



## State Financing of Education in India: An Empirical Analysis

### KEYWORDS

State financing, Education, Adequacy, Efficiency, Equity JEL classification: I 22

**Suresh Kr. Nath**

Associate Professor, Department of Economics, Cotton College, Guwahati.

**Nissar A. Barua**

Associate Professor, Department of Economics, Gauhati University

**ABSTRACT** *Issues of adequacy, efficiency and equity emanating from state financing of education in India occupy the centrestage in domain of Economics of Education. Although adequacy of educational provision is reflected in the gross enrollment ratio (GER), however, in a heterogeneous and unequal society like India, a more revealing picture of adequacy is provided by estimating the GER in terms of ethnicity, religion, caste, sex and income levels. In elementary education, where a large number of recipients suffer from severe malnutrition and ill health, an assessment in adequacy must also consider the basic nutritional and health provisions. Market distortions cause divergence between social and private return to education which is often aggravated by the state intervention resulting in serious efficiency implications. Moreover, direct public provision is often inefficient which manifests in the form of excessive rate of dropout, high rate of student failure and extended period of instruction. Equity implications are critical areas of concern in any public educational funding programme and have to be decided on the basis of private as well as social rate of returns from education. However, such indicators have been distorted significantly by extensive government subsidy. In recent years, in India, there have been increasing calls to reduce subsidy in higher education and redirect the resources to primary education on grounds of equity. Equity considerations also call for the inclusion of members of the marginalized groups among the beneficiaries of public provision of education.*

In the globalised world economy, individual countries compete to gain an edge over their competitors through the creation, dissemination, and utilization of knowledge. Knowledge plays a critical role in enhancing this competitiveness as it facilitates the overall development of a country by raising productivity, increasing income and employment, and improving the standard of living along with the quality of life. The basis on which knowledge is created is education and hence its efficient provision, in adequate quantity is a prerequisite for sustainable growth. Smooth and sustainable growth also requires social cohesion, which can only be achieved through a more equitable education system.

Education as a commodity is excludable and (once congestion sets in) rival, and hence can be provided by the market. However its provision and consumption generates significant positive externalities which provide a rationale for public provision. This is because goods generating positive externalities are always under-produced by the market and hence the deficit has to be covered by the state if the provision is to be set at efficient levels. Like other forms public provision, education provided through the public budget must bear scrutiny with regards to how efficiently it is provided or whether its provision is adequate to meet the stated objectives. Besides there is a need to ensure that public funding of education and its redistribution effects does not perpetuate the existing social inequality by acting against the disadvantaged and marginalized groups in the society.

This paper focuses on some critical issues associated with the public funding of education in India. It explores the achievements and failures of the various strategies adopted by the state as it strives to fulfill the stated objectives of universalisation of elementary education and the attainment of an enrollment rate at the tertiary levels that is at consistent with the country's growth aspirations. Finally it seeks to find a consensus on the best possible way forward to meet the objectives, given the inherent contradictions and the existing constraints.

### Adequacy Issues in Educational Funding:

Traditionally adequacy of educational financing has been evaluated in terms of the percentage of Gross National Product (GNP) that is allocated to education. By this criterion, allocation to education as a percentage of the GDP in India

has been steadily increasing over the years from 2.49 percent in 1980-81 to 3.59 in 1990-91 and then to 4.18 percent in 2000-2001, which represents a 67.87 percent increase in that period. Among the three levels, elementary education has enjoyed the maximum hike (52.29 percent) in allocation followed by secondary education (20.99 percent) and higher education (13.16 percent). This reflects the priority that the government has put on elementary education and also the strong impulse that it wants to impart to the flagship SSA programme that seeks to address the stated national commitment of universal literacy.

**Table-1: Allocation in the education sector as a percentage of GNP**

Year	Elementary	Secondary	Higher	Education (all levels)
1980-81	1.09	0.81	0.38	2.49
1990-91	1.58	1.10	0.36	3.59
2000-01	1.66	0.98	0.43	4.18

Source: Based on Analysis of Budgeted Expenditure on Education, Ministry of Human Resource Development (various years)

However international comparison in terms of UNESCO(2007) data reveal that the percentage of GDP allocated to education in India in 2005, at 3.8 percent, is very low in comparison to allocation in USA (5.6 percent), UK (5.4 percent) or even to countries in transition like Brazil (4.4 percent) and Mexico (5.4 percent), in the same period

In India, a major development in recent years was the enactment of the Right of Children to Free and Compulsory Education (RTE) Act, 2009 which makes the provision of free and compulsory education to children of the age group 6 to 14 mandatory. This act encompasses elementary schooling and sets norms for the establishment of physical and human infrastructures as well as maintenance of standards in the teaching-learning process. While estimates of additional financial commitments to achieve the target of universalisation of elementary education range from 0.8 % to 2.5% of the GDP, the National Knowledge Commission (2007) estimates that the total cost involved in the five year period of 2008-2012 is Rs. 151,273 crore, based on the 50% share of the central government contribution to the flagship universal

literacy programme Sharva Siksha Avijan (SSA). This amounts to only 1 % of the GDP and less than 8% of the total central government expenditure.

Indicators like the percentage of GNP that is allocated to education can only provide a limited perception of the adequacy in the provision of education as they throw no light on the coverage of the target groups by the educational programmes or for that matter the efficiency with which such programmes are administered. In recent years Gross Enrollment Ratio <sup>3</sup>(GER) is being increasingly used to indicate the adequacy of provision as it represents the number of pupil enrolled in an educational programme as a ratio of the total population in the relevant age group. Table-2 reveals significant attainments made by India in the last fifty-five years in the sphere of elementary education where it increased its GER from 32.1 percent in 1950-51 to 94.9 percent in 2005-06. Keeping in view the immediate objective of universalisation of primary education it is imperative that adequate resources is earmarked (as had been done) for the flagship universal literacy programme SSA so that hundred percent Net Enrollment Ratio <sup>4</sup> (NER) is attained at this level of education.

**Table-2: Gross Enrollment Ratios In Elementary Level Education**

Year	Primary (I-V)	Upper Primary (VI-VIII)	Elementary (I-VIII)
1950-51	42.6	12.7	32.1
1960-61	62.4	22.5	48.7
1970-71	78.6	33.4	61.9
1980-81	80.5	41.9	67.5
1990-91	83.8	66.7	78.6
2000-01	95.7	58.6	81.6
2005-06	109.4	71.0	94.9

Source: Ministry of Human Resource Development, Time Series Data, 2005-06

In higher education, India's GER is only marginally above that of the average GER for developing countries (11.6 percent) and significantly below that of the world average of 23.2. Given India's aspiration to be a leading knowledge economy, the appalling coverage of its relevant population by higher education can be perceived by a comparison with the GER of developed countries (54.6) or for that matter, the GER for Countries in Transition (36.5). In this context of the Central Advisory Board of Education Committee Report (CABE, 2005) suggests that a minimum GER of 20 in higher education appears to be the threshold for a country to attain sustainable growth. Acting on the same logic the 11th plan envisages raising the GER to 15 percent by 2012 and to 21 percent by the end of the 12 the plan. This would involve an initial net increase in the enrollment by staggering 7 million in the period 2006- 2012 (Thorat, 2009).

Besides the physical attainment of educational infrastructure and enrollment, adequacy in education must also reflect on the qualitative aspect bringing into the ambit of consideration issues like competence & commitments of teachers, quality & relevance of curriculums, and efficacy of delivery & absorption. There are obvious difficulties in devising objective measurements of these indicators as they inherently involve value judgment which is not readily amenable for standardization.

In underdeveloped countries, administering conventional educational programmes proves to be a meaningless exercise when a large number of targeted recipients suffer from severe malnutrition and ill health. Under the circumstances the scope of education services has to be expanded to include provision of the basic nutritional and health requirements for the affected population. In order to resolve this

lacuna The National Programme of Nutritional Support for Primary Education (NPNSPE) was initiated in 1995. This programme, which came to be popularly referred to as the Mid Day Meal Scheme (MDMS) was expected to increase enrollment, enhance retention and induce participation of the targeted children from Grade-I to Grade-VIII, while simultaneously fulfill their nutritional requirements. While the programme was executed to supplement other efforts directed towards the universalisation of primary education, it is also expected that it would go a long way in promoting social cohesion by making children fragmented by diverse caste, religion, and ethnic groups, eat and learn together.

The MDMS stipulates a minimum cooking cost of Rs 2 per child per school day to provide 450 calories and 12 grams of protein. Beneficiaries of this scheme include 8.1% of rural population and 3.2% of urban population in the low income bracket, whose nutritional requirements are addressed (Planning Commission, 2007). Planning Commission (2010) data indicates that MDMS have supplemented the nutritional requirements of 117.6 million children at a cost of Rs. 48022.9 million which comes to an expenditure of Rs. 408.35 per child per annum.

Despite the attainments and many good practices, the MDMS has suffered from inefficient delivery due to the absence of an effective management structure. The qualities of delivery vary in extremes from state to state, and huge leakages have been reported due to lack of supervision and monitoring.

#### **Efficiency Issues in Educational Funding:**

Efficiency in education is determined on the basis of two criteria: cost-benefit ratio and cost effectiveness. Any educational programme will be considered relatively efficient if its cost-benefit ratio is lower than other comparable alternatives. Thus given the benefit, the efficiency of a programme will increase if it can be provided at a lower cost. While discussing cost and benefit in education it is worthwhile to mention that the two concepts can be perceived from the social perspective, as well as from the perspective of individual beneficiaries. Thus private benefit is estimated as the difference between what a worker with higher level of education attainment would expect to earn over and above that of a worker with attainment at an immediate lower level. On the other hand, the cost is constituted by the direct cost of accessing education (in the form of tuition fees, costs of books and travel, and other incidental expenses) and the indirect cost (in the form of the income foregone by the student).

Determining social benefit and cost however is more complex as it requires the estimation of the spillover effect created due to the generation of positive and negative externalities in the provision of the education programme in question. It involves, in many instances adjustments in estimations to account for market inefficiencies which create distortion in the pattern of private benefit and costs.

Under the circumstances, if market forces are allowed to determine the allocation of resources in terms of private return, then for instance higher salaries for management graduates may induce the market to redirect scarce resources from science & engineering education to management education. Under the circumstances, unless the state intervenes, a country risk rapid erosion of standards in science and technology and hence a loss in its international competitiveness. Similarly state intervention is necessary to maintain education in liberal arts as the social benefit generated from such subjects is not reflected in the private benefit which depends upon the market wage rate. Using the criterion of social cost-benefit ratio, proposals for public subsidy in education in rural areas and for disadvantaged groups can be similarly justified.

Alternatively, cost effectiveness is perceived in terms of attainment from educational programmes given the resources expended in their provision. Ineffectiveness in the provision can take any of the following four forms (Benson, 1987)

- an excessive rate of student wastage
- an excessive rate of student repetition of classes
- a high rate of student failure in examinations
- a process of instruction which is too slow and drawn out.

In the last fifty-six years India has made impressive advances with regards to GER, especially in elementary level education. However retention of the children for the duration of the educational cycle poses a much more difficult problem. The problem is apparent with a very high dropout rate of 25.67 percent in the primary level. Things gets worse when the dropout rates of the marginalized scheduled caste and scheduled tribes' students are taken into account. Given the magnitude of student wastages in the form of dropouts, it remains a matter of grave concern that such a huge proportion of the children in India fail to complete even the primary educational cycle. The rate of dropout increases as one move up the educational levels, which again reaffirms the fact that despite huge allocation made in education, massive wastages takes place which needs to be urgently corrected through better material provision, more efficient service delivery and through a comprehensive programme aimed at increasing social awareness on the minimum need for elementary education.

**Table-5: Dropout Rates of School Students in 2005-6**

Categories/Levels	Primary (I-V)	Elementary (I-VIII)	Secondary (IX-X)
All	25.67	48.80	61.62
Scheduled Caste	32.86	55.17	70.57
Scheduled Tribes	39.79	62.87	78.52

Source: Ministry of Human Resource Development, Time Series Data, 2005-06

As indicated in Table-6, the percentage of success in high school examination in 2008 in India is 68.33 percent implying that 31.67 percent failed to clear that exam for that year. The rate of failure for scheduled caste students and scheduled tribe students are even higher at 41.39 and 40.4 percent. Although this involves a appalling cost for the state, however the loss of morale, self-esteem, and dignity of the unsuccessful students is a matter of even more serious concern. The fact that the rate of failure for scheduled caste and scheduled tribes students is much higher than the national rate, have far reaching consequences as it contradicts the stated national objective of closing the social and economic gap between the general populace and these marginalized groups, through a policy of affirmative action. Although the success rates at the higher secondary level is marginally better however the same form and level of inefficiency is perceived which calls for introspection with regards to the adequacy of the provision of material and human resources and also the need for regulation and monitoring of the resource that is provided.

**Table-6: Percentage of Success in High School & Higher Secondary Examination in 2008**

Categories of students	High School Examination	Higher Secondary Examination
All	68.33	74.36
Scheduled Caste	58.61	65.14
Scheduled Tribes	59.60	63.90

Source: Ministry of Human Resource Development, Statistics on School Education 2007-2008

Student wastage in the form of high dropout rates can be minimized once the core reasons are identified. The basic educational infrastructure consisting of proper building and furniture, essential teaching material, and most important, sufficient number of eligible teachers can go a long way in inducing higher enrollment and greater retention of students. Students opting out due to acute poverty can be induced to remain in the classrooms by a strategy that provides for mid-day meals, free text-books & uniforms and other incen-

tives. At the secondary level students can be motivated not to dropout by making the curriculum more responsive to the labour market requirement, which enhances their employability and makes the acquisition of education worthwhile.

Over the years there has been a growing realization that the efficiency of the educational system is reflected in the level of learning rather than by the GER, or the retention rate or even the success rate. This is especially true in the case of India where the relatively high GER is nullified by the low retention rate and where huge inter-state variations in curriculums, nature and standards of examinations, quality of evaluations and monitoring make comparison of success meaningless.

Excessive repetitions and failures can be corrected if the state has a good feedback system in place which would help to pinpoint the chief cause of such ineffectiveness in the provision of education. Thus once the information gap is bridged the state can correct distortions like incompatible feeder institutions, incomprehensible medium of instruction, alien curriculum & syllabus etc that aggravates the problem.

#### Equity Issues in Educational Funding:

Equity implications are critical areas of concern in any state educational funding programme. However determining what constitute an equitable allocation in education is more difficult than what it initially appears as the concept of equity can and is interpreted in different ways in different contexts.

Unlike the general GER, sex specific GER reveals the coverage of the traditionally neglected female population by the educational system. Besides in a heterogeneous society a detailed and a comparative picture of equity in provision of education can be provided by estimating the GER in terms of ethnicity, religion, caste and income levels.

The GER in India, for all categories of students were 94.9 in 2005-06. In this case, contrary to popular perception, the ratio is higher at 102 for the marginalized scheduled caste students and at 106.4 for the scheduled tribes pupils. A possible explanation to this may be the strategy for affirmative action adopted by the government for bringing about greater equity and cohesion in the society. However all the gains made in GER is neutralized by the higher dropout rates among these marginalized sections of the population.

**Table-7: Gross Enrollment by Various Categories at Different Levels of School Education**

Categories/ Levels of Education	Primary (I-V)	Upper Primary (VI-VIII)	Elementary (I-VIII)
All	109.4	71	94.9
Scheduled Caste	118.6	73.5	102
Scheduled Tribes	125.8	71.5	106.4

Source: Ministry of Human Resource Development, Time Series Data, 2005-06

A significant part of India has been and still is, traditionally conservative, chauvinistic and indifferent to the concept of gender equity. The influence of age old prejudice is reflected in lower female literacy, lower female enrollment, and higher female dropout rates. However, changing perceptions about female participation in social life and increasing acceptance of the concept of gender equity is reflected in the dramatic increase in female enrollment, in all the three levels of education. Although gender disparity still exists against female students, however it is encouraging to observe that the gap is rapidly closing over the years. This is observed in Table-9, which indicates the fast increasing Gender- Parity Index.

**Table-8: Female Enrollment per Hundred Males**

Year	Primary	Upper Primary	Secondary
1950-51	39	18	16
1960-61	48	32	23

1970-71	60	41	35
1980-81	63	49	44
1990-91	71	58	50
2000-01	79	72	65
2005-06	87	81	73

Source: Ministry of Human Resource Development, Time Series Data, 2005-06

**Table-9: Gender Parity Index**

Year	Primary	Upper Primary	Elementary
	I-V	VI-VIII	I-VIII
1950-51	0.41	0.22	0.38
1960-61	0.50	0.34	0.47
1970-71	0.63	0.45	0.59
1980-81	0.67	0.53	0.63
1990-91	0.75	0.61	0.71
2000-01	0.82	0.75	0.80
2005-06	0.94	0.88	0.92

Geographical disparity in the enrollment of education is a cause of concern in India. The problem is evident in Table-15 where states like Arunachal Pradesh, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Goa, etc exhibit high enrollment ratio against those like Bihar, Jammu & Kashmir and Nagaland where the enrollment ratio is way below the national average. The fact that there is no geographical contiguity among the advanced states or the backward states, and that there is no significant correlation between GER and State Per Capita Domestic Product implies that the relative disparity could result from the quality of governance in the respective states. Besides it is seen that the level of awareness and social progressiveness of the society do have an influence on the decision to send the children to school, especially the girl child. These arguments can also be extended to the urban-rural divide in the GER as rural rates are observed to be noticeably lower than the overall rates for all the states as well as at the national level.

States	Gross Enrollment Ratio	
	All	Rural
Andhra Pradesh	75.36	64.19
Arunachal Pradesh	101.25	87.26
Assam	76.11	74.31
Bihar	62.70	59.61
Goa	90.53	105.14
Gujarat	84.51	85.14
Himachal Pradesh	100.95	99.91
Jammu & Kashmir	69.85	63.66
Jharkhand	86.09	80.86

States	Gross Enrollment Ratio	
	All	Rural
Kerala	86.64	75.12
Maharashtra	82.52	75.75
Manipur	111.34	106.28
Meghalaya	116.35	108.22
Mizoram	103.84	93.13
Nagaland	58.80	43.43
Orissa	80.65	82.05
India	81.99	76.63

Table 10: State-wise Gross Enrollment Ratio at School Level for 2007-08

An important equity issue that one is confronted with is who should pay for the education that is provided? The rational answer to that would obviously be the person who benefits the most from its provision. To understand the problem in hand one has to estimate the private as well as the social rate of returns from education, where return is measured as the difference between benefit and cost. Although the social benefit from education is considerably higher than the private benefit, however large-scale subsidy in education results in private returns exceeding social returns for all levels of education. In his study in 22 developing countries Psacharopoulos (1973) estimated that

- Returns to primary education are the highest among all educational levels
- Returns to education in developing countries are comparatively higher than developed countries.
- And most significantly, the gap between private and social rate of returns is the highest for higher education and lowest for primary education.

Based on the conclusions of Psacharopoulos one can draw certain conclusions on returns to different levels of education which have their own ramifications on equity. Primary education exhibits the highest returns because the cost of its provision is the lowest. Moreover the case for greater public provision of primary education is greatly strengthened by the fact that the gap between private and social returns at this level is the lowest for all levels of education. In contrast the significant gap between private and social returns in higher education establishes the general perception that the net benefit to the direct beneficiaries of higher education far exceeds the net benefit that accrues to the society. In recent years, this argument is being increasingly offered, to justify an increase public allocation in primary and secondary education at the cost of higher education (whose attributes as a merit good are now being more stridently subjected to scrutiny.)

Extensive subsidy in higher education has resulted in private returns to education exceeding their social returns. Such artificially generated high private returns induce a large number of students in India and other less developed countries to seek higher education despite the fact that such education promises only a marginal increase in productivity or income. In fact, with the economy failing to generate jobs in pace with the number of outturns from the educational institutions, the phenomenon of negative substitution of employment have become rampant where labour with higher educational attainment have been replacing those whose level of attainment is lower. Thus a situation has arisen where labour with a particular level of education finds employment only at a lower occupational level, implying that the additional knowledge and skill acquired is redundant at the existing job. Such instances are widespread in developing countries like India, which results in significant wastages of scarce resources that otherwise could have played a critical role in other strategic areas of investment.

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