

Education Budget Allocation and National Education Goals: Implications for Teacher Salary Level

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Abstract

Various committees and education activists have argued that India should allocate 6 % of its GDP to budgetary support for education on the pattern of western countries. The paper shows that, even after the allocation of 6 % of GDP to education, the current salary level of teachers and the cost of education per child has to be brought down substantially if India were to achieve educational goals and outcomes compared to other countries that allocate similar, or even lower, share of budget to education. It is also shown that India pays much higher teacher salary compared to other countries, as the multiple of per capita national income. The current teacher salary and school cost structure and universal schooling are simply incompatible. This makes the policy support for low-cost quality education inevitable, as had been done earlier for group-based microfinance and cooperative dairying. The paper highlights some suitable policy options available to meet basic educational goals after spending 6 % of GDP on education. The politically acceptable and economically feasible policy could be to (i) expand Alternative Innovative Education under SSA, after upgrading its allocation to provide quality margin, to cover a large proportion of lower primary children, (ii) using regular school teachers for higher primary and secondary classes, and (iii) keeping at minimum the rise in teacher salary under sixth pay commission.

An Overview

The countries with public spending on education at around 6 percent of GDP, mostly developed western nations, provide free school education to all their children up to grade 11 or 12, and support a significant share of pre-school and university education cost. The average years of education for the citizens in all these countries range between 14-16 years. Differing from this trend, China spends only around 2.3 percent of its GDP on education and provides nine years of free education to all its children. Singapore spends around 3 percent of GDP on education, and provides six years of free education to all children and subsidized high school education to half of the eligible population. In contrast, India spends around 3.3 percent of GDP on education but fails to ensure the completion of five years of primary education to even 50 percent of children (Table 1).

Table 1 Inter-country comparison of education spending and attainments

Country	Public Spending on Education as % of GDP	Estimated Average Years of Education of Citizens	Gross Enrollment up to Tertiary	Health Budget as % of GDP
USA	5.9	16-17	93%	6.8
UK	5.5	16-17	93%	6.9
Canada	5.2	16-17	93%	6.9
India	3.7	6-7	62%	1.2
China	2.2	> 9	70%	2.0
Singapore	3.1	>9	87%	1.6
Philippines	3.2	...	82 %	1.4

Source: World Development Report (2004)

Although India's education budget is more than half of the norm in developed western countries, it attains much less than half number of years of school-college education of its citizens compared to these countries. India spends a larger share of its GDP on education compared to China, Philippines, and Singapore, but attains a significantly lesser number of years of education for its citizens compared

to these. This comparison says nothing about the differences in the quality of education, but if that too is factored in, then it clearly emerges that **India is probably the most inefficient user of its public spending on education** when compared to both developed and comparable emerging economies/ countries. The table also indicates that an allocation of more than 6 % of its GDP on education is not only unlikely for India, it might be even inadvisable, since India currently spends much less on other priorities such as health care, social security for old and unemployed, infrastructure etc.. Therefore, India has to meet its education goals by spending no more than 6% of GDP on education.

Given the inefficiency and ineffectiveness of India’s education system, this paper examines the policy implications for the country to achieve its core education goal after allocating 6 percent of GDP to its public spending on education.

Basic Facts

As per census 2001, India had a population of 1028.610 million and the proportion of different age group citizens was as per table 2.

Table 2
Population age group distribution

Age Group	0-4	5-9	10-14	15-19	20-24	>25
% population	11.8	12.0	11.7	10.1	8.9	45.5
No. of people*	121	123	121	104	91	468

* This has been estimated for 2004, on the basis of 2001 census, by assuming a population growth rate of 1.8%.

Source: Population Projections for India and States 2001-2026 (Revised 2006), Office of Registrar General and Census Commissioner, Government of India.

The Reserve Bank of India reported that the GDP of India in terms of current prices was at Rs. 3105512 crores in 2004-05, which translated into per capita income of Rs. 28645/-.

The Analysis

We review the scenario as if India had allocated 6 percent of GDP to public education budget in 2004-05, and arranged to provide free school education for 10 years to all children, and public support to only 50 % of eligible children for higher school classes and subsequent stages in education. Under this scenario, India would have been providing the government support for the education to a smaller share of its population in school-college going age compared to all other countries that spend around 6% of GDP on education.

Table 3 gives the number of children and teachers that the Government must support through its budgetary allocation under this scenario. This table has been drawn up with the assumption that all children in the age group of 5-14 would be enrolled in government-funded schools. This group constitutes around 24.6 percent of India’s population (Census 2001). Only half of the children graduating from high school would have been admitted for the government-funded intermediate schools while the rest would have either dropped out of schools or funded their education privately. It is further assumed that a similar proportion of the population in college going age would have received government support for the education at the college or professional level, with less than half of graduates pursuing postgraduate studies. With these assumptions, the budget would need to support the education of around 380 million students across all educational institutions, with 66% of these being covered in the school stage of 6-14 year age.

Table 3 also computes the requirement of teachers at various levels in a very conservative manner with student-teacher ratios kept higher than the norm for a minimal quality education. We could later relax this and improve this ratio to see its implications on affordable teacher salary. These computations indicate that the budgetary allocations would need to support around 10.7 million teachers.

Table 3

Estimated Number of Students and Teachers for Universal Education coverage

SN	Educational Institutions	Estimated Student No.	Teacher Student Ratio	Estimated Teachers requirement
1	Primary (grades 1-5, 5 yrs.)	123,433,200	35	3,526,663
2	Secondary (grades 6-10, 5 yrs.)	120,347,370	30	4,011,579
3	Intermediate (grades 11-12, 2 yrs.)	21,086,505	25	843,460
4	Undergraduate (3 yrs.)	15,686,303	25	627,452
5	Post-graduate (2 yrs.)	18,514,980	20	925,749
6	Professional courses (4-5 yrs.)	15,686,303	20	784,315
Total (Assumption set 1)		314,754,660		10,719,218

To assess the salary requirements of all teacher, we assume certain salary differential among teachers at a different level and compute the requirements of teacher salary in terms of equivalent primary teacher salary units (Table 4).

Table 4 : Salary differentials for teachers and equivalent primary teacher units

SN	Educational Institutions	Salary Multiple of one lower level	Multiple of Primary Teacher Salary	Estimated Teachers	Equivalent Primary teacher Salary Units
1	Primary section (5 yrs.)	1	1	3,526,663	3,526,663
2	Secondary section (3 yrs.)	1.2	1.2	4,011,579	4,813,895
3	High School section (4 yrs.)	1.2	1.44	843,460	1,214,583
4	Undergraduate (3 yrs.)	1.3	1.872	627,452	1,174,590
5	Post-graduate (2 yrs.)	1.3	2.4336	925,749	2,252,903
6	Professional courses (4-5 yrs.)	-do-	2.4336	784,315	1,908,709
Total (Assumption set 1)				10,719,218	14,891,343

It has been assumed that secondary school teachers would be given a 20 percent higher salary compared to primary teachers. High school teachers would get a further 20 percent higher salary than secondary teachers, and college teachers would earn 30 percent higher than high-school teachers. It is assumed that postgraduate and professional college teachers would earn 30 percent higher than college teachers. Given the enrolment of children, teacher-student ratio and salary differentials as stated above, the government budget would need to support the salary of an equivalent of 19.8 million primary school teachers. The teacher-students ratios and ratio of teacher salaries at different levels can be assumed to be different, but the above projections are made to get an estimate of the minimum salary budget that the education budget has to support.

Table 5 indicates the salary level that can be supported by a public spending on education equal to 6 % of GDP. For a GDP of Rs. 31,055,120 million in 2004, the education budget at current prices would have come to around Rs. 1863,310 million. This budget needs to support the salary of around 19.8 million teachers to support the education of around 314 million students. It is assumed that 35% of total education budget will be devoted to the provision of the school building, administration,

examination, learning material, teacher training, and maintenance charges etc., and 65% will be allocated to cover teacher salary.

Table 5 : Per student and per teacher unit expenditure for 6% of GNP as education budget

SN	Key Parameters	
1	GDP in 2004-05 (Rs. In Crores)	3105512
2	Education Expenditure (6%) (Rs. In Crores)	186,331
3	Students (In Crores)	31.48
4	Av. Education exp/ student/year (Rs.)	5920
5	Teacher salary as % Education Budget *	0.65
6	Av. Salary/ primary teacher unit / year (Rs.)	81332

It is thus clear that even after allocating 6 % of GDP to education, the government would need to find a way to educate the children at an average cost of only Rs. 5920/- per child per year, for all students. Since the cost of education is going to be higher for higher classes, the cost of primary education had to be still less, around Rs. 4550/-. The average salary for the primary teachers would have to be around Rs. 81500/- per year. Given this, we now compute the feasible salary of teachers for various categories with the assumption that the teachers receive an increment of 3 % or of 5% over their career (Table 6).

It is important to remember that the numbers given in table 6 would reflect the total public spending per teacher, which must cover all benefits like housing, leave travel, health, and retirement. It would be reasonable to allocate at least 20 % of gross remuneration/ benefits to this category, so the salary paid to the teachers must amount to no more than 80 % of numbers given in table 6.

Table 6: Starting and Final Salary of teachers (Assumption set 1)

SN	(Assumption 1) Teacher Category	Average Annual Salary	3% annual increment		5% annual increment	
			Career Starting	Career Terminal	Career Starting	Career Terminal
1	Salary for primary teacher	81332	52578	110087	37084	125581
2	Salary for secondary teacher	97599	63094	132104	44501	150697
3	Salary for high school teacher	117119	75712	158525	53401	180836
4	Salary for college teachers	152254	98426	206083	69422	235087
5	Salary of postgraduate or professional courses teachers	197931	127954	267907	90248	305613

The above analysis indicates that even by assuming a relatively high student-teacher ratio assumed in table 3 and substantially lesser than universal coverage of students beyond grade 10 by the government supported educational institutions, an education expenditure equal to 6 percent of GNP cannot provide a gross salary and benefits package of more than Rs. 81,500/- per annum for the full cohort of primary school teachers. With the provisions for the retirement and other benefits, this would amount to an average current salary for primary teachers of Rs. 65200/- per annum, or around Rs. 5435/- p.m. The average salary for the full cohort of teachers in universities and professional college would be only around Rs. 158300/- p.m. The starting salary for the new teachers, of course, will have to be much lower to get these numbers as the average for all teachers in that category. This analysis suggests that new primary teachers should be getting only around Rs. 3505/- p.m. if the teachers were to receive an annual increment of 3 percent over their career span. If the annual increment were to be set at 5%, then the starting monthly salary must be only around Rs. 3000.

These results are very startling, and people would question the validity of assumptions made. We, therefore, compute the feasible teacher salary under two other sets of assumptions. In one (set b), the coverage of students under publicly funded education is assumed to remain the same, while the student-teacher ratio is reduced to more appropriate levels, necessary for minimal quality assurance. This leads to even lower feasible levels of teacher salaries. Under the second assumption, the responsibility of the government to support education beyond grade 10 has been scaled down to only 10%, indicating that the bulk of public spending on is devoted to only school education. Under this assumption too, the feasible level of teacher salary comes to lower than existing salary level. The following table 7 shows this.

The share of school education (up to grade 12) under the three assumption sets comes to 64%, 62%, and 89% of the overall education budget, which shows no bias towards higher education.

The salary levels that are feasible for meeting national educational goals are well below what teachers of primary schools are currently earning in India, and this level is going to rise significantly through the forthcoming pay commission report.

Table 7

SN	Educational Institutions	Student teacher	Assumption b		Assumption c	
			% coverage	Students' numbers	% coverage	Students' number
1	Primary (5 yrs.)	30	100%	123433200	100%	123433200
2	Secondary (5 yrs.)	25	100%	120347370	100%	120347370
3	Intermediate (2 yrs.)	20	50%	21086505	10%	4217301
4	Undergraduate (3 yr)	20	50%	15686303	10%	3137261
5	Post-graduate (2 yr.)	15	50%	18514980	10%	3702996
6	Professional (4-5 yr.)	15	50%	15686303	10%	3137261
	Total			314754660		257975388
SN	Key Parameters		Assumption b		Assumption c	
2	Education Expenditure (6%) (Rs. In Crores)		186,331		186,331	
3	Students (In Crores)		31.4		25.8	
4	Av. Education exp/ student/yr. (Rs.)		5920		7223	
6	Av. Salary/ primary teacher unit / yr. (Rs.)		65729		104426	

Discussion

There are four ways to sustain the current salary levels of teachers. First, by cutting expenses on all other items other than teacher salary, the salary of teachers can be raised, but this typically would lead to poor school buildings, poor maintenance, and very little learning material, all of which have negative implications on children's learning outcomes. Maximum margin under this is limited to 20% of the above numbers. Second, we could have even larger class size, thus reducing the number of teachers, and increasing their salary levels. As can be seen from table 3b, we have done the analysis by taking a relatively higher student-teacher ratio, and reducing the teacher numbers any further can only result in much poorer learning outcomes so it should not be accepted. Third, we can reduce the coverage of students in government-funded schools, thus forcing a higher number of children out of non-fee paying schools system, affecting the education of poor who constitute almost 70% of our population. This would reduce the requirement of the teachers, permitting a higher salary with the same budget, but this alternative would be against the national goal of universal school education coverage. Last, as the government has found, a temporary way to sustain high formal salary to the

existing teachers is by paying very low salary to new teachers, recruited as Vidya Sahayak, so that the average salary for the full cohort of teachers remain low even with high salary to old teachers in the so-called regular scale. This policy, however, cannot be sustained since the government is duty-bound to bring all such new teachers in regular teacher scales after 5 years of service.

It should come as no surprise that the political economy of educational policy is using all the four mechanisms to sustain current higher level of teacher salary, which of course contribute to (i) large class size and poor teacher-student ratio, (ii) poor infrastructure and poor learning levels, (iii) large number of out-of-school children, and (iv) two levels of salary among teachers doing identical tasks. None of these four mechanisms to support higher salary to the government teachers in regular scale can be justified on the basis of equity and educational goals, but can the higher salary of Indian teaching class be justified on the basis of international comparisons? Following table no. 8 gives the per capita income in various countries (WDR, 2004), and also the typical annual salary of primary school teachers as multiples of per capita GNP. This comparison shows that the **average salary of primary school teachers in India** constitutes a much higher multiple of per capita GDP than in any other country, **typically three times higher than the norm in most countries.**

Table 8

Per capita GDP in and primary teacher salaries in selected countries in local currencies

	USA	UK	CANADA	INDIA	Hong Kong	Singapore	Philippines
Per Capita GDP#	39883	35485 (0.49910)	30586 (1.0593)	640 (40.73)	23684 (7.817)	25191 (1.153)	1036 (46.441)
Annual Teacher salary@	US\$ 40000 (1.1)	Can \$ 27000 (1.52)	British P 45000 (1.39)	Rs. 132000 (5.0)	HK \$ 192000 (1.05)	S\$39000 (1.34)	Peso 96000 (2.0)

Note: # the Per capita annual GDP is given in US\$. The number in parenthesis is the value of US\$ in local currency. (Source: World Development Report, 2006, UNDP)

@ The teacher salary is given in local currencies. The number in parenthesis is the multiple by which primary teacher salary exceeds per capita GDP. (Source: Our study)

Both the international comparisons of teachers' salary and the basic imperatives of meeting country's educational goals makes it inevitable that the Government evolves/ support such a policy that meets the national school educational goals by paying a substantially lower salary to primary school teachers compared to the current norms.

Policy Implications

It is inconceivable that any government would reduce the teacher salary below its existing level. The teachers' unions and political climate in the country would simply not permit this. Is, then, there a feasible solution to meet India's social educational goal and commitment?

Two alternatives suggest themselves to the government to meet the educational goals. One would require revision of existing government program and policies on the line of what earlier had been done to promote the Self-help Groups to provide microfinance to poor and to promote cooperative, Amul Pattern, dairying for small farmers. In both instances, low-cost business models were evolved by a non-profit organization to provide the product and services to weaker sections of the society. The second is the more radical reliance on the private sector, as has been done for the telecom sector.

An NGO education program, Gyan Shala, in Gujarat, which is supported under the Alternative School (AS) scheme of Sarva Shiksha Abhiyan (SSA) of the Government, provides assured quality education to children from poor families and raises their learning levels on par with those who study in leading

private sector schools. Credible independent studies have shown the children score in education tests in this program to be almost two sigmas higher compared to the average in regular government schools. The program is designed to be replicated as a self-contained autonomous unit covering around 15000 children while spending around Rs. 1500/- per child per year. If programs like Gyan Shala are permitted to act as a feeder school to the Government schools starting at grade 4 or 5, the government school could have almost double the money available per child studying in higher classes, which then can sustain the existing higher level of government teacher salary. Promotion of programs like Gyan Shala would require minor tinkering with existing SSA policies. (See Gyan Shala, Annual Report, 2007 for details, Vachani S and Craig Smith N, 2006)

The Government's own programs also indicate this possibility. Education Guarantee Scheme (EGS) of MP, Shiksha Karmi program of Rajasthan and AS/ Alternative Innovative Education (AS/AIE) Centers under SSA have all been funded by the government to provide education to disadvantaged communities. Although the teacher salary and per child budgetary allocation under these schemes were very low, these still managed to provide an education of quality comparable to, or in some cases, better than that in regular government schools. There are many examples of even good educational outcomes under such schemes, and with minor adjustments in the norms, AIE/ SSA can be strengthened to ensure higher quality educational outcomes, at least comparable or exceeding the educational outcomes in regular government schools at much lower cost.

One solution for meeting educational goals of India would, therefore, be a very large expansion of AS/AIE under SSA, after some improvements in the budget allocation to support higher education quality and setting up mechanisms to assess quality. This scheme should cover the bulk of primary education up to grade 4 or 5. The regular government schools could then focus on the education in grades 4-10. The salary of a teacher and the cost of educating per child under AIE/SSA would be lower than the requirements indicated in the above analysis. This would allow the government to sustain higher teacher salary and per child cost in its regular schools for grades 4-10. An expanded AIE/SSA provision for all grades 1-4, not only out-of-school, children, and the focus on existing government schools on grades four onwards could help India to meet its educational goals and also pay its regular government teachers the salary as per current norms.

Many Indian private sector schools are providing a reasonable quality of school education at a monthly fee of Rs. 250/- or annual expenditure of Rs. 30,000/, well below Rs. 4800/- that the government could spend on each child's education covered as per our first assumption set. A study by Tooley, Dixon, and Gomthi showed that children in such schools in Hyderabad scored almost one sigma higher than the average test score of children in government schools. **The second alternative** would be for the government to contract out the bulk of school education delivery up to grade 5 to private schools. This would enable a proportionately higher amount of budget to be allocated to higher classes, and government to play a more active role in the schooling of higher grades, the bulk of which is currently left to private sector providers.

Both the alternatives cited above deliver school education of acceptable quality, better than of government schools, and at a much lower cost and teacher salary. Implementation of either of these two alternatives, however, would require finding some solutions about quality control, equity, and access, and institutional regulation that would make such non-governmental schools consistent with and serve the national educational goals. The discussion of all requirements for making these two alternatives as effective instruments of government policy to meet India's education goals is beyond the scope of this paper. **The focus of this paper is limited to establishing the infeasibility of the current mainstream government school system to meet India's basic educational goal, and to indicate that there exist alternatives on the ground which could be harnessed to meet educational goals with suitable policy changes. Much remains to be done to fully outline the**

elements of a new policy but this paper hopes to act as a useful starting point for policy debate on this aspect.

Both these alternatives are likely to be opposed under the current political-economic climate. The least the Government must, therefore, do is to put a cap on further recruitment of teachers at high salary levels, and keep the up-gradation of teacher salary under the 6th pay commission to a low level, which would bring Indian teacher salary closer to the international norms, in terms of multiple of per capita GDP. In the long run, unless a way is found to improve the education quality and keep the cost low in government schools, there seems no way to meet the educational goals of the country without harnessing the capability of non-government school education sector.

References

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