal enrolment has been achieved. There are large variations in attendance rates of students across the states. On the one hand there is Kerala and Himachal Pradesh where more than 90 per cent of children were attending schools, on the other hand, in the states of Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, Andhra Pradesh and West Bengal less than 90 per cent of students were found attending school. While increasing enrolment is a sign of achievement in the field of education, lower attendance ratio is a matter of great concern.

3. The study found that despite of the several female oriented initiatives taken by the government, gender disparity is prevalent at primary and upper primary level.

4. It is revealed in the study that learning skills amongst children at elementary level is very low. The ability of students in reading, writing and mathematical calculation is very poor. It seems that as children moves towards higher grades, their performance does not improve rather deteriorates.

5. It is found in the study that over the year’s dropout rate has decreased considerably in almost all the states. For example in Bihar the dropout rate declined from 64.38 per cent in 1991-92 to 59.55 per cent in 2000-01 that is by around 4.83 per cent. Similarly in Madhya Rajasthan and Andhra Pradesh dropout rate declined to 26.69 per cent, 55.31 and 41.49 per cent respectively. But the two states namely Uttar Pradesh and West Bengal performed poorly in reducing the dropout rate during the pre SSA period. Comparing dropout rate of these states with national average, it was found that dropout rate in three
states namely Bihar, Rajasthan and Uttar Pradesh is much higher than the national average. In the states of Andhra Pradesh, West Bengal and Madhya Pradesh dropout rate is below the national average. It was also found in the study that the incidence of dropout is very high at elementary level. Large number of children tends to dropout at elementary level as compared to primary level.

6. The study found that the number of schools has increased to a great extent but increase in schools could not accommodate all children. Amongst the selected states, in few states number of schools declined in post Sarva Shiksha Abhiyan (SSA) period. For instance in Bihar the Compound Annual Growth Rate (CAGR) of primary schools was 1.00 per cent in period I (pre SSA period), it declined to -1.1 per cent in period II (post SSA period). In Madhya Pradesh and West Bengal it declined from 4.59 per cent and 1.25 per cent in period I to 2.14 per cent and 0.94 per cent in period II respectively.

7. There is also large variation and imbalance in the provision of teachers across the states. The growth in number of teachers in Bihar was slow and uneven during the 1990s. The CAGR of teachers at primary level in Bihar was 2.60 per cent in period I, it declined to 0.74 per cent in period II. In Madhya Pradesh and Rajasthan CAGR of teachers declined from 4.43 per cent and 2.60 in period I to 2.38 per cent and 2.17 per cent in period II respectively. There is acute shortage of teachers in Bihar and Uttar Pradesh and the problem of PTR is serious in three states, namely Bihar, Uttar Pradesh and West Bengal. It is also found that in the five states viz. Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh and Andhra Pradesh percentage of single teacher school at primary level was high.

8. Public Expenditure on education is essential for realising the educational goals and for the progress of education and Government of India has recognised the crucial role of education in development. But, despite the recommendation of Kothari Commission to spend 6 per cent of GNP on education, pattern of allocation of resources on education remained far from satisfactory and in India, public expenditure on education as a per cent of GDP has declined steeply from above 4 per cent in 1999-00 to 3.98 per cent of GDP in 2009-10.
9. Even at the state level, variation in spending pattern has been found amongst educationally backward and developed states. Himachal Pradesh, an educationally developed state devoted more expenditure on education and particularly on elementary education. On the other hand, educationally laggard states like Rajasthan, Madhya Pradesh, Uttar Pradesh, Andhra Pradesh and West Bengal devoted very low proportion of their Net State Domestic Product (NSDP) on education. Even amongst educationally backward states variation in spending pattern was observed and Bihar devoted higher share of its income on education particularly on elementary education.

10. The study revealed that share of non-plan expenditure is high as compared to plan expenditure in the states. During 1991-92 more than 90 per cent of the revenue expenditure was of non-plan in nature in the states of Bihar, Madhya Pradesh, Uttar Pradesh, Andhra Pradesh, West Bengal and Kerala. Almost entire fund under non-plan expenditure is spent on teachers’ salary, negligible amounts is left for other items such as incentives, infrastructure and so on.

11. Further, the study found that National Policy on Education (1986), the government of India, had recommended that at least 50 per cent of the total expenditure on education be allotted to elementary education. While many states allocated nearly or about 50 per cent of total education expenditure on elementary education, there are few states which are still far behind.

12. In addition to this, the study found that per student expenditure on elementary education at current prices has increased several times but it declines at constant prices (in real terms). Decreasing or stagnant per student expenditure in India shows the deterioration in the quality and standards of education leading to higher pupil-teacher ratio, overcrowded classrooms, lack of limited facilitates like furniture and teacher-learning materials etc.

13. Further, from the statistical analysis the study found that there is positive correlation between the public expenditure and educational attainment as well as infrastructure at elementary level. The association of expenditure with enrolment is very high at all India level and in the four states namely Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh. The correlation coefficients at all India level and for these states emerged out to be 0.930, 0.859, 0.765, 0.660
and 0.854 respectively. All these correlations coefficient are positive and statistically significant. The result confirms that public expenditure has led to improvement in enrolment at elementary level in all these states. However, in Andhra Pradesh, West Bengal and Himachal Pradesh correlation coefficient is very low and in Andhra Pradesh and West Bengal it is significant but in Himachal Pradesh it is insignificant. In Kerala, correlation coefficient between public expenditure and enrolment is negative and significant.

14. The correlation of expenditure with number of schools is positive in India and across the states except Kerala where it was negative. The correlation coefficient is 0.960 at all India level, 0.751 in Bihar, 0.765 in Madhya Pradesh, 0.874 in Rajasthan, 0.882 in Uttar Pradesh, 0.917 in Andhra Pradesh, 0.645 in West Bengal and 0.956 in Himachal Pradesh. All these correlations coefficient are positive and statistically significant. On the basis of the estimate of correlation coefficient between public expenditure and number of schools, it can be easily inferred that public expenditure has led to the improvement in the elementary schools in the states.

15. The value of correlation coefficient between public expenditure and number of teachers is also very high in all the states except Kerala where it was negative. The correlation coefficient is 0.958 in India, 0.575 in Bihar, 0.761 in Madhya Pradesh, 0.933 in Rajasthan, 0.576 in Uttar Pradesh, 0.894 in Andhra Pradesh, and 0.948 in Himachal Pradesh. All these correlations coefficient are statistically significant. On the basis of the estimate of correlation coefficient between public expenditure on elementary education and number of teachers, it can be concluded that public expenditure has led to the appointment of new teachers at all India level and in all the states. However, the increased in teachers in all the states is not uniform and educationally laggard states have largely depended on employing contract teachers instead of permanent teachers.