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Strengthening Institutions to Improve Public Expenditure Accountability

Policy Simulation: Achieving Higher Educational Attainments at the Primary Level in Bangladesh

S.M. Zulfiqar Ali

Unnayan Shamannay,
Bangladesh

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Table of Contents

1. INTRODUCTION

Bangladesh has one of the largest primary education systems in the world, with an estimated 16.4 million children of primary school age (6 to 10 years) in the country. The Primary Education Compulsory Act passed in 1990 made primary education free and compulsory for all children up to Grade 5. In terms of net enrolment rate the country's performance at present is quite satisfactory. However, when it comes to completion rates the situation appears to be quite alarming as dropout rates are found to be much higher than acceptable in terms of national policy goals. This particular policy simulation exercise aims to inform policymakers about potential scale-up options of two education sector development interventions — School Feeding Program and Primary Education Stipend Program — and the possible outcomes of such scale-ups.

1.1 Core Elements of Primary Education Policy of Bangladesh

Education is the key to attaining success, especially for a country like Bangladesh. It is extremely complicated to educate the people when the population is as large as of this country. The task of educating people gets even harder when they suffer from hunger and basic health complications. Though the literacy rate is officially said to be 66 percent, according to a private study it is only 42 percent (Bangladesh education at a Glance, October 2010). Education in Bangladesh, therefore, has been recognized as a priority sector by all governments since the country gained its independence.

Table 1.1: Literacy facts of Bangladesh at a glance

Youth (15–24 years) literacy rate, 2003–2007*, male	71
Youth (15–24 years) literacy rate, 2003–2007*, female	73
Primary school enrolment ratio 2003–2008*, gross, male	101
Primary school enrolment ratio 2003–2008*, gross, female	105
Primary school enrolment ratio 2003–2008*, net, male	87
Primary school enrolment ratio 2003–2008*, net, female	91
Primary school attendance ratio 2003–2008*, net, male	79
Primary school attendance ratio 2003–2008*, net, female	84

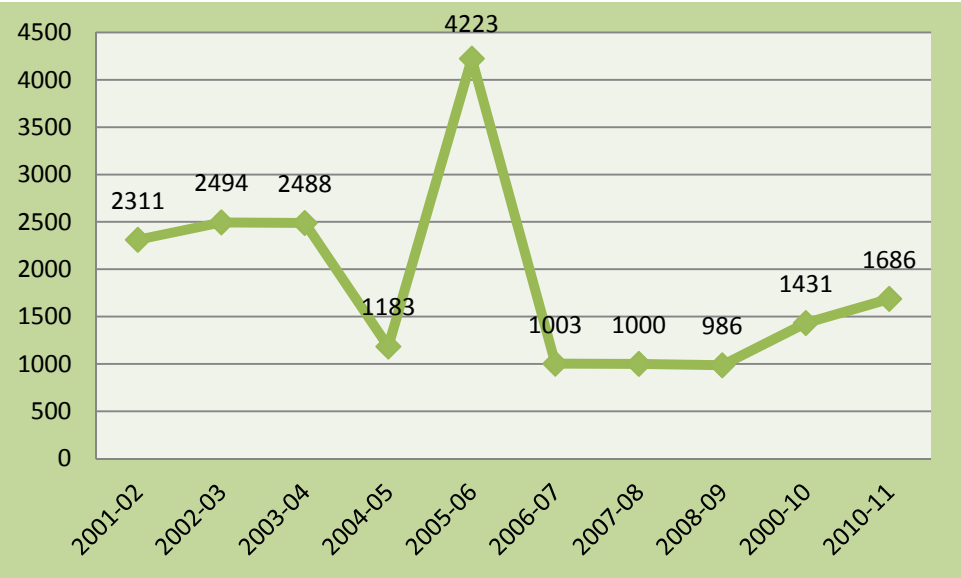
Source: UNDP Annual Country Report, 2008

The three main educational systems in Bangladesh, ordered by the decreasing student numbers are: General Education System, Madrasah Education System, and Technical and Vocational Education System. The country's general education system is characterized by the coexistence of two separate streams: The mainstream happens to be a vernacular-based secular education, carried over from the colonial past. Another stream of education, based on the use of English as the medium of instruction — modeled after the British education system — has rapidly been growing in the metropolitan cities of Bangladesh. Currently, the public sector has been working along with the private investors to make education available to the grass-root population of the country.

The Bangladesh Rural Advancement Committee (BRAC) and other national and international NGOs can best understand the actual situation of Bangladesh because of their close interaction with the general population and as such, they are in the best situation to make a

difference in the country. The fruitful efforts of the NGOs are evident in the country's education levels; these are higher than ever before. Significant investments are being made directly by the government and indirectly by foreign donors through NGOs in order to bring to the people the basic and higher levels of education as well as to promote human resource development.

Figure 1.1: Development budget allocations for Ministry of Education, GoB in recent fiscal years



Source: Budget documents of Bangladesh (Year 2001-02 to 2010-11)

However, all these measures need to be examined critically in order to gauge their cost effectiveness. While on the one hand, enormous resources are necessary to provide educational services to the entire population, on the other hand we need to ensure that these programs are meeting the set goals. Numbers matter, but it is necessary to ensure the quality as well. Basically, it is important that the effectiveness of the programs measures up to the investments made towards these programs. They should essentially serve as many people as possible but without compromising on quality. The cost effectiveness analysis, cost benefit analysis, etc., are some widely-used tools to study the effectiveness of the public expenditures. They can be used to examine the effectiveness of the private sector as well.

1.2 Statement of the Problem

In Bangladesh, there are 365,925 primary school teachers (approximately 53 percent of teachers and 23 percent of head teachers are women) working in more than 82,218 schools (with 10 different types of schools including *Madrasahs*, the religious schools). As mentioned earlier, in terms of net enrolment rate the country's performance at present is quite satisfactory.

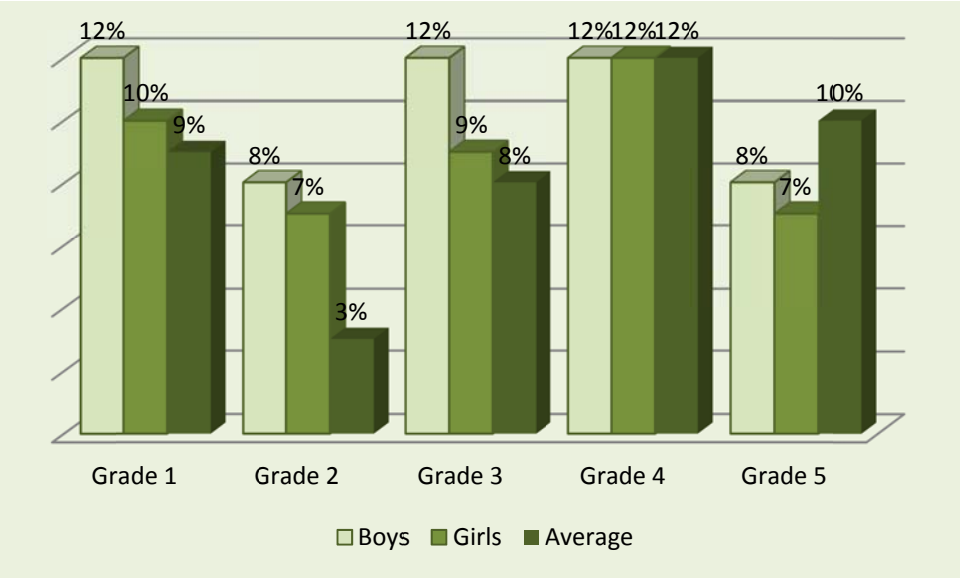
Table 1.2: Gross and net enrolment rate in primary education, 2010

Sex	Population (6-10) yrs.	Enrolment (All ages)	Enrolment of primary school age (6-10 yrs)	Gross Enrolment Rate	Net Enrolment Rate
Both sexes	15,751,788	16,904,546	14,947,002	103.48	93.52
Female	7,620,131	8,536,586	7,612,203	107.08	98.23

Source: BANBEIS Data, 2010.

However, the situation becomes very alarming when we talk about the completion of education at the primary level, the main reason being the high dropout rate at the primary schools. The latest school census reveals that the primary education dropout rate in both Government Primary Schools (GPS) as well as Registered Non-Government Primary Schools (RNGPS) has increased from 47.2 percent in 2005 to 50.5 percent in 2007. The 2010 data of Bangladesh Bureau of Educational Information and Statistics (BANBEIS) shows that the current dropout rate for all grades is 45.1 percent; the highest dropout rate being in Grade 4 (12.2 percent) and the lowest in Grade 2 (3 percent). On the other hand the net enrolment rate for both sexes is above 93 percent, which can be said to be satisfactory enough considering the overall socioeconomic condition of Bangladesh as an economy.

Figure 1.2: Dropout rate (%) in primary schools in 2010



Source: BANBEIS Data, 2010

The point to be noted here is that the dropout rates for boys are higher than for girls in all the cases (except for Grade 4) at the primary level (Figure 1.2), while the enrolment rates are higher in the case of girls (Table 1.2). The challenge, therefore, is to eliminate or substantially reduce the primary school dropout in order to attain satisfactory completion rates at this level. This exercise intends to propose scale-up options (policy alternatives) for primary education interventions of Government of Bangladesh (GoB) to achieve this goal.

1.3 How the Simulation Links to Country Priorities for the Sector

The GoB's Ministry of Primary and Mass Education (MoPME) envisions establishing a knowledge-based and technologically-oriented competent society to ensure that every school-age child has access to primary level institutions that provide all the necessary facilities, and continues in school to receive and achieve quality education. Besides, it intends to provide opportunities to pre-school children, young persons and adults to meet their learning needs in a competitive world. To realize this vision, the ministry is focusing its efforts on[1] ensuring 100 percent enrolment of school-going age children by 2011, and on stemming the trend of dropping out among the enrolled students, so that achievements translate into comparable completion rates, thus leading to the eradication of illiteracy from the country by 2014. Similarly, the Directorate of Primary Education also aims to[2] adopt effective measures for the prevention of dropouts through the introduction of an attractive curriculum, development of appropriate textbooks and the creation of a school environment that is conducive to learning.

Hence, this exercise to point out policy options to scale up primary education interventions, with a view to reduce drop-out rates in primary education levels in Bangladesh is pretty much in line with the national priorities.

2. LITERATURE REVIEW

The focus of this simulation exercise is on scaling up two primary education interventions: one, school feeding program and two, primary education stipend program. Hence, this section discusses the impact and expected outcomes of similar programs (school feeding and stipend programs) in developing countries.

2.1 Impact and Expected Outcomes of School Feeding Programs in Developing Countries

School feeding programs are common in developing countries, the primary logic being that they will not only encourage households to send their children to school but also allow the children who are already in school to continue with their education. Nutrition-related concerns also play a role in the initiation and continuation of such programs. The underlying logic here is that while the school-age children (from low-income households) during their early childhood bypass the window of significant gains from proper nutrition, increasing their intake of quality food through school feeding programs could help them gain weight, reduce their susceptibility to infection, increase their cognitive function,[3] etc. (Adelman et. al., 2008). The consequent improvements in health are in turn expected to enhance the educational performance of these children.

However, in most cases such programs — due to their physical viability — instead of catering to specific target groups, cover all children in the targeted schools. While this may increase the cost of the interventions, it has to be noted that such decisions are based not

[1] Please refer to www.mopme.gov.bd.
[2] Please refer to www.dpe.gov.bd.
[3] Adelman, S.W.; Gilligan, D.O.; Lehrer, K.: How Effective are Food For Education Programs? A critical Assessment of the Evidence from Developing Countries; Food Policy Review 9, IFPRI; 2008.

only on logistical feasibility but also on political considerations. Adelman et. al. (2008) point out two major drawbacks of such interventions:

- Higher cost of intervention for covering all children in the targeted schools
- The possibility of food transfers getting diverted to other household members.

To reduce the intervention costs, in many cases take-home rations are provided to extend the coverage to targeted groups like poor and female children, who are in greater need, or where there are greater chances of decisions being changed with regard to their school enrolment. On the other hand, while there is scope for benefits getting diverted to other household members, research indicates that a substantial share of the food transferred through such programs does not get redistributed away from the actual beneficiaries (ibid).

While school feeding programs are known to benefit education indicators such as enrolment, attendance, cognition, and educational achievements, they are also considered to be social protection initiatives. The focus on such programs — both as education intervention and safety net measures — has on many occasions led to some tension between their two roles; however, these confusions have been proven to be baseless. In 2009, the World Bank and the WFP undertook a study on school feeding programs in response to enhanced demand for these programs from low-income countries, particularly those affected by social shocks caused by the global economic crises of that time (Bundy, D.; et. al. 2009).[4] This study reveals that both education and social protection are key drivers of increased support for such programs.

The social safety net roles of school feeding programs include an immediate response to social shocks as well as social protection over the longer term; at the same time these programs benefit enrolment, attendance, cognition, and educational achievement, although the scale of benefit and evidence of the effect on these indicators are found to vary, based on geo-political contexts (ibid). The point to be noted here is that even when school feeding programs are being planned for implementation as a social protection strategy to address social shocks (in the short and long run), their success, to a large extent, depends on how they are incorporated into the education sector policy. Incorporating such programs into the education sector policy is justified on the ground that clear educational benefits are generated from the program.

The World Bank and WFP study of 2009 also points to certain other macro-level benefits that are generated from school feeding programs. These are:

- Appropriately designed programs can significantly contribute to gender equity in education.
- Programs can be designed to provide targeted transfers and to strengthen educational access to address vulnerability due to disability or the effects of HIV/AIDS on households.

[4] Bundy, D.; Burbano, C.; Grosh, M.; Gelli, A.; Jukes, M.; Drake, L.: Rethinking School Feeding: Social Safety Net, Child Development, and Education Sector; World Bank, 2009.

- Such programs can also create a stable demand for food at the local levels, in turn leading to important multiplier effects on the local economy.

The positive impact of such programs on educational indicators, and their potential to ensure social protection and other macro-level benefits, make them suitable for the geo-political realities of countries like Bangladesh.

2.2 Education Stipend Programs: Impact and Expected Outcomes

Where education stipend programs are concerned, it appears that their maximum impact has been felt in low-income rural areas. It has been observed that the most efficient programs are those where conditional transfers are targeted at groups that are not already in school, so that households do not receive incentive payments for actions that they would have undertaken even without the program (Ullah, A.and Perumal, M., 2012).[5] Among educational outcomes, completion and dropout rates are considered to be more important than enrolment rates in terms of achieving the Universal Primary Education or Millennium Development Goals. There are instances where high enrolment rate, due to high dropout rate ends up in low completion rate. Often, dropout rates are context dependent (i.e. they depend on the location and the situation). One of the key factors for a successful school stipend program is targeting. It is argued that the most efficient targeting mechanism would be to focus on the age at which school dropouts occur. In particular, in the least developed countries, the target age would be the primary school age.

Among the developing nations, Bangladesh has made remarkable progress in poverty alleviation as well as in attaining educational Millennium Development Goals (MDGs) vis a vis child enrolment and gender equity. According to the latest HIES, poverty headcount ratio declined from 40 percent in 2005 to 31.5 percent in 2010 (BBS 2011). On the other hand, gross and net enrolment rates at primary school level are 107.08 percent and 98.23 percent respectively (BANBEIS 2010). The completion rate, however, is only 50.7 percent and the literacy rate (15 years and above) is only 44.3 percent (BBS 2008). These statistics are, however, incompatible given the fact that the Government of Bangladesh spends about 43.8 percent of its education spending on primary and informal education (DPE 2009).

On the other hand, a report based on the latest National Child Labor Survey (BBS 2003) shows that Bangladesh has high proportion of child labor (about 14 percent of the population of children aged 5-14 years)**.** Of these, 73 percent are boys and 81 percent live in rural areas; the majority of child laborers were found to be working in the agricultural sector (56 percent). All these statistics suggest that there is a link between poverty, child labor and non-enrolment or school dropout, especially in the rural areas. This finding, in turn, justifies the implementation of school stipend (conditional cash transfer) programs, which help reduce the dropout rates across the country.

[5] Ullah, A.; Perumal, M.: How Effective is the Primary Education Stipend Program in Bangladesh in Preventing School Dropout in Bangladesh; Journal of Business and Policy Research, Vol. 7. No. 3. September, 2012. Special Issue. pp. 88-99.

3. PRIMARY EDUCATION INTERVENTIONS INVESTIGATED FOR SIMULATION

3.1 Overview of 'EC Assisted School Feeding Program (SFP)'

This is a relatively small-scale primary school dropout prevention initiative undertaken by the Ministry of Primary and Mass Education (MoPME) of GoB. The core idea of the project is to inculcate in children, i.e. primary school students, the habit of being more attentive in class (and thus reduce the prevalent dropout rates) by providing incentives to them in the form of in-school feeding programs. Table 3.1 provides the basic information on the project.

Table 3.1: Basic information about the "EC Assisted School Feeding Program"

Project Title	**EC Assisted School Feeding Program**		
Sponsoring Ministry	Ministry of Primary and Mass Education		
Executing Agency	Directorate of Primary Education (DPE)		
Cost of Project	Total	1,343,549,000 BDT	16,485,264 USD
	GoB	63,575,000 BDT	780 USD
	EC	1279,974,000 BDT	15,705,202 USD
Project Duration	Duration	4 years	
	Date of Commencement	January 2009	
	Date of Completion	June 2013	

Source: Project appraisal document collected from DPE office

Project Objectives

These are as follows:

- To achieve universal primary education and reduce gender disparity
- To enhance the learning capability and attentiveness of students vis a vis studies in selected areas in primary education institutions by supplying nutritious food
- Increase enrolment, attendance and completion rates at the primary level of education
- Increase the nutritional status of 200,000 primary school students.

Project Outcomes

The expected outcomes of the project are:[6]

- Gross Enrolment Rate (GER) will be increased (up to 106 percent)
- Net Enrolment Rate (NER) will be increased (up to 93 percent)
- Completion Rate will be increased (up to 80 percent)
- Repetition Rate will be decreased (down to 20 percent)
- Dropout Rate will be decreased (down to 20 percent)
- Absenteeism will be decreased (down to 20 percent)
- Health and nutrition status of the beneficiary school students will be improved.

[6] These were the expected outcomes when the project was launched in 2009.

The point to be noted here is that while the project objectives include reducing gender disparities in primary education, there is no mention of the expected outcome with regard to gender issues. In addition, there is no specific expected outcome mentioned in the project appraisal document regarding the impact of the project on the health and nutrition status of the beneficiary school students. This particular study will focus on the impact of the project on the primary-level dropout rate. The aim is to reduce this rate to 20 percent; the average dropout rate at primary levels in Bangladesh stands at 45.1 percent (see previous sections).

Target Group

The project is specifically aimed at the poor and ultra-poor students in Government Primary Schools, from the 10 upazilas selected for project implementation. The approximate number of beneficiaries is 200,000 primary school children in these areas.

Location of the Project

Table 3.2: Schools covered by the project

Division	District	Upazila	No. of schools
Sylhet	Habigonj	Lakhai	51
	Sunamgonj	Dharmapasha	98
Dhaka	Netrokona	Kalmakanda	75
	Jamalpur	Dewangonj	57
Khulna	Jessore	Khikorgacha	72
Rajshahi	Lalmonirhat	Hatibandha	59
	Pabna	Bera	65
Chittagong	Cox's Bazar	Moheshkhali	47
	Lakshmipur	Ramgoti	54
Barisal	Patuakhali	Dasmina	39
		Total	**617**

Source: Project appraisal document collected from DPE office

Description of the incentive provided, in kind: fortified biscuits for children

A daily snack of a 75 gm packet of fortified biscuits, at 300 kcal/packet is provided to each student. Table 3.3 gives the approximate composition of the fortified biscuits dough, which should have the following basic ingredients (dry weight basis).

Table 3.3: Composition of fortified biscuits

Sl. no.	Content (Basic Ingredients)	% share
1	Wheat flour	69%
2	Sugar	12%
3	Vegetable fat (food grade, hydrogenated-75 & liquid-25%)	13%
4	Soya flour (full fat, from food grade Shohag variety)	6%
5	Iodized salt (food grade)	0.5%
6	Leavening agent (baking soda + ammonium bicarbonate)	Not exceeding 1%
7	Micronutrient premix	1 kg premix in 999 kg biscuit dough (dry weight)

Source: Project appraisal document collected from DPE office

3.2 Overview of the Primary Education Stipend Project

This is a unique project, the only one of its kind in Bangladesh. The government was bold enough and had the courage to take on this project, despite its enormous challenges. It is one of the largest projects in Bangladesh, entirely funded by the GoB. The Ministry of Primary and Mass Education (MoPME) is in charge of implementing it; the Directorate of Primary Education (DPE) is the implementing agency. Like any other venture this project too has a specific set of objectives, which are as follows:

- To increase the enrolment rate of all primary level school age children from poor families
- To increase the attendance of students enrolled in primary schools
- To reduce the dropout rates and to increase the primary cycle completion rate of the enrolled students
- To provide equitable financial assistance to all primary school age children
- To work towards poverty alleviation and women's empowerment
- To enhance the quality of primary education.

The duration of the project is five years, with total allocation of 33,125.12 million BDT (i.e. 406.44 million USD); the annual allocation is 663 crore BDT. Money is released on quarterly basis, when disbursement is completed, and the released fund is adjusted against AG; the next allotment is released after the money taken in advance has been adjusted.

While initially the project was of five-year duration, scheduled to end in June 2007, it was extended by another year without further allocation of funds. This had been made possible by saving 800 crore BDT, which was the result of proper management of the PESP through strictly following the set guidelines.

Considering its importance, the government has agreed to launch the second phase of the project. This second phase was scheduled for five years, starting July 2008, to be completed

by June 2013. The project area means all unions of the country, excluding the metropolitan cities and district municipalities. The project covers all government primary schools, non-government registered primary schools, non-government and non-registered primary schools, community primary schools, primary schools with attached high school, primary schools established through the government fund and run by the NGOs, and independent government-recognized Ebtedayee Madrashas.

- Beneficiary students must come from poor families as per target.
- The stipend money will be given to beneficiary student's mother, in the absence of mother to father, in the absence of both to legal guardians through the selected local banks.
- The number of beneficiary students shall not exceed 40 percent of the total number of enrolled students. This based on the poverty map prepared by the Bangladesh Bureau of Statistics (BBS).
- The monthly rate of stipend per family is 100 BDT (1.23 USD) for sending one child to school and 125 BDT (1.53 USD) for sending more than one child to school
- The school management committee (SMC) will prepare the list of beneficiary students, to be scrutinized by the AUEOs, approved by the UEOs and counter-signed by the UNOs.
- Every beneficiary student must have 85 percent class attendance per month; for hilly areas and autistic students, the class attendance should be at least 75 percent. Otherwise the stipend will not be paid for the particular month.
- All beneficiary students (except class-I) must get 33 percent marks in the annual examinations.
- Every enlisted primary school must conduct class-wise scheduled examinations properly. The defaulter schools will not get the stipend.
- If a beneficiary student fails to appear in scheduled examinations without valid reason, their stipend will be suspended.
- During inspection on any fair day if the total student attendance is found to be below 60 percent, stipend to the school will be held back. If the attendance rate improves to a satisfactory level the suspension may be withdrawn
- In the case of government recognized independent Ebtedayee Madrashas, there must be at least 100 students and they must fulfill the eligibility criteria for getting the stipend.

Table 3.4 shows the project achievements up to October 2011.

Table 3.4: Achievements of the project up to October 2011

Sl	FY	Allocated Fund	Expenditure	Percentage	Deposit to Govt. Treasury
1	2002-03	60000	59675.65	99.45	309.93
2	2003-04	43395	40475.05	95.28	2825.99
3	2004-05	46800	45090.03	99.35	1684.36
4	2005-06	44331	43899.81	99.02	357.32
5	2006-07	46800	46235	95.79	545.16
6	2007-08	46800	46681.74	99.75	111.50
7	2008-09	48800	47854.45	95.06	501.35
8	2009-10	57484	56535.01	95.35	852.14
9	2010-11	86500	85325.69	95.65	1105.97

4. POLICY GOALS AND ALTERNATIVES

Given this situation, the goal of our policy simulation exercise on education is as follows:

To reduce the primary school dropout rate in Bangladesh to 0 percent by 2021.

As part of the MDG in education, the government of Bangladesh has set the target of 100 percent completion rate at the primary school level by 2015. However, given the high rate of dropouts at this level, it seems impossible to achieve this target by 2015. Bangladesh will complete 50 years of its independence in 2021; the government too has set its development vision for 2021, when the country is expected to achieve the status of medium income countries of the world. We, therefore, set the target of achieving our policy goal of 0 percent dropout by 2021.

Policy Scenarios

With the policy goal outlined above, it is now important to identify the policy scenarios that are most conducive to achieving this goal. In this context, we would like to propose two policy alternatives whereby the policy goal can be achieved:

- Enhancing the coverage and stipend amount of the Primary Education Stipend Program (run by the GoB) with a view to reduce the dropout rate to its target level by 2021.
- Enhancing the coverage and allocation per student of School Feeding Program (run jointly by GoB and WFP) with a view to achieving the same goal by 2021.

At this stage it is important to know a little more about these policy alternatives and how they are operationalized:

4.1 Primary Education Stipend (PES) program

Initiated by the Government of Bangladesh (GoB) in July 2002, the Primary Education Stipend Project (PESP) began its first official year of operation in January 2003, with the goal of supporting more than 5 million pupils. The program aims to increase school enrolment by providing cash incentives to poor parents so that they can send their children to school. Since mid-2002, households with eligible pupils, who attend school 85 percent of the school days, have received BDT 100 (about US$1.76) per month for one child and BDT 125 per month for more than one child. At present, the GoB is running a stipend program named 'Primary Education Stipend Project (Phase-II)'. The objectives of this project are: a) to increase the enrolment rate of all primary school age children of poor families; b) to increase the attendance rate of the students already enrolled in primary schools; c) to reduce the dropout rate of the primary school students; d) to establish equity in the financial assistance to all primary school age children; and e) to enhance the quality of primary education.

4.2 School Feeding Program (SFP)

In July 2002, in order to ensure that no child is hungry in the classroom, as well as to promote school enrolment and retention rates, the Government of Bangladesh and the United Nations World Food Program launched the School Feeding Program (SFP) in chronically food-insecure areas of Bangladesh. SFP is the first effort in Bangladesh to provide incentives directly to primary-school children themselves, as opposed to cash or food to parents for sending their children to school. The SFP provides a mid-morning snack consisting of eight fortified wheat biscuits to some one million children in approximately 6,000 primary schools in highly food-insecure rural areas, plus four slum areas in Dhaka city. At a cost of US$06 per packet of eight, the biscuits provide 300 kilocalories and 75 percent of the recommended daily allowance of vitamins and minerals.

4.3 Alternative Scenarios and How the Change would be instituted

For each of the policy alternatives, we will attempt to work out alternative scenarios so that the change/progress can be instituted in phases. The current dropout rate is about 50 percent and we have to do away with this by 2021. So, the alternative scenarios that need to be worked out are, reducing dropouts by 5, 10 or 25 percent. Once these scenarios are worked out through this exercise, then it is possible to spell out the alternative ways to institute the change with specific timeframe.

5. METHODOLOGY

5.1 Data Sources

Data on School Feeding Program (SFP) have been collected from project related documents of the Department of Primary and Mass Education, GoB — the implementing authority of

the program. These documents state the objective, the expected outcomes and cost related information about the project.

In the case of the Primary Education Stipend Program (PESP), Phase II, relevant data have also been collected from the Department of Primary and Mass Education, GoB. Relevant data have been collected from the 'Mid-Term Evaluation/Assessment of "Primary Education Stipend Project (Phase-II)", Project Period: July 2008 – June 2013'.

5.2 Calculating the Cost of Saving Each Student from Dropping Out

When simulating for both the projects, first, their impact on the dropout rate is identified. Next their impact, when scaled up or continued on that ratio, is calculated. Finally the cost requirements for the proposed scaling up or continuation of these initiatives are calculated.

For the sake of convenience in calculation, in both the cases the assumption has been that when a particular program is scaled up or continued, no other initiative to reduce the primary school dropout rate is or will be taken.

Calculating the Cost of Saving Each Student from Dropping out through SFP

- First the number of upazilas currently being covered by the program and those yet to be covered is pointed out.
- Dropout rates for SFP-covered upazilas and those not covered is shown. Low dropout rate in SFP-covered upazilas is wholly attributed to SFP. That is, it is assumed that the low dropout rate witnessed in SFP-covered upazilas is due to SFP alone and the effect of any other factor here is insignificant.
- Cost of covering each upazila is determined by dividing the total project cost by the number of covered upazilas.
- Cost for reducing the dropout rates to zero in the currently covered upazilas is then calculated, with the assumption that in the following phase the project will have the same impact as it is expected to have in the current phase. Cost for per percentage point reduction in the dropout rate is also calculated here. While the current phase of the project is from 2009–2012, the second phase is also shown to have the same duration of time (i.e. 2013–2016)
- The same calculations and aggregations are used for the reduction of dropout rates to zero in the upazilas not covered by SFP. For these upazilas the first phase is held to be the one that endures from 2013–2016 and the next one from 2017–2020. All figures (e.g. cost per upazila) are got by multiplying those calculated earlier for the covered upazilas.
- Finally, the total project cost is calculated by adding up all the costs for all the phases and the total percentage point reduction in dropout is also calculated. Then the percentage dropout is converted to absolute number by using the national data on the number of primary school students. By dividing the total cost by this number, the cost of saving each student from dropping out is calculated.

Calculating the Cost of Saving Each Student from Dropping out through PESP

- First the total number of students covered by PESP from each type of upazilas (categorized according to the BBS poverty map) is determined.
- Next the total project expenditure is distributed among the different groups (categorized according the BBS poverty map) in accordance with the weight given in terms of total number of students.
- Using the dropout reduction related information found in project documents; the cost involved per student from each group is calculated.
- Finally, using the percentage reduction in dropout, the absolute number of students saved from dropping out is determined and the associated costs are also calculated.

5.3 Effectiveness Measure Used

For the sake of comparing the two proposed policy alternatives (scaling up SFP or PESP), the cost of saving each student from dropping out of primary schools is taken as the effectiveness measure.

The cost of saving each student from dropping out of primary school means the share of total project investment that is spent on saving one student from dropping out of school. This appears to be an appropriate effectiveness measure as it creates scope for comparing the two interventions in terms of cost involvement for generating the same output (i.e. saving one student from dropping out).

In evaluating the school feeding intervention, first the cost of reducing dropouts across the country to zero within the stipulated time is calculated. Then the reduction in percentage dropout is also calculated, which is later converted to absolute number of students (using national data on the number of primary school students). By dividing the total cost of intervention by the number of students saved from dropping out, the 'cost of saving each student from dropping out (the effectiveness measure)' is calculated.

When evaluating the stipend program, first the percentage dropout reduction achieved (or to be achieved by the program) is collected. This percentage is then converted to absolute number (i.e. the number of students saved from dropping out). Using this number the average cost of saving each student from dropping out is calculated.

5.4 Assumptions Made

- It is assumed that when a particular program (SFP or PESP) is scaled up or continued, no other initiative to reduce the primary school dropout rate is or will be undertaken. That is, there will be no overlapping of benefits generated from the interventions. Hence, the proposal here is to choose one of these two interventions as the tool for reducing dropouts across the country
- Low dropout in SFP-covered upazilas is solely attributed to SFP. That is, it is assumed that the low dropout rate witnessed in SFP-covered upazilas is due to SFP alone and the effect of other factors here is insignificant.

- Another assumption is that in the following phase the project(s) will have the same impact as is expected in the current phase. The rationale for such an assumption is that no change in the program design takes place and there is certain level of homogeneity among the target beneficiaries of both the interventions.

6. RESULTS

6.1 Reducing Dropout Rates with SFP

The School Feeding Program currently covers 10 upazilas of 6 divisions. Table 6.1 shows the current status, with the upazilas yet to be covered, to ensure SFP coverage across the country.

Table 6.1: Coverage status of SFP

	No. of Upazilas
Current coverage	10
Target coverage	500
Yet to be covered	490

SFP is expected to reduce the dropout rate to 20 percent within the project duration of three years (from January 2009 to June 2013), while the average dropout rate across the country is 45.1 percent.

Table 6.2: Dropout rate in areas with and without SFP coverage

For covered upazilas	20%
Rest of the country	45.1%
Reduction due to SFP	25.1%

Table 6.3: Expenditure breakdown (source wise) of the project

	In Million USD
Total Expenditure	16.49
GoB Source	0.78
EC Funding	15.71

Table 6.4 shows the calculation to determine the cost of covering each upazila under the project.

Table 6.4: Cost of covering each upazila

		USD
Cost of covering each upazila	(1343549000/10) =	1,648,526
Cost of reducing each percentage point dropout	(1343549000/25.1) =	656,783

Calculations for cost of reducing dropout rates to desired levels in covered upazilas (10 upazilas) are shown in Table 6.5.

Table 6.5: Costs for reducing dropout rates to desired levels in covered upazilas

Project Phase		Dropout rate (%)			Cost (in Million USD)	
		Initial	Final	Reduction	Total (from Table 6.3)	Per percentage point reduction
1	2009-2012	45.1	20	25.1	16.49	0.66
2	2013-2016	20	0	20	16.49	0.82

In Table 6.5, for the project phase 2009 to 2012 the initial and final dropout rate is taken from project documents collected from the implementing authorities. The total cost is also collected from the same source. The cost of per percentage point reduction in dropout is calculated by dividing the expenses by reduction in dropout, expressed in percentage points. A point to be noted here is that at the beginning of the second phase (2013 to 2016) the initial dropout rate in the project upazilas is expected to be at 20 percent. While this phase, like the previous one is assumed to cost the same and have the same impact, it is possible to reduce the dropout by only 20 percent instead of 25.1 percent like in the first phase. This is because the dropout is to be reduced by only 20 percent. Consequently the cost per percentage point reduction in dropout varies from phase 1 to phase 2 (from 0.66 million USD to 0.82 million USD).

The final table, i.e. Table 6.6 shows the cost per percentage point reduction in dropout rates in upazilas that are proposed to be covered by scaling up the project.

Table 6.6: Costs for reducing dropout rates to desired levels in upazilas not covered

Project Phase		Dropout rate (%)			Cost (In Million USD)	
		Initial	Final	Reduction	Total (from Table 6.3)*	Per percentage point reduction**
1	2013-2016	45.1	20	25.1	807.78	32.18
2	2017-2020	20	0	20	807.78	40.39

*calculated by multiplying cost per upazila (found in Table 4) with the no. of upazilas to cover (i.e. 490)
**calculated by dividing total cost by the percentage reduction in dropout rates

In Table 6.6 (like in Table 6.5) the cost per percentage point reduction in dropout varies from phase 1 to phase 2 for the reasons mentioned earlier. In addition the cost per percentage point reduction in dropout varies from Table 6.5 to Table 6.6 as well, as the second table shows cost involvements for 490 upazilas being proposed to be covered by the program, while the first one shows the cost for the 10 upazilas currently being covered by the program.

The total expenses for the project for the 10 upazilas currently covered and those being proposed to be covered (remaining 490 upazilas) can be calculated from Tables 6.5 and 6.6. The total cost is found to be 1648.54 million USD. The aggregated reduction in dropout rate due to this investment is from 45.1 percent to 0 percent.

Now, according to the latest BANBEIS data[7] the total number of primary school students in Bangladesh is 16,957,894.

Hence 45.1 percent of primary school students mean a total of 7,648,010 students.
So it may be inferred that by investing 1648.54 million USD a total of 7,648,010 students can be saved from dropping out.

Thus the average cost for saving each student can be calculated as follows:
1648.54/7,648,010 = 0.00022 million USD = 220 USD

The point to be noted here is that it is assumed that the total number of primary school students will remain unchanged (or no significant change will take place) in between the years 2013 to 2020.

6.2 Reducing Dropout Rates by PESP

Total allocations for a five-year long PESP is a sum of 406.44 USD. For better targeting of poor and the very poor students in primary schools the project-implementing authorities have divided the upazilas of the country based on the poverty map of Bangladesh prepared by BBS. Percentages of students covered vary under the PESP for schools belonging to different poverty slabs.

Figure 6.1 shows the trends in dropouts in primary schools surveyed for mid-term evaluation of PESP (Phase II).

Figure 6.1: Trends in average primary school dropouts from 2006 to 2010 for schools surveyed for mid-term evaluation of PESP

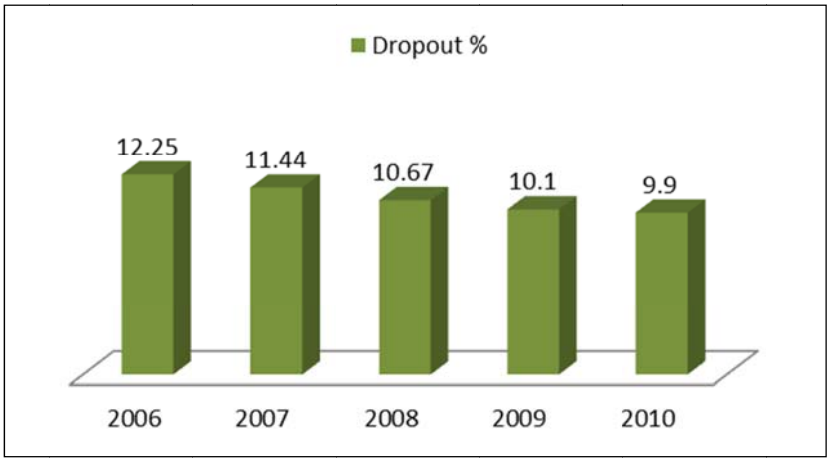


Figure 6.1 shows that schools covered under the PESP have experienced a 2.35 percentage point decline in the average dropout rate. Based on this information and using the Table 6.7, the amount spent on saving each student from dropping out can be calculated.

[7] Bangladesh Education Statistics 2011, Bangladesh Bureau of Educational Information and Statistics (BANBEIS).

Table 6.7: Upazila level coverage of PESP (as per BBS poverty map)

	% of people living below poverty line	No. of upazilas covered	% of total primary students getting stipend	No. of students getting stipends	Total enrolled students in primary schools (calculated)*
Slab 1	60-77%	67	90	1,716,889	1,907,654
Slab2	48-59%	122	75	2,571,290	3,428,387
Slab 3	36-47.9%	139	50	1,702,065	3,404,130
Slab 4	Upto 36%	153	45	1,827,730	4,061,622

* total number of enrolled students in primary schools for each slab is calculated using this formula [(100/ percent of primary students getting stipends for each slab) X (no. of primary school students getting stipends from each slab)]

Total number of students getting stipend (from Table 6.7) is 7,817,974
Total number of students in those schools (from Table 6.7) is 12,801,793

Table 6.8: Share of students from different slabs as % of total no. of students receiving stipend & share of expenditure (5-yearly) for different slabs

	No. of students getting stipends	% share of total no. of students getting stipend	Share of expenditure (BDT)*
Slab 1	1716889	21.96079189	89,258,143
Slab2	2571290	32.88946727	134,502,167
Slab 3	1702065	21.77117755	89,033,687
Slab 4	1827730	23.3785633	95,607,125
Total	7817974	100	408,952,099

Share of expenditure (column 4 of Table 6.8) is calculated by giving each slab a portion of the total expenditure in proportion with the % share of students from that slab (in the total number of students receiving stipend).

Table 6.9: Calculating the amount spent per student

(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
	% of people living below poverty	Total enrolled students in primary	% of total primary students getting stipend	No. of students getting stipend	Share of expenditure (USD)	Amount spent per student (USD)	
						Total*	Covered**
Slab 1	60-77%	1,907,654	90	1,716,889	89,258,143	46.79	51.99
Slab2	48-59%	3,428,387	75	2,571,290	134,502,167	39.23	52.31
Slab 3	36-47.9%	3,404,130	50	1,702,065	89,033,687	26.15	52.31
Slab 4	Upto 36%	4,061,622	45	1,827,730	95,607,125	23.54	52.31

*calculated by dividing figures in column (VI) with the figures in column (III)
** calculated by dividing figures in column (VI) with the figures in column (V)

Table 6.10: Calculating the amount spent on saving each student from dropping out

(I)	(II)	(III)	(IV)	(V)	(VI)
	Reduction in dropout rate	**Total enrolled students in primary schools**	**No. of students saved due to PESP***	**Share of expenditure (USD)**	**Cost of saving each student (USD)****
Slab 1	2.35	1,907,654	44,830	89,258,143	1,991.04
Slab2	2.35	3,428,387	80,567	134,502,167	1,669.44
Slab 3	2.35	3,404,130	79,997	89,033,687	1,112.96
Slab 4	2.35	4,061,622	95,448	95,607,125	1,001.67

*calculated by multiplying figures in column (II) with figures in column (III) and then dividing the result by 100
**calculated by dividing figures in column (V) by figures in column (IV)

The average cost of saving each student is now calculated by finding the average of the figures in column no VIII of the table above, which is found to be 1443.78 USD.

The total number of students saved is calculated by summing up all the entries of column IV, which works out to 300,842.

7. DISCUSSION OF RESULTS, CONCLUSION AND IMPLICATIONS FOR POLICY

The two alternatives may be compared using the effectiveness measure (cost of saving each student from dropping out of primary school).

- Cost of saving each student from dropping out using the SFP stands at 220 USD
- Cost of saving each student from dropping out using PESP stands at 1443.78 USD

Again the scaled up SFP can save some 7,648,010 students from dropping out. On the other hand, scaled up PESP can save some 300,842 students from dropping out.

This implies that SFP has an 85 percent lower cost of saving each student from dropping out, and this program is saving over 25 times more students from dropping out of schools.

Hence sticking to the assumptions made, depending on the data available and the methodology adopted, it may be inferred that in terms of cost-effectiveness, scaling up the SFP for reducing dropouts in the primary education sector of Bangladesh appears to be the relatively better option.

While the policymakers may decide to seriously consider scaling up SFP (the project currently is in some pilot form) to attain educational targets of the country, the point to be noted in this regard is that this project is currently being implemented in only 10 upazilas of 5 districts of the country. Hence the policymakers need to consider the potential drop in benefits that may occur due to scaling up the intervention across the country.
Secondly, the different drawbacks of school feeding interventions (e.g. benefits going to other household members, benefits going to those who would come to school anyway,

etc.) have to be considered at the same time. Proper planning to address these issues is needed before initiating the scale up. This may require the conducting of a national level baseline survey.

Thirdly, the investment needed for the scaling up may be channeled through money drawn from other primary education interventions (e.g. PESP itself). This requires changes in the fiscal policy of the government as well as attention from international donor bodies.

Finally, a study to estimate the impact to be generated by this scale up of SFP needs to be conducted which will consider not only the reduction in dropout rates but also other benefits like role of SFP as a social protection initiative, macro-economic impact of the creation of steady demand for food at local levels, positive impact of the program on the nutritional status of school-aged children of Bangladesh, etc. This information may lead to policy changes in favor of scaling up SFP over other educational interventions in the country.

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