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MONGOLIA

# Public Financing of Education Equity and Efficiency Implications

September 2006

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**MONGOLIA**

**PUBLIC FINANCING OF EDUCATION IN MONGOLIA:  
EQUITY AND EFFICIENCY IMPLICATIONS**

**THE WORLD BANK  
WASHINGTON DC, USA**

**September 2006**

## CURRENCY EQUIVALENTS

(Exchange Rate Effective August 11, 2006)

Currency Unit	=	Mongolian Tugriks
1 MNT	=	USD 0.0008554
USD1.00	=	1169.0 MNT

## FISCAL YEAR

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## ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
Aimag	Province
Bagh	town or village
ECD	Education and Culture Department
GOM	Government of Mongolia
FFS	Fiscal Framework Statement
FY	Fiscal Year
LSMS	Living Standards Measurement Study Surveys
MEA	Mongolia Education Alliance
MECS	Ministry of Education, Culture and Science
MNT	Mongolian Tugriks
MOF	Ministry of Finance
PARE	Program to Reduce the Educational Backlog
PETS	Public Expenditure Tracking Survey
PSFM Law	Public Sector Finance and Management Law
PTR	Pupil-to-Teacher Ratios
SNED	National System of School Performance Assessment
Soum	District
SPIA	State Professional Inspection Agency
TVET	Technical Vocational Educational Training
UB	Ulaanbaatar

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## Executive Summary

**Mongolia has struggled throughout its economic transition to maintain the levels of education and literacy that were accomplishments of the previous centrally planned system.**

However, the economic difficulties of the transition severely impacted the overall provision of education services. To cope with the new economic reality, the Government of Mongolia (GOM) implemented a series of reforms during the 1990's. Among these was the imposition of dormitory fees in 1996. School dormitories play a key role in allowing access to schools to rural children. This policy appears to have negatively impacted enrollments and increased dropout rates and was therefore reversed in 2000. Another policy reform that was implemented in 1997, aimed at reducing the size of school staff and reorganizing schools. Reorganization had three components: (a) closing down four-year primary-only schools in remote areas; (b) discontinuing grades 9 and 10 in most soum<sup>1</sup> schools; and (c) merging the schools in aimag centers<sup>2</sup> to form large "complex" schools. More recently, the government has introduced new reforms including the expansion of the schooling cycle from ten to eleven years. Discussions are underway on whether to add a twelfth year to the structure in either 2008 or 2010.

**In addition to the difficulties that came with the economic transition, the education sector in Mongolia faces a number of unique challenges that make education provision more complex.**

First, the low population density of Mongolia and the difficult winter conditions translate into higher costs of delivering education services. Second, migration out of rural areas and into the cities has decreased the enrollments of small rural schools, while increasing the crowdedness of urban ones. Closely related to migration is the presence of disparities in outcomes and quality of education across urban and rural areas.

**The Public Sector Finance and Management Law that was enacted in 2003 was meant to enhance the transparency and efficiency of public spending and had important implications for the education sector.**

The following are specific ways the education sector was affected by the new law: (a) by centralizing the financial management system, it limited schools' use self-generated revenues; (b) it restructured the budget process, introducing further checks throughout the system and strengthening the controlling role of central authorities; (c) it introduced performance-based contracts for all civil servants including teachers; (d) it reorganized the responsibilities of provincial officials in charge of budget approval and disbursement, shifting power away from the Ministry of Education and to the Ministry of Finance; and (e) it eliminated cross-sectoral reallocations of the budget after approval, allowing only re-allocations among schools.

**This report combines an institutional review of the education sector with the empirical results of extensive qualitative and quantitative data collection efforts to examine the structure of education funding and the actual distribution of resources across schools in Mongolia.** The report examines three main questions in education finance, each covered in one chapter:

1. To what extent is the variation in the magnitude and composition of school budgets across regions and schools explained by the funding formula?

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<sup>1</sup> Soum is the Mongolian word used for districts in all aimags (provinces).

<sup>2</sup> Aimag is the Mongolian word for province. The aimag-center is the provincial capital.

2. How do resources flow through the education system during the different stages of the budget process?
3. What comprises teacher salaries and how are current incentives designed and implemented in practice?

In documenting how resources are allocated across schools and how they are used within schools, this report aims at informing the education community in Mongolia on different channels that could reduce the observed regional disparities in educational outcomes. Moreover, this report aims at identifying how to enhance the efficiency, the transparency, and the equity of the budget process at its different stages.

**The main source of data used in this report is the 2005 Public Expenditure Tracking Survey (PETS).** PETS included detailed interviews of 118 schools in urban and rural areas.

**PETS revealed that urban schools have more teachers *and* students than rural schools.**

Moreover, the pupil-per-teacher ratio is also higher in urban schools. To serve their larger student bodies, urban schools have more shifts<sup>3</sup> than rural schools do. However, there are no differences in the average length of a shift across the two types of schools.

**PETS also documented that there are no differences in the age and maintenance of school buildings across urban and rural areas, but that there are structural disparities in the types of costs they bear.** For example, rural schools are less likely to be connected to the city network that provides heating, which means they have to use less efficient and more expensive technologies. Likewise, rural schools are more likely to have a school dormitory *and* a larger share of pupils living in it.

**Lastly, PETS illustrated that students in rural schools obtained significantly lower test scores than those from urban schools.** The data is consistent with a pattern where the more disadvantaged — and therefore lower-performing students — systematically fail to advance their schooling and drop out at a younger age in the rural areas.

## **1. School Expenses and Budget Composition**

**School finances in Mongolia are planned through a funding formula, but policy practitioners are not satisfied with its ability to meet schools' needs in an efficient and equitable manner.** Recent attempts to make school management more efficient without taking into consideration the equity variable were not successful. In the 1990's, there was a government effort to close and consolidate small schools in remote locations. In the late 1990's, school dormitory fees were introduced. These reforms may have limited the access to schooling of remote, marginal populations. The challenge to make small, rural schools more efficient in producing quality education remains. The main question examined in this chapter is to what extent the current funding formula explains the variation in the magnitude and composition of school budgets across regions and schools, and what are its implications in terms of equity *and* efficiency.

**Small, rural schools exhibit significantly higher per-student spending (Table 1).** The funding formula distinguishes between variable and fixed spending. Variable spending is proportional to projected student enrollment, while fixed spending is estimated from past expenses. Variable

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<sup>3</sup> For the Mongolian context, shifts are defined as separate groups of students during the school day.

costs are based on regional criteria established annually by the government. In addition, aimags<sup>4</sup> do reallocations to compensate smaller schools. Data from the study show that there is a large amount of variation in per-student variable and fixed spending across schools of different sizes, types and locations that is not explained by the funding formula. The data also documents that differences in student performance across schools with high and low-per-student spending are small. Moreover, when there are differences, the low spending schools outperform the high spending ones.

**Table 1: Small, Rural Schools Have Higher Levels of Per-student Spending**

<b>Student enrollment</b>	<b>Small A</b>	<b>Medium B</b>	<b>Large C</b>	<b>A=B</b>	<b>B=C</b>	<b>A=C</b>
Total spending (MNT <sup>a</sup> )	160.5	120.4	101.5	***	***	***
Observations	36	37	36			
<b>Location</b>	<b>Urban A</b>	<b>Rural B</b>		<b>A=B</b>		
Total spending (MNT <sup>a</sup> )	118.1	138.4		**		
Observations	59	50				
<b>Type of school</b>	<b>Grades 1-4 A</b>	<b>Grades 1-8 B</b>	<b>Grades 1-10 C</b>	<b>A=B</b>	<b>B=C</b>	<b>A=C</b>
Total spending (MNT <sup>a</sup> )	148.3	144.6	121.7		**	
Observations	7	19	83			

a: In thousands.

T-test of differences is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

Source: PETS Mongolia 2005.

**There is significant variation in the composition of expenditures across schools.** Small, rural schools spend more on dormitory food while larger schools that serve multiple shifts spend more on staff salaries. Staff salaries represent the largest spending item for all schools. The Mongolian education system requires subject specific teachers in secondary schools and there are few primary schools with multi-grade classrooms. This imposes costly constraints on schools with small enrollments. Other factors that explain the different composition of spending between urban and rural schools are: (a) rural schools have a greater proportion of low income families and are less able to rely on community resources; (b) rural schools face higher transportation costs for their staff to attend workshops and meetings at the aimag center; (c) many rural schools have less access to public services and less efficient infrastructure; and (d) low student enrollment in rural schools results in under utilization of school buildings, and this makes it more costly to heat the remaining rooms in the winter.

**Provincial reallocations between schools correct some of the imbalances in resource allocation, but they create inequities across regions.** Provincial reallocations through micro-coefficients were created to allow for corrections to school funding based on school size and responded to concerns that the funding formula had negatively impacted small schools. Every school in the country is assigned a micro-coefficient. Because reallocations based on micro-coefficients are done at the provincial-level and depend on the average school size in each aimag, they introduce disparities across aimags. The report discusses alternative designs for the funding formula and illustrates that even simple adjustments could result in a more equitable distribution of resources.

<sup>4</sup> Aimag is the Mongolian word for province. There are 21 aimags in Mongolia plus the capital city of UB.

**Beyond the design of the funding formula, when it comes to its implementation, it is not used uniformly across all schools in Mongolia.** Education financing laws mandate all schools to use the funding formula. However, the formula is not used in Ulaanbaatar (UB) and there has been no effort from authorities to enforce it. Rather, UB schools submit their budgets based on their needs and past expenses without providing specific information on enrollment numbers. This means that, in practice, there is not a uniform treatment of the issue of school financing across the country.

## **2. The Education Budgetary Process**

**Schools and the local and central governments interact at different stages of the budget process and it is likely that the formal and informal rules around these interactions affect the final allocation of resources across schools.** The purpose of this chapter is to describe: (a) how the 2002 reforms affected the flow of school resources through the different stages of the budget process; (b) the roles that schools and government, central and provincial, play throughout; and (c) how the characteristics of the process affect its outcomes and the distribution of school spending.

**Education financing was re-centralized in 2002. However, a parallel and different process exists in the capital city, UB.** In 2002, the responsibilities of budget preparation and disbursement were divided between line departments of the Ministry of Education, Culture and Science (MECS) and the Ministry of Finance (MOF). Representatives of these two ministries were placed in the aimag centers. This was well received by almost all of the schools interviewed. A surprising finding is that, although UB is not excluded from the new regulation, education financing operates under a different institutional structure in the capital. One agency, the Treasury Office within the MOF, continues to handle both budget preparation and disbursement, reducing the checks and balances in the system.

**In addition, the 2002 reform included other changes that aimed at making the budget process more efficient and more transparent.** For example, the practice of cross-sectoral reallocation by aimag governments was suspended. Furthermore, measures were taken to improve transparency and accountability at the school, aimag, and central-level. A new State Inspection Agency that reports directly to the central government was created. Lastly, schools were required to consolidate all their accounts into a single one.

**An analysis of the PETS data documented that reallocations during the budget process are larger in magnitude and more frequent at approval stages than they are at budget disbursement and expenditure (Table 2).** Across the country, schools request more money than what they are entitled to based on the funding formula. They also request more money than what eventually gets approved. At approval stage, all schools experience a cut. In proportional terms, the magnitude of this cut does not differ much across schools of different sizes and across urban and rural schools. Later in the process, there are only small changes between approved and disbursed budgets. Although small, they are slightly larger for urban and for large schools. Finally, changes between disbursement and expenditure are minor, except for small schools that experience a cut. Overall, the changes observed through the budget process are small in magnitude and this can be in part a result of close collaboration between school accountants, who prepare the budget, and provincial finance officers, who submit the budget for approval.

**Table 2: Budget Reallocations are Larger and More Frequent at Approval Stage  
(For every dollar *submitted*, amount that is approved, disbursed and spent)**

Variable spending	Approved	0.97
	Disbursed	0.98
	Spent	0.95
Fixed spending	Approved	0.83
	Disbursed	0.84
	Spent	0.87
Other spending	Approved	0.47
	Disbursed	0.54
	Spent	0.46
Total spending	Approved	0.89
	Disbursed	0.89
	Spent	0.89

Source: PETS Mongolia 2005.

**An analysis of expenditure tracking in the Western region documented discrepancies across school and provincial records.** In the majority of cases, spending in the provincial records appears to be less than that in schools' records. This could be — at least in part — due to the fact that schools are likely to under report spending financed with revenues from their own income-generating activities. The magnitude of the discrepancies is large, at around 20 percent of under and over reporting of variable and fixed costs. As anecdotal evidence, the team of data collectors reported that there seemed to be different levels of understanding and even confusion on how schools and provincial budget officers define and treat fixed and variable costs. This is another candidate explanation for these discrepancies.

### 3. The Complex System of Teacher Compensation in Mongolia

**Teachers' knowledge and classroom effectiveness have a major impact on what students learn and therefore, teacher incentives and the overall working conditions of the teaching profession are crucial inputs in the production of education.** This chapter examines the structure of teacher incomes and the policies around them and discusses the incentive schemes in place for the recruitment and retention of teachers in urban and rural schools.

**Urban teachers earn more than rural teachers, but they also experience higher costs of living and work more hours than rural teachers (Table 3).** A teacher's salary in Mongolia has three main components: a base salary, salary supplements, and bonuses. The data documents significant differences in the income of teachers in urban and rural schools in regards to base salary and several salary supplements, with urban teachers earning significantly more than rural teachers. The reasons for this are: (a) the base salary of teachers is solely based on a teacher's experience and there are more experienced teachers in urban schools than in rural schools; and (b) many of the salary supplements favor teachers in schools with larger student populations and urban schools are overwhelmingly larger than rural schools. Because the base salary and salary supplements form the majority of a teacher's monthly income, overall teachers' incomes are much higher in urban schools. At the same time, costs of living are larger in urban than in rural areas so the purchasing power of teacher salaries differs less across urban and rural teachers.

**Table 3: Decomposition of Teachers' Monthly Income by Location (in US\$)**

	Urban	Rural	Difference
Base salary	56	52	***
Supplements			
Extra teaching hours	17.6	11.2	***
Class teacher	5.2	4.7	***
Notebook checking	5	4.4	***
Rank	4.7	2.7	***
Cabinet	1.4	0.64	***
Leader methodology unit	0.25	0.23	
Skills	1.79	1.13	***
Examination		0.41	
Performance Bonus	4.3	4.1	
Transportation compensation	1.6	0.29	***
Other	1.7	1.3	
Total	101	83.2	***

T-test of difference is significant at: \*\*\* 99%.

Source: PETS Mongolia 2005.

**A majority of teachers reported receiving some type of non-monetary benefit from their school.** This type of benefit is not regulated. It was found to be more common in rural than in urban schools as it appears to be driven by the need to provide housing for teachers in rural areas. Other non-monetary benefits include support to participate in teacher training, a fund for times of emergency, employment for family members, and food. Non-monetary benefits can play a role in attracting and retaining teachers in rural areas.

**The system by which the school administration awards bonuses and makes deductions from a teacher's salary is not entirely clear.** Principals, education managers and — in the case of urban schools — social workers, have the authority to award bonuses to teachers and deduct from a teacher's monthly salary based on performance-based contracts. While a majority of schools report using performance-based contracts, the data reveal that most bonuses are not awarded based on these contracts. Instead, schools continue to use the more traditional way of awarding bonuses based on students' performance. Criteria by which deductions are made are not entirely clear to teachers. There is no systematic reporting of deductions at the school-level on teachers' salary disbursement forms, thus presenting an opportunity for reallocations across budget items at the school-level.

**Teachers often engage in income generating after-school activities.** Seventy-four percent of all sampled teachers reported earning income from after-school activities. These activities may include private tutoring, preparing students for exams, and organizing clubs. No significant differences in the likelihood of teachers in urban or rural schools to engage in after-school activities were observed. However, there was a significant difference in the amount of income teachers receive with the difference favoring teachers in urban schools. The difference is most likely attributable to the larger student populations in urban schools and the higher disposable income in these areas. This may act as an additional incentive to teach in urban areas.

## **Chapter 1: Introduction**

### **1.1 Overview of the Education Sector in Mongolia**

Mongolia has struggled throughout its transition to maintain the levels of education and literacy that were accomplishments of the previous centrally planned system. However, the economic difficulties of the transition severely impacted the overall provision of education services.

To cope with the new economic reality, the Government of Mongolia (GOM) implemented a series of reforms during the 1990's. Among these was the imposition of dormitory fees in 1996. School dormitories play a key role in allowing access to schools to rural children. This policy appears to have negatively impacted enrollments and increased dropout rates and was therefore reversed in 2000.

Another policy reform that was implemented in 1997 aimed at reducing the size of school staff and reorganizing schools. Reorganization had three components: (a) closing down four-year primary-only schools in remote areas; (b) discontinuing grades 9 and 10 in most soum schools; and (c) merging the schools in aimag centers to form large "complex" schools.

More recently, the government has introduced new reforms including the expansion of the schooling cycle from ten to eleven years. Discussions are underway on whether to add a twelfth year to the structure in either 2008 or 2010.

This report focuses on the basic education sector. The Mongolian general education system is organized into three sub-sectors. There are five years of primary education (7 to 11 year-olds) and then four years of lower secondary education (12 to 15 year-olds). Together these two levels comprise the basic education cycle meant to be compulsory for all children. This is followed by two years of upper secondary education.

### **1.2 Additional Challenges to the Sector**

Other than the economic transition, the education sector in Mongolia faces a number of challenges that are unique to this country's reality and that affect the capacity of the sector to meet its objectives.

The first challenge is the low population density of Mongolia, together with the presence of extreme and harsh weather conditions that makes it difficult to deliver education services. Mongolia's education expenditure — as a percentage of total public expenditure — is among the highest of the transition countries. This is, at least in part, due to the high cost of delivering education services in a sparsely populated land with very harsh winters.

A second challenge is related to recent internal migration trends. Evidence suggests large fluxes of migrants out of remote rural areas and into aimag centers or the capital city, Ulaanbaatar (UB). This has resulted in decreasing enrollments in the already small rural schools while increasing the crowdedness of urban schools. At the same time, in Mongolia as in many other countries, it is hard to attract good teachers to remote locations. As a result, Mongolia is facing and will continue to face difficulties in maintaining school services in small and remote rural areas, and at the same time, difficulties in providing access and quality education in crowded urban areas.

A third constraint that the Mongolian education system is faced with is the increasing disparities in outcomes and quality across urban and rural schools. Given the consolidation of schools in

aimag centers along with the trend of rural-to-urban migration, many urban schools soon had limited space to accommodate upper secondary education (grades 9 and 10). The GOM recommends that schools transfer at least 70 percent of grade 8 students to grade 9, but in practice many overcrowded schools have taken this to be the upper limit. Selection was based on student performance on state-administered examinations. Student assessment results suggest that this policy would restrict access to upper secondary education to students from rural schools which were more likely to perform poorly in these exams.

### **1.3 Education Indicators**

Mongolia ranks high among countries in the East Asia region in terms of its gross enrollment rates for primary and secondary education. In 2002, gross enrollment rates were 111 for primary education, 92 for lower secondary education, and 61 for upper secondary education. Contrary to the trend with gross enrollment rates, primary net enrollment figures are lower relative to those of most countries in the region. Net enrollment rates for lower and upper secondary combined are considerably higher than most countries in the region.

Enrollment rates vary widely by location. For lower and upper secondary, net enrollment is significantly higher in urban than in rural areas. Interestingly, the location patterns are different for primary schooling. Primary net enrollment rates are relatively lower in UB and in the countryside compared to those of aimag or soum centers. This pattern may reflect the challenges posed by the maintenance of school services in small remote areas, as well as providing access and quality education in crowded urban areas with intense rural-urban migration.

Completion rates have recovered in recent years. They are high (96 percent) for primary grades, and following an upper trend (at 86 and 61 percent) for lower and upper secondary. Rural-urban disparities are also present in completion rates at lower and upper secondary levels, with rural areas lagging behind.

Data on dropout rates illustrates that 22 percent of students drop out before completing upper secondary school. However, students who did not continue to upper secondary school are not counted in official dropout numbers because it is not part of compulsory education. Dropouts are larger among rural students and regional disparities are distinguishable even before completion of primary school.

### **1.4 Education Financing and School Inputs**

The GOM has in recent years worked to protect public spending on education. Still, few reforms have been made to enhance the quality and the efficiency of spending in the sector. Although education's share of the total government budget fell to a low of 16 percent in 1997, by 2000 it had recovered to 18 percent (about 7.6 percent of GDP).

Regional disparities are also present in the distribution of school inputs, like pupil-to-teacher ratios (PTRs) and pupil-to-class ratios. There are rural schools with PTRs as low as 11:1, while some urban schools have PTRs as high as 77:1. In urban areas, all schools run two shifts and often times three. Owing to this phenomenon, the average school day is short in Mongolia, and this contributes to lower learning achievement and higher dropout.

There have been numerous teacher development programs supported by different donors as well as by the government. Most teachers' training is credit-based and it is centralized in the capital

city or in one of three regional teacher training colleges. Training offers limited follow-up support. There is no reliable data to assess teacher quality and the impact on it of these investments in training.

Over the last few years, the GOM, along with the Japanese government and the Asian Development Bank (ADB), have invested considerable resources to improve school buildings and dormitories. Enhancing the efficiency of heating systems and space utilization (especially in rural areas with declining enrollments) remain key priorities that will increase the returns to educational spending.

Until 2005, the Ministry of Education, Culture and Science (MECS) printed textbooks for the main subjects in sufficient supply to cover the estimated number of incoming students. Students received textbooks free of charge and were required to return them upon graduation. In school year 2005-2006, the textbook supply policy was modified. Schools were given the option to choose from several options of textbooks, and all children except those from very poor families (as determined by the school social workers) had to pay for the textbooks. No systematic assessment has been carried out on the effects this reform had on access to textbooks by children from disadvantaged families.

Civic participation and education monitoring are still new phenomena in Mongolia. The 2002 Education Law abolished school boards which had been given decision making authority for the hiring and firing of principals, and replaced them with school councils which have only consultative authority. Currently, school councils play a limited role in the operation of Mongolia's schools. School principals and teachers, especially in rural areas where there are too few schools to provide competition, bear little or no accountability for the quality of the education they provide.

### **1.5 Student's Learning Achievement**

There have been changes in the basic education curriculum to promote creativity, adaptability, and decision making. However, reform in the area of assessment has not followed. The schools are driven by an assessment culture as student test results inform teacher salary levels.

The traditional national assessments in grades 4, 8 and 10 were suspended in 2005. According to the latest available results with scores for mathematics and Mongolian language tests, student achievement varies across locations and across school types. Students perform better in Mongolian than in math tests. Students in urban locations had better outcomes than those from rural schools illustrating one additional dimension of regional disparities. This is true both for grade 4 and for grade 8 assessments.

### **1.6 The 2002 Public Sector Finance and Management Law**

The Public Sector Finance and Management Law (PSFM Law) was adopted in June, 2002 and enacted in January, 2003. The overall spirit of the law was to improve efficiency and transparency in public finance. This section briefly discusses the main implications the law had on the education sector.

***Revenues generated by schools:*** The 2002 PSFM Law requires that the MOF bans public budgetary institutions such as schools from opening bank accounts outside the centralized cash management system. This limits the possibility for schools to use self-generated revenues only

for covering fixed costs. Schools would prefer that these moneys are allocated with more flexibility and at their free disposal.

**Accountability and control:** The 2002 PSFM Law introduced two main reforms in this area. First, it required schools to close multiple accounts and to replace them with a single one administered by the treasury office. Funds are directly disbursed into the school account reducing the risk of leakage and delays in disbursements. Disbursements are made in monthly installments and upon receipts. Second, annual audits by the State Professional Inspection Agency (SPIA) were established. Schools are not charged fees for auditing services performed by the auditors from the SPIA. However, if a school chooses to bring in an independent auditor, it must pay the fees from the school budget. Along with the standard auditing procedure, Mongolian schools are subject to inspection by the SPIA to oversee the implementation of sector-specific laws and regulations, and to strengthen fiscal discipline in financial relations of public institutions.

**Performance-based contracts:** Even though awards have traditionally been part of teacher salaries, the award-based salary scheme was reframed in the context of results-based management or outcomes-contract introduced by the 2002 PSFM Law.

**Institutional roles and responsibilities:** The 2002 PSFM Law established clear distinctions between financial approval and disbursement responsibilities. The Economics and Finance Department of the Ministry of Education and its provincial officers are in charge of reviewing and accepting budget proposals submitted by schools. The MOF and its officers at provincial and district<sup>5</sup> levels are in charge of disbursing funds. The involvement of provincial officials from each of the two ministries implied a re-centralization of the process relative to the previous scheme where provincial cross-sectoral finance officers were in charge of both approval and disbursement decisions.

**Reallocations after budget approval:** In contrast to the previous practice, budgets ear-marked for the education sector cannot be reallocated for other sectors or purposes based on the 2002 PSFM Law. Prior practice where reallocations were common made it difficult for schools to plan their activities. Under the current practice, reallocations after the approval at central-level exclusively occur among schools, but not between the education sector and other sectors.

## 1.7 Motivation of this Report

This report aims at providing a detailed description of the institutional framework, as well as the actual operations of school financing in Mongolia at a period when the system is experiencing the results of multiple reforms. To do so, it combines an institutional review of the sector with the empirical results of extensive qualitative and quantitative data collection efforts.

In documenting how resources are allocated across schools and how they are used within schools, this report aims at informing the education community in Mongolia on different channels that could reduce the observed regional disparities in educational outcomes. Moreover, this report aims at identifying how to enhance the efficiency, the transparency, and the equity of the budget process at its different stages.

This report is organized into three different chapters:

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<sup>5</sup> The capital UB, is divided into districts.

Chapter 2 examines **school budget allocation** across different types of spending and compares the composition of spending across schools of different characteristics. This chapter analyzes the extent to which the funding formula and its provincial adjustments are implemented in practice. It explores the disparities in spending that are introduced by the formula and proposes alternatives to reduce them.

Chapter 3 describes the **budget process** and its steps. It tracks and quantifies changes in resource allocation through the different stages of the process. The chapter also explores the frequency, likelihood of success, and magnitude of budget amendments that occur after the school budgets has been approved. In its last section, this chapter tracks the discrepancies in resource reporting across schools and provincial budgetary authorities.

Chapter 4 focuses on **teachers' salaries**. It describes the complex structure of teachers' remunerations and compares them across urban and rural schools. It also analyzes how the performance-based bonuses mandated by law are implemented in practice and documents comparative international lessons on the subject. This chapter also provides a broader view on teachers' incentives and the challenges to attract teachers to remote rural schools by quantifying the incomes teachers receive from out-of-school activities and comparing them across rural and urban areas.

Chapter 5 lays out a specific set of **policy recommendations** for the government to improve the transparency, efficiency, and equity of the education financing system.

## 1.8 Summary Statistics of the PETS Schools Sample

A detailed description of the main data source used through this report, the 2005 PETS, is presented in Annex 1. This section provides a general overview of a select set of characteristics of the schools in the sample.

Out of the 120 schools selected for the PETS sample, two were unreachable during data collection<sup>6</sup> so the final data set has information on 118 schools from 22 different aimags, including UB. In terms of their location, 27 percent of the schools in the sample were in UB, 25 percent were aimag-center schools<sup>7</sup>, 35 percent were soum -center<sup>8</sup> schools, and the remaining 14 percent were bagh<sup>9</sup> schools. **Figure 1** illustrates the geographic distribution of the schools in the sample.

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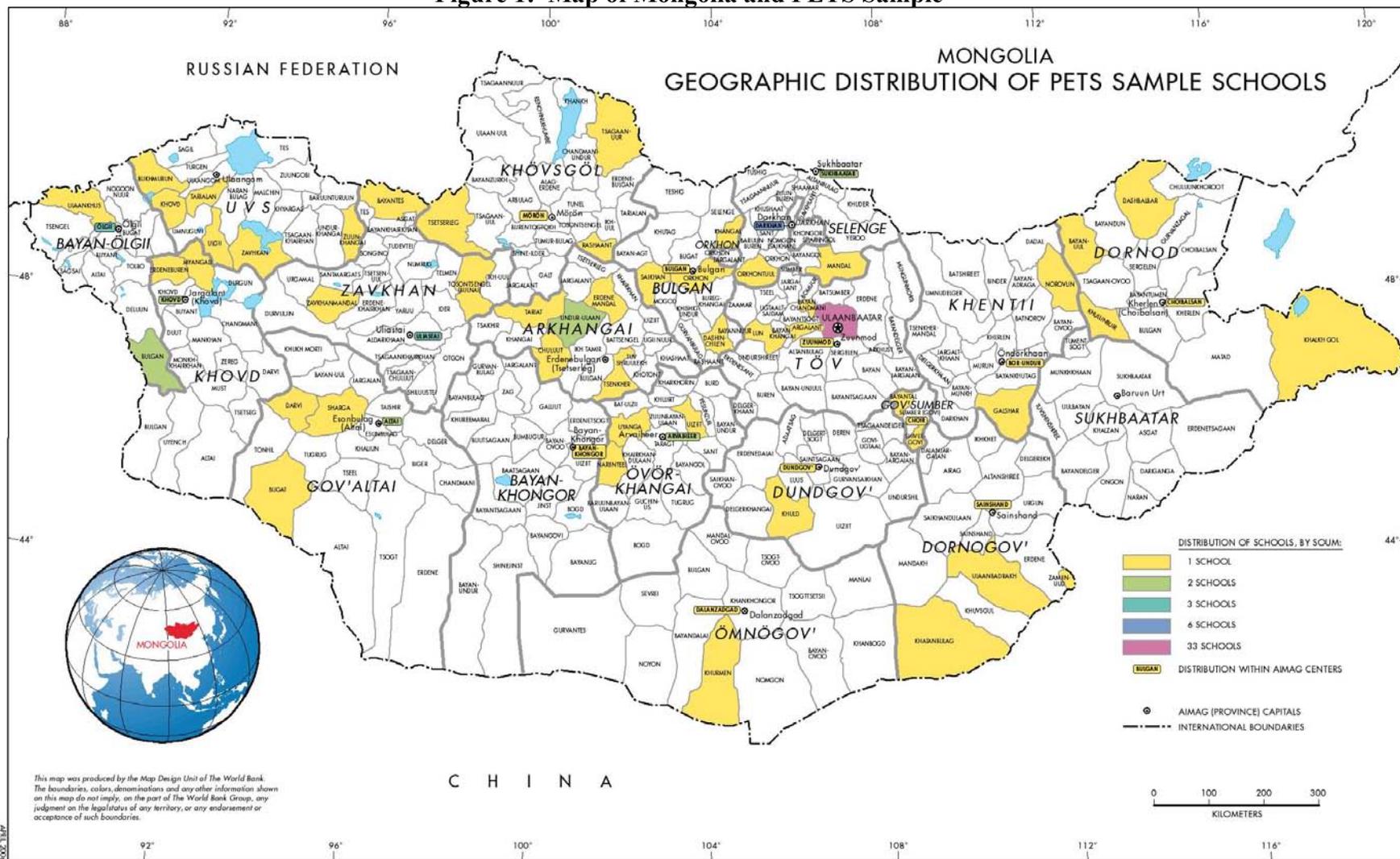
<sup>6</sup> One of them (Dulguun bagh school, a grade 4 school in the soum center of Zuunbayan-Ulaan soum) had been closed due to a recent sharp decrease in enrollment as a result of out-migration. The other (Bugant school, a grade 10 school in the soum center of Bugant soum) was unreachable due to harsh weather conditions in winter.

<sup>7</sup> Aimags are provinces in Mongolia. Aimag-centers are the provincial capitals.

<sup>8</sup> Soums are districts within aimags. The soum-center is the capital of each soum.

<sup>9</sup> Baghs are villages within soums.

Figure 1: Map of Mongolia and PETS Sample



Tables 4-6 present select descriptive statistics of the schools in the PETS sample by location. Urban schools include those in UB and in aimag-centers, while rural schools comprise the ones in soum-centers and in baghs. The statistical significance of the difference in the means of these attributes across urban and rural areas is reported in the third column.

**Table 4** illustrates that there are important differences in school size across urban and rural areas. Urban schools are significantly larger, both in terms of their number of pupils, as well as in terms of their number of teachers. Moreover, the pupil-per-teacher ratio is also bigger in urban schools. Interestingly, the gender balance of the student body does not differ significantly across these two types of schools, although in both there is a slightly larger presence of girls relative to that of boys. The table reveals that urban schools are also significantly more likely to serve more shifts than rural schools. However, differences in the average length of a shift are not significant across the two types of schools.

**Table 4: Enrollment, Teachers, and Number of Shifts**

	Urban	Rural	Difference	Obs.
Teachers	67.5	24.7	***	a
	(30.2)	(16.7)		
Pupils	1,825	570	***	a
	(847)	(458)		
Pupils/teacher	26.5	21.6	***	a
	(4.6)	(5.6)		
Share of female pupils	.56	.51		a
	(.29)	(.07)		
Shifts	2.1	1.8	***	a
	(.34)	(.46)		
Length of a shift (minutes)	272	277		a
	(7.0)	(8.0)		

a = 51 rural schools and 61 urban schools.

Difference is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

Source: PETS Mongolia 2005.

**Table 5** summarizes some variables related to school infrastructure. Differences in the age and maintenance of school buildings are not very large and are suggestive of a slight bias in favor of rural schools. On the contrary, rural schools face different demands in terms of their cost structure for other items of infrastructure maintenance. Specifically, rural schools are eight times less likely than urban schools to be connected to the city network that provides heating. This means that the main heat provider of rural schools is either a local boiler (owned by the school or shared with other institutions) or individual stoves in each room. Each of these technologies has important efficiency differences and cost implications. Another dimension along which rural and urban schools vary is the likelihood of having a school dormitory. Dormitories are six times more common in rural schools than they are in urban schools. Even within schools with dormitories, a larger share of pupils lives in the dormitories in rural schools than in urban schools. Again, this implies differences in the amount and types of expenditures a school needs for the maintenance of the dormitories.

**Table 5: School Infrastructure**

	Urban	Rural	Difference	Obs.
Mean year of construction of buildings	1977	1979		a
	(1.7)	(1.3)		
At least one building had maintenance since 1995	.34	.50	*	a
	(.06)	(.07)		
Connected to heating network	.70	.09	***	a
	(.50)	(.29)		
School has dormitory	.13	.82	***	a
	(.34)	(.39)		
Proportion of students living in dormitory	.10	.23	**	b
	(.07)	(.17)		

a = 51 rural schools and 61 urban schools.

b = only schools with dormitories, 46 rural schools and 8 urban schools.

Difference is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

Source: PETS Mongolia 2005.

Finally, **Table 6** summarizes some of the data on school performance and teacher and student absenteeism as reported by education managers. It should be stressed that education managers may have an incentive to systematically under-report absenteeism. No differences in student absenteeism are found across urban and rural schools and it seems to be very low in both types of schools. However, teachers were three times more likely to be absent on the day of the survey in rural schools than they were in urban schools. While higher rural absenteeism has also been documented in other countries, the magnitude of the difference documented in Table 6 is quite large. There is a possibility that urban education managers — more knowledgeable of school supervisions and therefore more strategic in their responses to the survey — were also more likely to under-report absence rates. Moreover, rural absenteeism may have been over-reported. Teacher vacancies are very common in rural schools and these vacancies may have been mistakenly counted as absent teachers.

Table 6 also illustrates that student performance differs significantly across urban and rural schools. The pattern of the differences is consistent across subjects (Math and Mongolian language) and grades (4 and 8). Students in rural schools are significantly less likely to obtain A's and B's in these examinations than students in urban schools. The order of magnitude of the difference is large, and it fluctuates between 10 and 20 percentage points. Interestingly, the gap in performance across urban and rural schools is larger in 4th grade examinations than it is in 8th grade ones. The data does not allow exploring this gap any further. However, it is consistent with the higher dropout rates observed in rural Mongolia starting in early grades and with a pattern where the more disadvantaged — and therefore lower-performing students — systematically fail to advance their schooling and drop out at a younger age.

**Table 6: Performance and Absenteeism**

	Urban	Rural	Difference	Obs.
Proportion of pupils absent on survey day	.02	.02		a
	(.01)	(.02)		
Proportion of teachers absent on survey day	.05	.16	***	a
	(.03)	(.15)		
Proportion with A-Bs in Math, grade 4 exam	.68	.48	***	c
	(.17)	(.19)		
Proportion with A-Bs in Mongolian, grade 4 exam	.57	.43	***	c
	(.19)	(.16)		
Proportion with A-Bs in Math, grade 8 exam	.47	.37	***	d
	(.20)	(.16)		
Proportion with A-Bs in Mongolian, grade 8 exam	.55	.44	***	d
	(.19)	(.17)		

a = 51 rural schools and 61 urban schools.

c = 54 rural schools and 59 urban schools.

d = 49 rural schools and 60 urban schools.

Difference is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

Source: PETS Mongolia 2005.



## Chapter 2: School Expenses and Budget Composition

### 2.1 Background

Mongolia centralized education finance in 2002 after an attempt to decentralize the sector. The centralist structure of education finance entails a host of government resolutions and ministerial decrees. In this chapter, we summarize those related to the structure of school budgets. The empirical analysis done with the PETS data illustrates how these regulations are interpreted and implemented at the school and at the provincial-levels.

Policy practitioners in Mongolia are not satisfied with the current school funding formula's ability to meet schools' needs in an efficient and equitable manner, although they have different perceptions on its main limitations. Officials at MOF feel that the formula — as designed and implemented — is not the right tool for them to adequately plan the budget ahead of time. On the other hand, officials from MECS feel that with the formula, they do not have much control over school funding. MECS provincial finance officers, located at the aimag-level, work with the schools in the preparation of budgets. However, it is MOF provincial treasury officers (also located at the aimag-level) who are in charge of disbursement activities. According to MECS officials, another problem is the restrictions that were introduced in 2002, which limit schools from raising their own funds.

While the PETS focuses on school expenditures funded from public resources, it is important to mention that the majority of the schools in the sample also generated their own income (76 percent according to accountant responses and 91 percent based on principals). Schools are required to report during the budget proposal stage how much revenue they expect to generate. In terms of magnitude, self-generated income was not negligible. School accountants' reports show that for the median income-generating school this income represented 5 percent of their total revenues (with a mean of 10 percent driven by a few schools that were very successful in generating income). Of the schools that generated income, 59 percent reported that they managed it as part of the school budget, while 41 percent kept it separate. Among the latter, self-generated income was used mostly for school repairs, and to cover expenses such as prizes, social events, or family emergencies<sup>10</sup>. However, no data was collected to document how self-generated income was distributed among different types of expenditures. Additionally, according to principals, up to 68 percent of the schools in the sample also received resources from some donor or NGO funded project.

Because of the sparse distribution of the nomadic population in rural Mongolia, education financing poses very unique challenges. During the 1990's, there was a deliberate government effort to close small schools in remote locations and to consolidate them into schools that served a larger population. Additionally, on the grounds of efficiency and between 1996 and 2000, school dormitory fees were introduced. These reforms had important tradeoffs in terms of equity, limiting the effective access to schooling of remote and marginal populations. The government has acknowledged the shortcomings of these reforms and is committed to providing access education for all. The challenge is to design policies that make small rural schools more efficient in producing quality education which implies equity *and* efficiency considerations.

Unless specified differently, the data on this chapter comes from the budget fact sheet provided by the school accountants of the schools in the PETS sample. For accuracy, only information

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<sup>10</sup> Data on self-generated income comes from the school accountant questionnaire.

from budget fact forms that were dated and signed was kept which meant dropping eight schools from the sample. The schools that were dropped were more likely to be rural, small and less likely to be grade 1-10 schools. Therefore, the analysis of this chapter is based on a sample of N=110 observations where small rural schools are even more under-represented.

This chapter is organized in three sections. Each section begins with a brief review of the relevant institutional and regulatory background, and then examines how and whether these regulations on budget allocation are reflected in the schools of the PETS sample. Three aspects related to school budget allocation are examined. The first section studies the composition of school expenses across schools. The second section explores the implications of normative means in terms of resource distribution across schools. Lastly, the third section examines the equity implications that results from the corrections imposed by micro-coefficients into the school budget.

## 2.2 Variable Costs and Fixed Costs

The education budget distinguishes between *variable costs* and *fixed costs*. Variable costs are proportional to student size and cover teacher salary items (such as base salaries, salary supplements, bonuses, insurances, taxes, pension plans) and other expenses such as stationery, books, periodicals, postage and communication costs. Fixed costs cover items such as heating, water, electricity and sewage and are calculated based on past expenses.

The formula that determines variable costs was developed in 1992 by government officials in MECS and MOF<sup>11</sup>. Originally, it was used exclusively as a budget planning instrument between the two ministries. Underlying the formula for variable costs are optimum class size criteria<sup>12</sup>. Until 1998, the formula was never applied by schools in their budget planning process and schools prepared their budgets following a needs-based format. Salaries were estimated based on the size of the staff. Schools were required to forecast cost for items such as maintenance and repair, and school materials. Fixed costs were calculated based on the size of school facilities.

In 1998, the government required schools to use the funding formula for budget planning. School funding formulas are common tools for the planning of education finance in many countries of the world and **Box 1** summarizes some of the international experience with them. PETS data confirms that the funding formula is widely used in Mongolia at the school-level. Ninety-seven percent of the schools in the sample reported using it for their budget planning process. A large majority (90 percent) of the schools in the sample reported that their projections on student numbers on which they based their variable costs estimations were not reduced by the central or local authorities. On the other hand, 38 percent of the schools in the sample reported that the fixed cost estimates they submitted were cut down at approval on average by 25 percent<sup>13</sup>. By far, the items that were most affected by this budget cut were utility expenses (heating, electricity, water and sewage). This evidence is consistent with an incentive structure where MECS would aim at showing large enrollments while still restraining costs.

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<sup>11</sup> L. Boldbaatar and A. Batjargal at MECS and B. Nanzaddorj at MOF.

<sup>12</sup> Optimum class sizes, established in 1995, are 30-35 students per class for primary school, 35 students for secondary school and 25-30 students for special education. Because of the shortage of teachers (in rural areas) and of classroom space (in urban areas), these class sizes are rarely enforced. However, the school inspection agency may fine a school for not complying with them.

<sup>13</sup> Data on use of funding formula comes from school accountant module.

### **Box 1: International Experience with Funding Formulas**

International experience suggests that using a per-student funding formula for allocating resources to schools, along with greater school autonomy, can increase equity, efficiency, effectiveness, transparency and predictability in a country's education system. Per-student financing formulas are currently used in many developed countries (United States, Canada, United Kingdom, Denmark, Australia and New Zealand) as well as developing countries (Chile, Armenia and Nicaragua). The practice in using per-student formulas varies across countries depending on their unique circumstances. However, there are similar factors that are considered across countries.

Most per-student financing formulas base the majority of the school funding on its student enrollment, such that schools receive resources for each additional student. Many countries also recognize that apart from enrollment there are other cost factors that should be considered in funding allocations (school size, school type, grade or age, special student needs, remoteness, etc.). Further, in most countries with formula based education financing systems, schools have some level of administrative and financial autonomy. In addition, most countries only use the per-student funding formula to allocate current (as opposed to capital) expenditures. The main adjustment factors to per-student funding and the countries that apply them are discussed in detail below.

School size: Adjustments for school size are commonly made to protect small schools. Countries such as Australia, New Zealand, Denmark and Armenia all include a fixed grant amount per school so that each school receives some portion of funding regardless of the number of students it enrolls. In the United Kingdom, on the other hand, schools with less than a certain number of students receive per pupil funding by leveling up the number of students to an established minimum. These adjustments provide protection for smaller schools that often have fewer opportunities to attract new students.

Grade and pupil age: Education systems recognize that different grade levels require different inputs. In most countries where an adjustment to the funding formula is made based on grade level, higher grades are provided with more funding than lower grades. Because of the need for more subject specific teachers, lower and upper secondary schools have higher teacher costs. In the United States, for example, secondary grades receive on average 1.25 times more funding than primary grades. In the United Kingdom, however, the adjustment factor is based on the age of the students; and funding for each school is based on their number of age-weighted students.

Remoteness: The adjustment factor may be based on distance to nearest population center of a certain size, population density, area of the district or a combination of the above. In Armenia, for example, schools in remote areas receive additional funding by multiplying the fixed component of their funding formula by 1.07. The main rationale for this additional adjustment is that remote schools are at a disadvantage for hiring and retaining teachers and thus need additional funding to meet these needs. Victoria province in Australia also adjusts for remoteness by constructing an index for rural schools comprising an equally weighted combination of: distance in kilometers from the capital of the province, distance from the nearest provincial center, and distance from the nearest primary or secondary school which is not eligible for funding as a rural and remote school. The location index score for a school is then multiplied by the school's enrollment.

**Box 1: International Experience with Funding Formulas (continued)**

Input Price Differentials: In market economies, the prices of inputs for operating a school can vary substantially by location and may require financing adjustments to reflect the differences. In the United States, for example, per-student financing formulas tend to adjust teachers' salaries taking into account cost of living in the school district. In most cases, this results in higher funding to urban areas where the cost of living is generally higher than in rural areas.

In addition to establishing variable costs proportional to student size, the funding formula requires that a specific percentage of variable costs are devoted exclusively for salary costs. In the past five years, the mandated percentage ranged between 70 and 76.7 percent. The objective of this rule is to earmark the budget and protect specific items. However, the PETS data reveal that this regulation is not enforced. Moreover, the data suggests that there is far more variation than what is mandated by the formula in the percentage of variable costs devoted to salaries. The budget forms that the schools prepare for MECS do not disaggregate spending below variable, fixed and other types of spending. However, PETS asked the interviewees to recall how much money went to salaries and this is reported in **Table 7**. It illustrates that only the smallest third of schools in the sample spend around 70 percent of their variable costs on salaries. The rest of the schools spend between 80 and 90 percent of their variable costs on salaries leaving little spending space for other school inputs like purchases of books or teachers' training.

**Table 7: Salaries on Variable Costs by School Size**

	Smallest third	Medium third	Largest third
Salaries + additions	53%	64%	71%
Salaries + additions + insurance	69%	81%	88%

School groups are defined as sample quantiles at 33% and 67%. Exact cutoff points are: smallest third: <670 students, medium third: 670-1760 students, and largest third: >1760 students.

Data refers to 2004 disaggregated spent amounts.

Reference: PETS Mongolia 2005.

PETS data allows one to examine whether the magnitude and share of spending in variable and fixed costs differs across schools of different characteristics. Tables 8-10 compare these categories of spending across schools of different sizes, types and locations. **Table 8** splits the sample in three groups of schools based on the size of the student body. Group cutoff points were defined at the 33rd and 67th percentiles of the distribution of student number of the schools in the sample. T-tests on the difference of mean per-student spending across groups of schools are reported in the last three columns. It is clear from this table that spending in both variable and fixed costs in per-student terms is significantly larger in small schools than in the rest of the schools of the PETS sample. In terms of magnitude, the per-student spending of a pupil of a small school is, on average, more than 30 percent larger as that of one in a medium size school. Spending in variable and total costs are also significantly different between medium and large schools with the latter having the lower per-student spending. However, differences across these two groups are smaller in magnitude. On average, the total spending of a student in a medium school is 19 percent larger than that in a large school.

**Table 8: Per-Student Spending by School Size**

	Smallest Third A		Medium Third B		Largest Third C		A=B	B=C	A=C
	MNT <sup>a</sup>	% of total	MNT <sup>a</sup>	% of total	MNT <sup>a</sup>	% of total			
Variable	104.5 (39.0)	65	87.1 (15.1)	72	73.8 (17.1)	73	**	***	***
Fixed	48.8 (39.0)	30	28.1 (20.3)	23	25.8 (19.6)	25	***		***
Other	8.3 (13.6)	5	5.7 (8.8)	5	2.0 (3.7)	2		**	**
Total	160.5 (49.3)		120.4 (30.4)		101.5 (22.1)		***	***	***
Observations	36		37		36				

a: In thousands.

School groups are defined as sample quantiles at 33% and 67%. Exact cutoff points are: smallest third: <670 students, medium third: 670-1760 students, and largest third: >1760 students.

Data refers to 2004 figures on spent amounts.

T-test of differences is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

Reference: PETS Mongolia 2005.

**Table 9** compares spending in variable, fixed and total schools across urban and rural schools. Urban schools include those in aimag centers and in UB. Rural schools comprise those in villages and district-centers. Consistent with the previous table and with rural schools being more likely to be smaller in terms of student number, the table confirms that spending in variable and total costs in rural schools is significantly larger than in urban schools. On average, the annual per-student spending is 17 percent higher than that of an urban one.

**Table 9: Per-Student Spending by School Location**

	Urban		Rural		Urban=Rural
	MNT <sup>a</sup>	% of total	MNT <sup>a</sup>	% of total	
Variable	83.8 (30.7)	73	94.0 (25.2)	71	*
Fixed	31.0 (24.3)	24	37.9 (34.3)	25	
Other	3.5 (6.6)	3	7.5 (12.3)	4	**
Total	118.1 (43.8)		138.4 (40.0)		**
Observations	59		50		

a: In thousands.

Data refers to 2004 figures on spent amounts.

T-test of differences is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

Reference: PETS Mongolia 2005.

**Table 10** compares spending across different types of schools. The sample size of the smallest type of schools, grades 1-4 schools, is tiny and therefore these results should be interpreted cautiously. However, the pattern observed here is consistent with that of the previous two tables,

as grades 1-10 schools are also more likely to be in urban areas and have larger student numbers. The main pattern from Table 10 is that spending in per-student variable, fixed and total costs are smaller in grades 1-10 schools than they are in grades 1-8 schools and in grades 1-4 schools. In terms of magnitude, total spending in grades 1-8 schools are 19 percent larger than those in grades 1-10 schools.

**Table 10: Per-Student Spending by School Type**

	Grades 1-4 A		Grades 1-8 B		Grades 1-10 C		A=B	B=C	A=C
	MNT <sup>a</sup>	% of total	MNT <sup>a</sup>	% of total	MNT <sup>a</sup>	% of total			
Variable	82.6 (32.8)	58	105.4 (23.4)	75	85.1 (28.3)	72	*	***	
Fixed	58.4 (46.0)	35	32.1 (27.2)	20	32.6 (27.6)	25	*		**
Other	12.8 (10.2)	7	7.2 (14.3)	5	4.4 (8.2)	3			**
Total	148.3 (41.3)		144.6 (43.5)		121.7 (42.1)			**	
Observations	7		19		83				

a: In thousands. Data refers to 2004 figures on spent amounts.  
T-test of differences is significant at: \*\*\* 99%, \*\* 95%, \* 90%.  
Reference: PETS Mongolia 2005.

**Box 2: Resources and Education Outcomes**

For the preparation of this report, the distribution of test scores among 4th and 8th graders was only available at the school-level. The table illustrates some summary statistics on tests scores by school size, location and type. Clearly, there are large and significant disparities between urban and rural schools. More grade 4 and grade 8 students for urban schools obtained higher scores in their Math and Mongolian tests than their rural counterparts. The differences in test scores are less clear across schools of different sizes and types. Consistent with the regional disparities, larger schools and grade 1-10 schools perform significantly better than their smaller counterparts. These differences in test scores are clearer for the Math tests while those in the Mongolian ones are not always statistically significant.

In an attempt to draw a link between resources and education outcomes, the table compares test scores across schools with different patterns of spending. Urban and rural schools were separately partitioned into two groups: those with high per-student spending and those with low per-student spending. The cutoff values were the median levels of spending across urban and rural schools. As the first three rows of the table illustrate, average spending in variable, fixed and total costs is significantly different across these two groups. The second half of the table compares data on test scores across the two types of schools. The first finding is that the differences on average test scores across schools with high per-student spending and low per-student spending are small and in most cases statistically insignificant. However, when there are differences — even if insignificant — it is the low spending schools that outperform the high spending ones, especially in rural areas.

<b>Box 2: Resources and Education Outcomes (continued)</b>						
<b>Percentage of Students with A's and B's in Tests by School Size, Location, and Type</b>						
	Smallest Third A	Medium Third B	Largest Third C	A=B	B=C	A=C
Math, grade 4	44.9	58.5	72.1	***	***	***
Mongolian, grade 4	45.1	50.7	56.5			**
Math, grade 8	38.1	40.6	47.8		*	*
Mongolian, grade 8	44.1	52.6	53.0	*		
Observations	32	37	36			
	Urban A	Rural B		A=B		
Math, grade 4	68.4	47.9		***		
Mongolian, grade 4	56.6	44.3		***		
Math, grade 8	47.3	35.9		***		
Mongolian, grade 8	55.1	43.8		***		
Observations	57	48				
	Grades 1-4 A	Grades 1-8 B	Grades 1-10 C	A=B	B=C	A=C
Math, grade 4	40.0	46.1	63.1		***	***
Mongolian, grade 4	41.7	45.9	52.7			
Math, grade 8	-	31.4	44.2		***	-
Mongolian, grade 8	-	39.6	52.0		***	-
Observations	6	19	83			

T-test of differences is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

<b>Schooling Outcomes by School Spending</b>						
	Urban		Rural		A=B	C=D
	High spending A	Low spending B	High spending C	Low spending D		
Variable	98.8	69.3	104.6	84.2	***	***
Fixed	43.8	18.6	58.2	19.1	***	***
Other	2.6	4.5	9.9	5.3		
Total	146.7	90.5	171.4	107.9	***	***
% with A-Bs						
Math grade 4	67.4	69.4	43.4	52.0		
Mongolian grade 4	54.7	58.7	42.7	45.6		
Math grade 8	50.2	44.5	32.2	38.8		
Mongolian grade 8	52.6	57.7	37.5	48.8		**
Observations	29	29	20	25		

a: Spending data is expressed in thousands of MNT. Data refers to 2004 figures on spent amounts.

T-test of differences is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

Reference: PETS Mongolia 2005.

### **Box 2: Resources and Education Outcomes (continued)**

The fact that the data does not document significant systematic unconditional correlations between education outcomes and spending could be partially due to the large heterogeneity in how schools translate those resources into outputs. Disaggregated data could allow looking into these issues in more detail. Test score data disaggregated at the student level within each school is available, but has not been released by the Education Evaluation Center, an agency under MECS. Accessing this type of data could allow to refine this analysis and to link it to the teachers' database in order to quantify the importance of spending relative to that of other correlates of education outcomes.

### **Box 3: How to Explain the High Spending of Small Rural Schools?**

The differences in per-student spending across schools of different sizes are large and well documented by the PETS data. A large majority (86 percent) of schools in the smallest third in terms of student size are located in rural areas. Several features of small rural schools explain their spending structure and these deserve specific attention.

First, differences in spending in variable costs are in part explained by the requirements subject specific teachers in secondary schools. Therefore, schools with very small enrollments need to recruit large (relative to their size) numbers of teachers to fulfill these requirements. The smaller PTRs in small rural schools are reflective of this reality. Recruiting specialized teachers can be particularly challenging in rural areas where the local supply of teachers is already restricted.

Second, small schools have a greater proportion of low-income families and may be less able to rely on private contributions from parents or income-generating activities that depend on the local community. In fact, the latest data available indicate large regional differences in poverty. The incidence of poverty was 43 percent in rural areas<sup>14</sup> and 30 percent in urban areas<sup>15</sup>.

Third, rural schools are more remote, and it is more costly for their staff to visit the provincial or national capital when they need to attend workshops and meetings.

Fourth, many rural schools are in poor physical condition and have less access to public services and efficient infrastructure. Water and sewage costs are lower in small rural schools because they are less likely to be connected to the water and sewage networks. On the other hand, electricity or heating costs are likely to be high due to availability of less efficient technologies (like school generators or stoves). The heating sources vary considerably by school location. The majority of urban schools are connected to a central heating system (69 percent in UB and 72 percent in provincial capitals). In district-centers, 71 percent of schools have a boiler exclusively for the school, while 53 percent of village-center schools have small stoves in classrooms installed that are heated either by wood, coal, manure or a combination of them.

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<sup>14</sup> Rural areas refer to the countryside and district-centers.

<sup>15</sup> Data from the 2002 Living Standards Measurement Survey collected by the National Statistics Office.

**Box 3: How to Explain the High Spending of Small Rural Schools? (continued)**

Fifth, high heating spending in small rural schools also results from the different (and less efficient) strategies to cope with scarcity during winter. PETS inquired about attempts of schools to save on heating and identified that strategies differed across locations. For example, an important number of school buildings that are under utilized in rural schools with shrinking enrollments remain closed over the winter months. Vacant unheated rooms generate cold in the rest of the school and in many cases they end up being heated even if they are unused. Forty-one percent of rural schools (and only 9 percent of urban schools) reported closing down buildings or rooms to save energy. Similarly, 25 percent of rural schools in the sample have teachers and students collect heating material (compared to 3 percent in urban areas). Finally, 69 percent of rural schools reported reducing the length of the season during which they have the heaters on (vis-à-vis 31 percent in urban areas). On the other hand, no significant differences were found on the likelihood of urban and rural schools to fix windows or to ask parents for economic contributions.

**Box 4: Viability of Dependent Bagh Schools**

Even though teachers earn significantly less in rural schools (see Chapter 4 on teacher salaries), per-student spending in salaries is significantly higher in small schools. This reflects that teacher-to-student ratios are smaller in schools that serve scarcely populated rural areas where they are essential to ensure universal access to education.

The majority of rural schools in baghs are called dependent bagh schools. This means that they are administratively affiliated to a larger school usually one in a soum-center. They are typically small primary schools. The PETS sample included 13 dependent bagh schools. They all have school sizes of less than 120 students with the two smallest having only 30 and 41 students, respectively. Despite the high per capita higher budget allocated to small schools, bagh schools struggle to survive. The funding formula is not well suited for these very small schools which appear to be over-staffed from the perspective of the formula. Multi-grade teaching has traditionally had a negative connotation among teachers and parents. More needs to be done in terms of professional development of teachers to gain acceptance for alternative methods of teaching that can give viability to dependent bagh schools.

### 2.3 Normative Means

In 1998, the government required schools to use the funding formula as a guideline for their own budget planning. Based on estimations of student numbers<sup>16</sup> and inflation rates, MECS and MOF propose an annual per-student budget every fiscal year which is called the *normative mean*. Normative means differ regionally and Parliament approves them every year. Normative means apply to the variable cost component of the education budget.

The goal of normative means has been to correct for disparities in school spending that arise from differences in location. The criteria for establishing different normative means have changed considerably since 1998. For example, in 2000 and 2001, seven different normative means were used to balance the inequality between urban, semi-urban and rural schools based on the distance between a school and its closest city<sup>17</sup>. Starting in 2004, normative means were established based on four financial zones: Western, Khangai (Midwestern), Central and Eastern. Zones were defined based on distance between each aimag (not each school) and UB under the reasoning that transportation costs are proportional to distance from the capital city. The Central zone comprises the largest number of aimags and is very heterogeneous both in terms of school size and school quality.

**Table 11** summarizes normative means for FY2005 (issued under Government Resolution 187, on August 23, 2004). For clarity, in the table the normative means are normalized into an index<sup>18</sup>. The table illustrates that there is wide variation in normative means between school-levels. For example, 2.4 times more resources are estimated to be needed by each Technical Vocational Educational Training (TVET) student than what would be required by each primary school student. Two features of middle schools and high schools account for higher student normative means relative to those of primary schools. The class sizes are smaller, and the number of teachers per class is greater than in primary schools where one teacher is in charge of all subjects.

Within school-levels, regional variation is not constant. Regional differences are largest in primary and middle schools while the smallest regional differences are present at TVET. Notwithstanding, ranking across regions is consistent for all school-levels.

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<sup>16</sup> The Department of Economics and Finance, MECS, uses the term “average student number for funding purposes.” This figure is determined by the number of students that are currently enrolled (based on actual students counts at schools), and the number of students that are projected to be enrolled (based on demographic projections).

<sup>17</sup> This model proved inadequate because it created an artificial cutoff between schools up to 50 Km. away from provincial capitals and those at larger distances. However, both schools faced shrinking enrollments for different reasons. In the case of very isolated schools, this is due to out-migration of population. In the case of schools nearby provincial centers, it is because families send their children to school in the provincial capital. For budget purposes, both types of schools were struggling with small student enrollment and it made no sense to treat them differently.

<sup>18</sup> The normative mean for primary schools in the central zone (i.e., 73,900 MNT) is the numeraire.

**Table 11: Variation in Normative Means**  
FY2005 (Primary School in Central Zone = 100)

Zones	Kindergarten	Primary School	Middle School	High School	TVET
Western A <sup>a</sup>	170.4	107.0	133.2	142.9	248.0
Western B <sup>b</sup>	170.4	103.7	128.8	138.2	248.0
Midwestern <sup>c</sup>	161.3	100.7	122.7	135.9	238.0
Central <sup>d</sup>	160.4	100.0	124.0	135.0	236.4
Eastern <sup>e</sup>	162.5	101.1	125.2	136.3	242.8
Ratio of largest to smallest	1.06	1.07	1.07	1.06	1.05

a. Bayan-Olgii, the aimag with the largest Kazakh population. For the first time in 2005, it received a different normative mean than the rest of the Western zone.

b. Gobi-Altai, Hovd, Uvs, and Zavkhan.

c. Arkhangai, Bayanhongor, Bulgan, Hovsgol, Orhon, and Ovorkhangai.

d. Darhan-Uuul, Dornogobi, Dundgobi, Gobisumber, Omnogobi, Selenge, Tov, and Ulaanabaatar.

e. Dornod, Hentii, and Sukhbaatar.

Source: Ministry of Education, Culture and Science.

Normative means are adjusted annually to reflect — among other things — adjustments to inflation. In non-election years, the annual increase of student normative means was between 4.2 and 8.1 percent. In fact, in 2000, 2002 and 2004, the rate of growth of normative means was close to or even slightly lower than that of prices. On years following elections, increases have been as high as 17 and 24 percent (in 2005 and 2001, respectively)<sup>19</sup> and at much higher rates than inflation. This pattern results from a number of campaign promises made around increases of salaries of civil servants.

Normative means are determined based on criteria such as school type or geographic location rather than by specific features of the student body. Providing bilingual Kazakh schools in Bayan-Olgii the highest per-capita funding has been the only consideration given to minority students. No such provision exists for schools serving students with learning difficulties, children with disabilities, disadvantaged families or returning dropouts.

Based on the normative means and using the PETS data, it is possible to calculate what would be the optimum school size whose expenses would best fit the current funding formula. The average normative mean across all basic education schools and all financial zones is 76 thousand MNT per-student per year. Of these, the funding formula mandates that 70 percent (or 53.2 thousand MNT) should be spent on salaries. PETS data reveal that the average salary expenses for small, medium and large schools range from 395 to 79 and 74 thousand MNT per-student per year, respectively. Of the 110 schools in the sample, only 42 spend at 74 thousand MNT per-student or less on salaries. Moreover, the majority of these schools (30 out of 42 or 70 percent) have at least 1,000 students. All other schools in the PETS sample would be considered to be over-spending in salaries based on the current funding formula. Consequently, normative means alone seem to produce a finance scheme that is not adequately tailored to the Mongolian reality.

<sup>19</sup> As a reference, elections were held in Mongolia in 2000 and 2004, the year before these sharp increases.

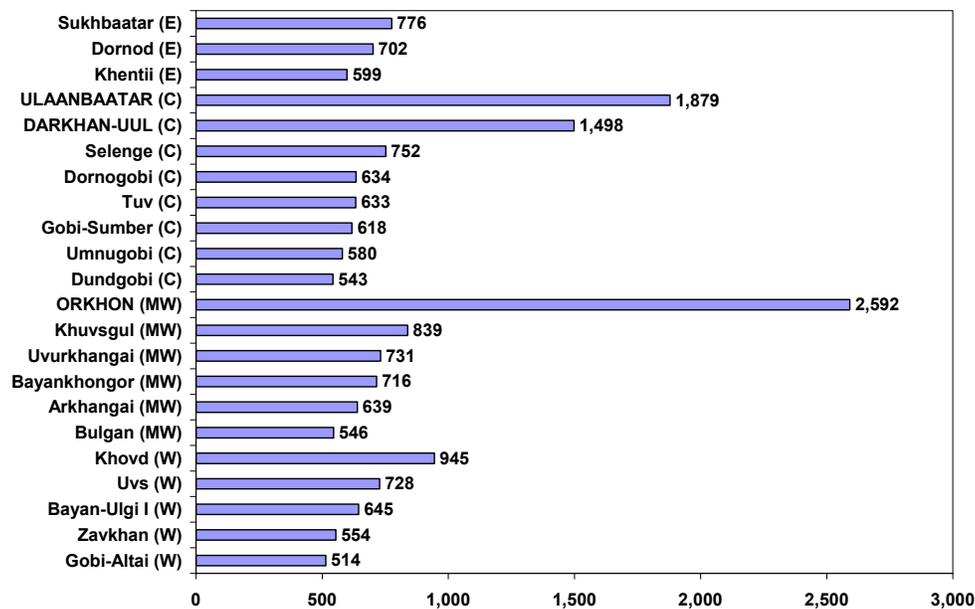
## 2.4 Micro-coefficients

On top of normative means, school budgets are adjusted using corrective *micro-coefficients*. The development of micro-coefficients was a response to dissatisfaction from principals of small schools who felt that the funding under the normative means scheme was insufficient for them to cover their costs.

Starting in fiscal year 2004, school size — measured by number of students — was incorporated as a criterion for budget allocation. Each school in the country is assigned a micro-coefficient. The key feature about micro-coefficients is that they are determined based on school size and relative to that of the average school in the aimag.

The rationale is that there is large variation in school size across aimags. The Economics and Finance Department of MECS is in charge of determining the average school size in each aimag which is illustrated in **Figure 2**. In the figure, aimags are sorted by financial zone. It is clear from the figure that, within each financial zone, there are large differences in the size of the average school. These differences are particularly pronounced for the Midwestern and Central zones where the largest cities are located. However, if UB, Darkhan-Uul, and Orkhon aimags are excluded, the distribution of average school size has a narrower range, between 514 and 945 students.

**Figure 2: Average School Size by Aimag (FY2004 Financial Zone in Parentheses)**



Source: MECS 2003, Appendix to MECS Order 176/5.

Reallocations are made within each aimag based on micro-coefficients. On a per-student basis, large schools receive less than what normative means would determine while small schools are allocated more. At the aimag level, the sum of these changes adds up to zero. For FY2004, a list of micro-coefficients was prepared by the Economics and Finance Department of MECS. For the

following fiscal year, the finance officers at the provincial Education and Culture Departments (ECD) developed their own coefficients following a similar rationale that reallocations should favor smaller schools.

By design, the budget reallocations from the application of provincial-level micro-coefficients result in differential treatment across schools of similar sizes based on their geographic location. Whether a school receives a net cut or an increase in its budget — relative to what normative means indicate — will depend on whether the school is smaller or larger than the average school in the aimag. This means that two schools of exactly the same size, but located in two aimags with different average school sizes, will receive different budget allocations even if they are located in the same financial zone. This formula appears to reinforce regional differences. The likelihood of a small school obtaining additional funding is smaller if that school is situated in a rural aimag which typically has a small average school size. More broadly, this illustrates that the funding formula does not take into account other factors that should influence the distribution of resources across schools, such as local levels of income, which determine the school's ability to raise funds locally.

## **2.5 Exceptions: Schools in UB and Private Schools**

One third of all students in basic education go to school in UB. While by law, school funding should follow the same rules nationally. However in practice, funding of schools in UB operates differently. The main distinctions in school funding between UB and the rest of the country are two: (a) normative means and the funding formula are not enforced and instead, schools submit their budgets based on needs and past expenses; and (b) a different set of institutions deal with the budget process. Details on the institutional features of the budget process are presented in Chapter 3 of this report.

The number of private schools has steadily increased in Mongolia over the past few years, especially in the cities, and to a lesser extent in provincial capitals. The GOM partially subsidizes private schools by compensating them for their salary cost. This means that MECS covers for a student's variable costs regardless of whether the student is enrolled in a public or a private school. The variable costs of private schools are determined based on the normative means criteria. However, the adjustments based on micro-coefficients do not apply to private schools.

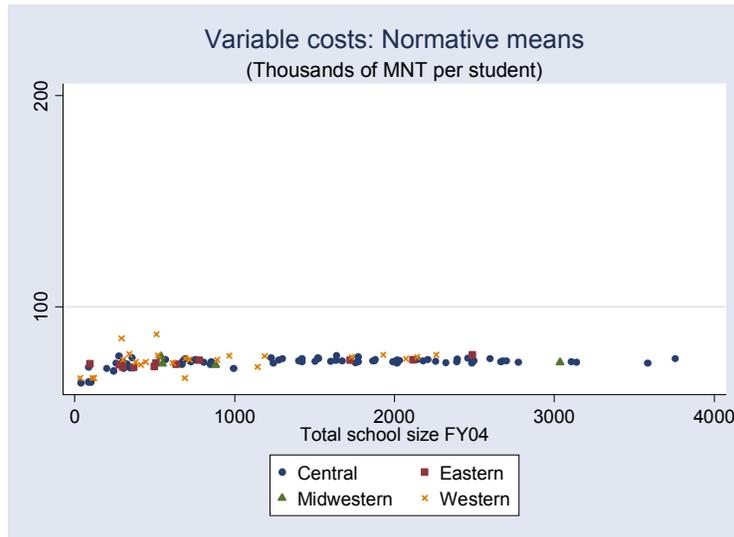
## **2.6 Equity in the Distribution of School Funding**

The main purpose of micro-coefficients is to give more flexibility to the school funding formula based on normative means by allowing for corrections based on school size. Corrections are done at the provincial-level and depend on the size of the average school in each aimag. In this section and using the PETS data, we compare the distribution of spending in per-student variable costs for three alternative scenarios, two of them corresponding to actual policy variables and a third one based on simulations. The objective of this exercise is to assess the extent to which micro-coefficients effectively compensate small schools and to compare spending in variable costs as predicted by the formula to those actually reported by the schools. All schools in Mongolia are included in this simulation. Since the law mandates that all schools in the country should adhere to the funding formula, all schools in PETS are included in the simulation, even those in the capital city that currently do not use the funding formula.

Using data on actual micro-coefficients and school-enrollment figures collected for PETS, **Figure 3** illustrates the distribution of estimated per-student spending in variable costs using exclusively the normative means criteria. Despite the regional variation in normative means and since school

size does not seem to follow systematically different patterns across regions, the distribution of per-student spending in variable costs is flat. Moreover, the association between the two variables is positive with a correlation coefficient of 0.29. This added to the differences in the spending structures of schools of different sizes discussed earlier and explained the dissatisfaction of school principals from small schools that motivated the introduction of micro-coefficients.

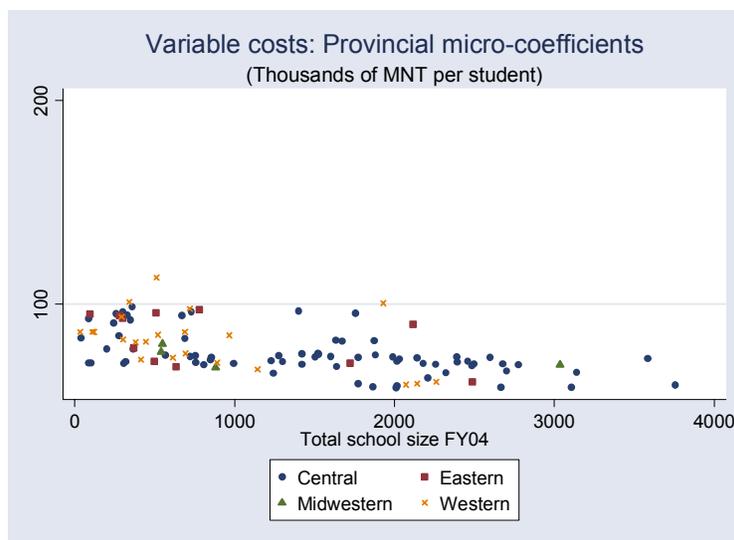
**Figure 3: Distribution of Estimated Spending in Variable**



Source: Mongolia PETS data budget fact sheet on student size and FY2005 normative means.

**Figure 4** is similar to Figure 3, but includes the correction based on actual micro-coefficients. It is clear that the coefficients introduce more variation in spending in variable costs and that this variation is negatively associated to school size. The correlation coefficient between the two variables is -0.57. However, since these coefficients are established based on the size of each school relative to the average school in its aimag, the figure illustrates that for any given size of school, there is still a large variation in the per-student funding that is determined by the aimag and by the financial zone to which the school belongs.

**Figure 4: Distribution of Estimated Spending in Variable Costs using Normative Means and Actual Micro-coefficients**

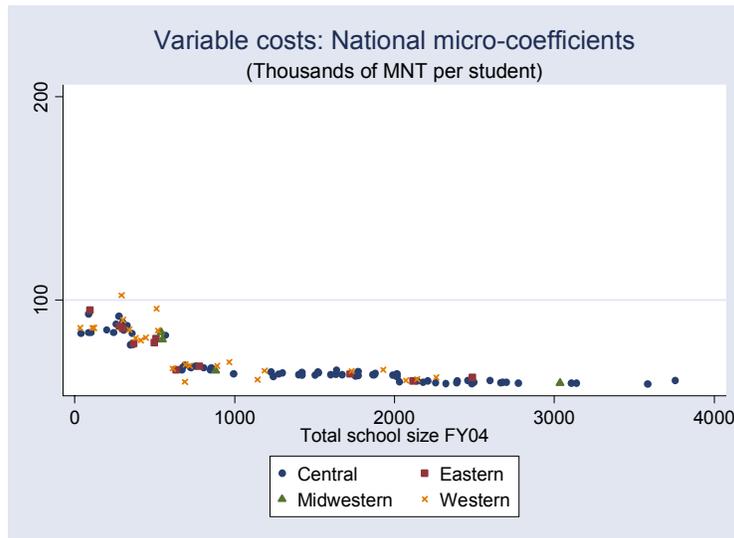


Source: Mongolia PETS data budget fact sheet on student size, FY2005 normative means and micro-coefficients.

**Figure 5** presents the results of a simulation where national-level micro-coefficients were created and assigned to the schools in the PETS sample. The range of variation of these micro-coefficients was bound to be the same as for the provincial ones. However, schools were ranked based on the national distribution of student body size and not based on the provincial one<sup>20</sup>. Two patterns are clear from Figure 5. First, there is a clear negative association between per-student expenditure and school size (with a correlation coefficient of -0.81); and second, there is much less dispersion in spending across schools of similar sizes. While this simulation is based on ad hoc micro-coefficients, it is useful to illustrate that there could be a substantial improvement to the current formula that would enhance the objective of compensating small schools *and* that would avoid the current geographic discrimination by providing schools of different sizes with similar allowances independently of the aimag where they are located. The figure illustrates that even a very simple and ad hoc adjustment to the structure of micro-coefficients can result in a much more equitable distribution of resources.

<sup>20</sup> Schools were grouped based on the national distribution of school size. Schools in the bottom decile were assigned a micro-coefficient of 1.3. Schools between the 10th and 25th percentiles were assigned a micro-coefficient of 1.2. Schools between the 25th percentile and the median were assigned a micro-coefficient of 1.1. Schools between the median and the 75th percentile were assigned a micro-coefficient of 0.9. Schools between the 75th and the 90th percentile were assigned a micro-coefficient of 0.85. Finally, schools in the top decile were assigned a micro-coefficient of 0.8. The simulation ensured that total variable costs were not increased in the spirit of keeping the budget neutrality feature of the micro-coefficients correction. In effect and given that PETS over-represents large schools, the value of the sum of total variable costs for all the schools of the sample actually decreased.

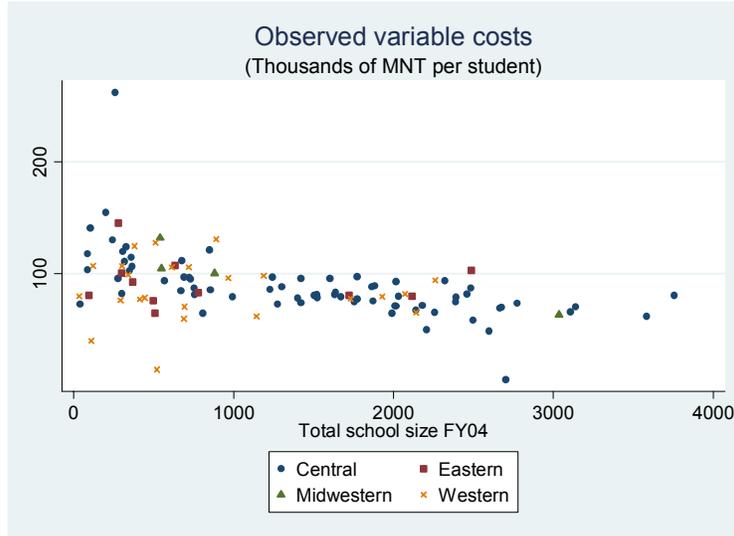
**Figure 5: Distribution of Estimated Spending in Variable Costs using Normative Means and Simulated Micro-coefficients**



Source: Mongolia PETS data budget fact sheet on student size, FY2005 normative means and ad hoc micro-coefficients.

As an additional point of comparison, **Figure 6** illustrates the actual spending in variable costs reported by schools in the PETS sample. A first observation that is clear from the figure is that the spending in variable costs has a much wider range of variation than that predicted by the funding formula. The figure confirms the negative association between student size and spending in variable costs and a correlation coefficient between the two variables of -0.45. The weaker correlation results — in part — from the fact that the range of variation in spending for any given school size is even wider than that predicted by the funding formula (normative means *and* micro-coefficients as in Figure 4). Therefore, the figure suggests that the funding formula is far from being executed, applied, and monitored among the schools in the PETS sample. One last finding that results from the numbers in Figure 6 is that the sum of total spending in variable costs across all schools in the PETS sample is 12 percent larger in magnitude than the sum of the spending in variable costs mandated by the school funding formula (using normative means *and* micro-coefficients, as in Figure 4). Again, this illustrates the presence of substantial deviations between what policy mandates and what is implemented at the school-level. Moreover, despite the inequalities that are built into the system, this evidence suggests that provincial authorities do not seem to attempt to equalize allocations, but instead, they widen them even further.

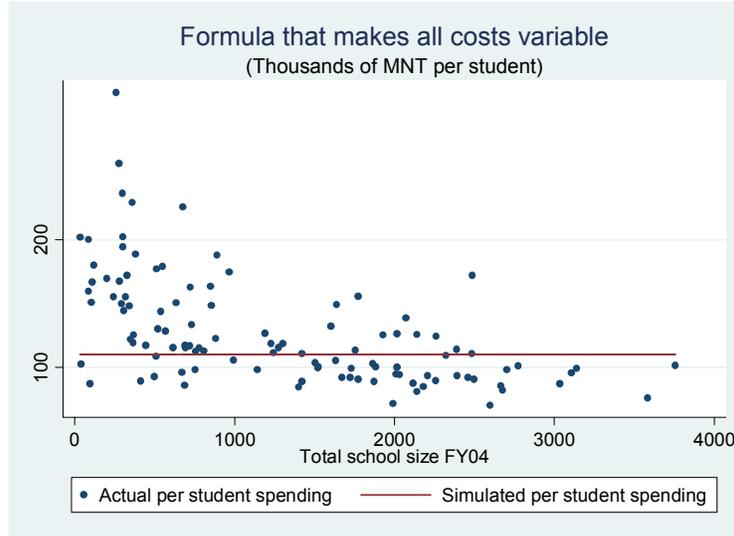
**Figure 6: Distribution of Actual Spending in Variable Costs**



Source: Mongolia PETS data budget fact sheet on student size and spending.

One more alternative for a funding formula would be to make all costs variable and proportional to student size. Based on the current total spending of schools in PETS and their total enrollment, it is straightforward to simulate such a scenario. In fact, the horizontal line in **Figure 7** depicts what would be the per-student spending if a uniform criteria was applied to all schools and compares it to *total per-student spending* (note all previous graphs depicted only variable spending), illustrated by the dots. Consistent with the higher costs of running a small remote school, 81 percent of schools with 1,000 students or less effectively spend more than what this formula would allocate to them and therefore lie *above* the horizontal line. On the contrary, 67 percent of the schools with more than 1,000 students have a per-student spending that lies *below* the horizontal line of uniform spending. A first observation to highlight from this figure relates to the large variation in levels of spending, even within small schools. This suggests that it is possible to run a small rural school more efficiently and points to the need of understanding what it is that cost-efficient schools are doing differently. **Box 5** discusses this theme in more detail. Second, an alternative would be to design an all-variable-cost funding formula that determines different levels of per-student spending based on a clearly specified set of cost structures related to school size.

**Figure 7: Simulation Making All Costs Variable**



Source: Mongolia PETS data budget fact sheet on student size and spending.

**Box 5: The Attributes of a More Efficient Remote School Model:  
The Case of Tuya bagh School**

The provision of education in rural Mongolia appears to have structural characteristics that make it costly. A school-level regression on per-student total spending reveals that location plays a significant role in explaining spending even after controlling for student size and for student performance. The correlation between location and spending is not unique to remote schools in rural baghs (villages), but it is also present among those in rural soum-centers. These structural differences in spending require differentiated school funding schemes and policies.

While it is crucial to acknowledge the differences in the per-student cost of running rural and urban schools, it has been documented that, within rural schools, there is large variation in the levels of per-student spending. How can these differences be explained? But most importantly, is there a more efficient model for remote schools that could be adopted in rural Mongolia?

**Box 5: The Attributes of a More Efficient Remote School Model:  
The Case of Tuya bagh School (continued)**

While the answer to these questions requires further field research, and although many small rural schools are struggling to use their resources efficiently, some schools have succeeded in reducing costs and retaining students and teachers. An example of this type of school is Tuya bagh school in Uvurkhangai aimag. It is a grade 1-4 school with five teachers serving approximately 70 students. Because of its close proximity to the aimag center, it risks losing both students and teachers to these larger schools who can often provide more resources. To minimize costs, the school abandoned the school's dormitory and converted some of the classrooms in the school to dormitory rooms for the students and teachers. By providing housing for teachers and students, the school has been able to retain both teachers and students. In addition, the closing of the dormitory allows the school to save on fixed costs such as heating. The school's budget is also transparent. Members of the community know exactly how much teachers are paid, and how other resources are spent, increasing the accountability of the school administration. The school has benefited from strong leadership from the school principal and involvement from the local community. Its small size allowed it to be more adaptable and flexible to its needs. Data on student outcomes are not available for this school. However, as a follow-up to this study, it would be important to learn more about spending patterns and student learning in these small and efficient schools

Lastly, **Table 12** summarizes the exercise presented in this section as well as the main advantages and disadvantages of each of the simulated alternative funding formulas.

**Table 12: School Funding Alternatives**

Formula	Advantages	Disadvantages
Normative means (NM)	<ol style="list-style-type: none"> <li>1. Rule is transparent.</li> <li>2. No discretionary allocations across schools.</li> </ol>	<ol style="list-style-type: none"> <li>1. Per-student spending is bigger for large schools.</li> <li>2. Regional differences in NM do not correspond to systematic regional differences in school size.</li> </ol>
NM+ provincial micro-coefficients (NPMC)	<ol style="list-style-type: none"> <li>1. Per-student spending adjusted based on school size.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjustment is relative to average size in aimag, introducing between-aimag inequality.</li> <li>2. Provincial differences based on discretion of local authorities.</li> </ol>
NM + national micro-coefficients (NNMC)	<ol style="list-style-type: none"> <li>1. Stronger negative association between per-student spending and school size.</li> <li>2. Less inequality across schools of similar sizes but in different aimags.</li> <li>3. Rule is transparent.</li> <li>4. No discretionary allocations across schools.</li> </ol>	
All variable costs (AVC)	<ol style="list-style-type: none"> <li>1. Rule is transparent.</li> <li>2. 2. No discretionary allocations across schools.</li> </ol>	<ol style="list-style-type: none"> <li>1. Further research is needed to ensure it covers expenses of remote schools.</li> </ol>

## 2.7 Recent School Reforms and Their Effects on School Budgets

The funding formula was created to promote a more efficient use of resources (staff and money) by schools. With the same objective, several complementary reforms were suggested:

- (a) reduction of administrative staff by merging schools;
- (b) reduction of support staff by reducing services, partial employment or out-sourcing;
- (c) reduction of lower and upper secondary school executive staff by introducing multi-subject teaching; and
- (d) reduction of primary school executive staff by introducing multi-grade teaching and increasing the teaching workload from 19 to 21 hours and from 32 weeks to 34 weeks per year.

The last two strategies in the list above and that focus on restructuring teaching practices, curriculum and educational standards have considerably lagged behind. On the other hand, only the first two reform strategies that aim at reducing schools' administrative and support staff have been pursued. The reorganization of schools was rigorously pursued between 1997 and 1999. Some of the specific reforms that took place as part of this initiative were: (a) establishing complex schools; (b) reducing the number of complete secondary schools; (c) closing of grades 9 and 10 in non-inter-district schools; and (d) closing primary schools in village-centers. A comprehensive evaluation of the effects of this reorganization on access and quality of education has not been made. Moreover, what is needed is an assessment of whether the reorganization accomplished its long-term goal: a more efficient use of the system's limited resources.

**Table 13** examines the growth trends of students, teachers, staff and schools in recent years. The period follows the reorganization of schools in an attempt to examine whether these reforms and the school funding formula have been catalysts for changes in the staffing of small schools. The table focuses on the smallest primary schools: bagh schools. A period of four years — between years 2000 and 2004 — for which the data was complete in sufficient detail was chosen for the comparison. Table 13 illustrates that there have been important changes throughout this period among bagh schools. A total of 18 bagh schools were closed between 2000 and 2004. It is not clear whether all of these closures were a result of school reorganization or whether they closed due to out-migration of families from remote rural areas. Proportional to the cut in number of schools are the reductions in the numbers of students and non-teaching staff in these schools. Additionally, the number of teachers experienced a larger proportional decrease. This could be partially explained by the regulations that mandate teaching staffing which require individual teachers for every class even if they are very small in size.

**Table 13: Summary Statistics of Bagh Schools**

	FY 2000	FY 2004	Change
Schools (number)	61	43	- 30%
Students (number)	5,724	4,086	- 29%
Teachers (number)	250	145	- 42%
Non-teaching staff (number)	304	197	- 35%
Students per school	93.8	95.0	1%
Teachers per school	4.1	3.4	-18%
Non-teaching staff per school	5.0	4.6	-8%
Students per teacher	22.9	28.2	23%
Teachers per non-teaching staff	0.82	0.74	-10%

Source: MECS, Department of Finance and Economics. Teacher figures count only full-time teachers.

Table 13 also shows that while there was an important reduction in the number of bagh schools, the average bagh school remained of similar size in terms of student number. On the contrary, the number of teachers per school did experience a decrease that was much larger than that of the average number of non-teaching staff per school. Table 13 illustrates that the result of these two changes together was that the student to teacher ratio increased from 22.9 to 28.2. The opposite pattern was observed for the ratio of teaching to non-teaching staff which experienced a slight decrease over this period. This suggests that teaching staff were more affected by the closing of bagh schools than non-teaching staff.

The statistics in Table 13 suggest that the recent closing of one-third of all bagh schools had an important impact on the staff and student size structure of the schools that remained open. What the table does not assess is how and whether the communities that were served by the schools that closed coped with access to primary education. Nor is there data to look at the impact of this reform on the quality of rural education.

**Box 6: Competition Over Students between Small, Rural Schools —  
Evidence from PETS Qualitative Study**

School B (dependent bagh school) is 60 km apart from its affiliated soum-center school (School S). The road to school B leads over a pass and is closed for six months of the year (October-March). During the warmer months it takes approximately two hours to drive by car from the bagh to school S in the soum-center. The road is hazardous. School B used to have a dormitory and a well-functioning primary school until the late 1980's. Then the state farm closed down and with its closure, the major source of income for the community and financial support for the school was gone. Families emigrated, and the school dormitory was closed in 1990. Currently, the school building consists of ten rooms, but only four are in use.

School B now has 38 students, three teachers (one of which acts additionally as education manager), and one support staff in charge of looking after the stoves in the classrooms, cleaning, security, and storage. The teachers do not engage in multi-grade teaching, but rather have four classes with 8-14 students each. They have one class per grade, and have one of the classes rotate among the three teachers. The budget of school B is submitted as an appendix to the budget of its affiliated school S. Both the budget proposal and the disbursements require the signatures of the education manager of the bagh school and the accountant at the affiliated soum-center school.

**Box 6: Competition Over Students between Small, Rural Schools —  
Evidence from PETS Qualitative Study (continued)**

School S in the soum-center is a small school with approximately 540 students and also struggles with scarce resources. Although it is administratively in charge of the bagh school, the two schools compete over student enrollments. A conflict between the two schools has recently emerged over the question of whether the dormitory in the bagh school should be re-opened. This is how the two sides assess the situation.

*Primary school teacher in school B:* Approximately half of the school population in our bagh is from the bagh-center, and the other half lives outside the center and therefore need a dormitory space. The problem is that the soum-center school wants our students, and does all it can do to prevent us from having our dormitory re-opened. This way, they can enroll the students from herder families living outside the bagh-center in their school and accommodate them in their own dormitory. The problem is that the soum school is sitting on the money that we were promised. We were promised 3.3 million MNT for the dormitory, but they are keeping it. Their argument is that the school already is very expensive in terms of its spending in staffing, and if we were to re-open the dormitory, we would need to hire an additional staff member to act as dormitory teacher and cook. They say that such a request would not be granted at the central-level; and it is therefore, not worth investing in the rehabilitation of the dormitory. The families in our village are furious because if their children go to school in the soum-center, they do not get to see them very often. The soum-center is far and difficult to reach.

*District governor, school/district accountant of school S, and director of the district-government office:* We have used a micro-coefficient of 1.5 for our school, that is, the largest possible micro-coefficient compensating for the small size of our school. Regarding the dormitory situation in School B, the problem is that the bagh school neither has money to rehabilitate the dormitory nor to run it because it lacks staff. The dormitory has been out of use for 15 years and is in need of major rehabilitation. School B received money for dormitory food in FY 2004, but they only received it at the beginning of the fiscal year, that is, in January 2004. By then the school year had already started for four months and the parents had already found other solutions. Many enrolled their children in our school and dormitory or placed them with relatives that live in the soum-center. School B is already now over-spending on salary budget lines by approximately 40 percent. Given their low student numbers, it is unrealistic that additional staff will be approved to hire an additional staff member for the dormitory.

## 2.8 Conclusions

Schools in Mongolia must plan their budget based on a funding formula that distinguishes across fixed and variable costs. Variable costs are proportional to projected student size and fixed costs are estimated based on needs. Schools receive different region-specific allowances for their per-student variable costs, as determined by the normative means criteria, which are annually established by the Government. Additionally, reallocations that favor small rural schools are done within each aimag and are based on coefficients that are determined by the local provincial authorities. The introduction of these coefficients — called micro-coefficients — aimed at correcting the adverse effects that the funding formula had on small rural schools with few students.

This chapter examined three aspects related to school budget allocation: (a) the composition of school expenses; (b) the implications of normative means in resource distribution; and (c) the equity implications from the corrections imposed by micro-coefficient.

The analysis presented in this chapter demonstrated that spending in variable and fixed costs in per-student terms are significantly larger in small rural schools than they are for all other schools. These differences are a consequence of a variety of reasons ranging from staffing requirements to access to public utilities or availability of efficient heating infrastructure. It was confirmed that staff compensation and insurance absorb the largest share of expenses in all schools, leaving small amounts for other educational inputs. Per-student spending in heating are also substantial, and they represent between 13 and 15 percent of all spending.

The data showed that normative means alone produce a finance scheme that is not adequately tailored to the Mongolian reality. Micro-coefficients were an important adjustment to tailor funding criteria towards the needs of small schools. That said, it is still unclear why these coefficients need to be established at the provincial-level as opposed to the national-level, introducing an unequal treatment to similar schools based on their geographic location. Moreover, data revealed that the funding formula is far from being executed, applied and monitored among the schools in the sample, illustrating the presence of substantial deviations between what policy mandates and what is implemented at the school-level.



## Chapter 3: The Education Budgetary Process

### 3.1 Introduction

Unless specified differently, the data in this chapter comes from the budget fact sheet provided by the school accountants of the schools in the PETS sample. For accuracy, only information from the budget fact forms that were dated and signed was kept, which meant dropping eight schools from the sample. Therefore, the analysis of this chapter is based on a sample of N=110 observations. When available, data from the budget fact sheets provided by the provincial-level finance officers are also used.

The purpose of this chapter is to understand and track the flow of school resources through the various levels of government, central and provincial. This chapter is organized in two sections. The first section describes in detail the budget process at the central and provincial-level, as well as the interaction between the schools and the budget authorities. The second section tracks expenditures throughout the budget process using the PETS data.

### 3.2 Preparation, Approval, Amendments, and Disbursement

This section provides a brief overview of the main stages of the budget process in Mongolia from preparation until disbursement<sup>21</sup>.

Budget preparation and approval at the central-level is expected to adhere to the following schedule, but major delays are common:

- |               |   |
|---------------|---|
| May 1:        | The Cabinet of Ministers submits the draft Fiscal Framework Statement (FFS) to Parliament <sup>22</sup> .                                     |
| July 1:       | All budget entities including schools submit their budget proposals to the respective government agencies (in the case of education to MECS). |
| July 11:      | Parliament confirms the FFS during the spring session or until July 11.   |
| August 15:    | Each agency (for education to MECS) delivers the Strategic Business Plan along the following year's budget proposal to the MOF.               |
| September 15: | MOF, upon revision and consolidation of all sectoral budgets, submits the draft national budget to the Cabinet for discussion.                |
| October 1:    | The Cabinet submits the following year's budget proposal to Parliament.   |
| December 1:   | Parliament approves the budget.   |

In 2002, the GOM recentralized education financing. As a part of recentralization, the tasks of consolidating school budgets and preparing the sector's budget proposal were assigned to MECS,

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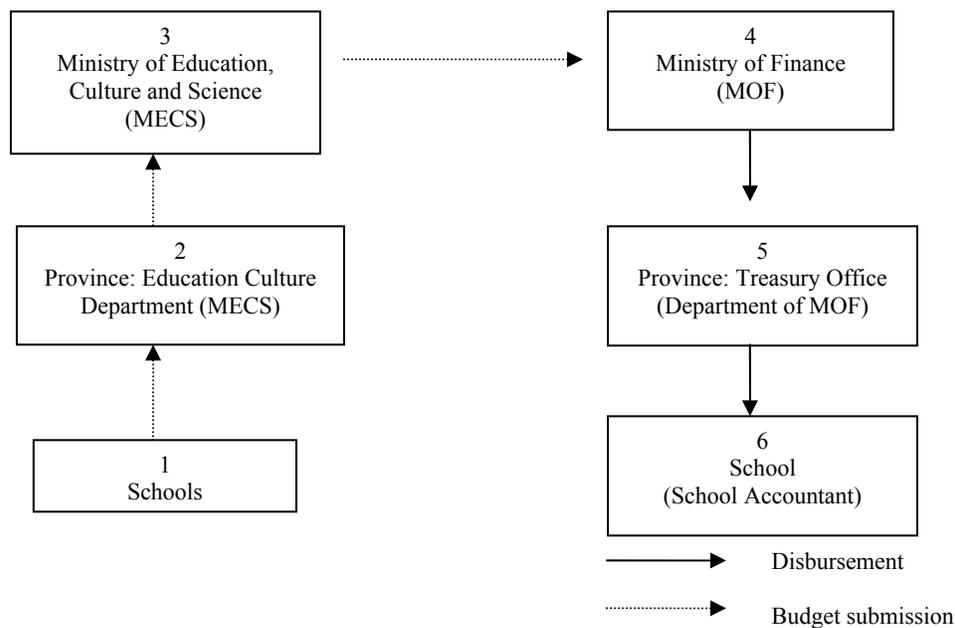
<sup>21</sup> A detailed discussion of the legal framework can be found in Bat-Erdene, R. (2005) and in World Bank (2004).

<sup>22</sup> In Mongolia, the Parliament is also called the State Great Khural.

and budget disbursement was assigned to MOF, through a newly created Treasury Office. As a result of these changes, education finance officers were appointed as provincial representatives of the Department of Economics and Finance of MECS and were placed at the aimag Education and Culture Departments (ECD)<sup>23</sup>. Treasury officers, from MOF, were also placed at the aimag Treasury Offices. In addition, schools were permitted to have only one budget account to which the aimag Treasury Offices have direct access. The purpose of this reform was to simplify processes and increase transparency in school accounting.

**Figure 8** depicts the process of budget preparation and submission and the disbursement of expenditures through the system as a result of recentralization. All transactions are processed through the provincial-level offices.

**Figure 8: Budgetary Process and Funding Flow across Aimags (except UB)**



Recentralization has not occurred in one third of the schools of Mongolia (those located in the capital, UB). This is inconsistent with the law, which was meant to restructure education financing nationally. While in other aimags, MECS and MOF provincial staff have separate roles in budget preparation and disbursement respectively, in UB the Treasury Office performed both functions for FY2004 and FY2005. As a result, the Treasury Office submits aggregate information on school budgets directly to MECS<sup>24</sup>. Unlike the provincial offices that deal with education budgets, the Treasury Office in UB is accountable to the Mayor's office (and not to MECS or MOF). Consistent with this special status and as described in Chapter 2, schools in UB are also an exception in terms of the application of the school funding formula. The case of UB is less a problem of education finance and more one of accountability and control. The chances of

<sup>23</sup> Until 2002, there were no finance officers specific to education and schools worked with those from provincial and district government offices.

<sup>24</sup> Further, the position of finance officer in the ECD for UB has remained vacant since 2004.

leakages are greater in a system in which approval and disbursement are administered by the same agency, and where there are no uniform processes of monitoring and evaluation in place<sup>25</sup>.

Schools prepare three-year budget strategies in the spring of every year, and submit a detailed budget proposal based on the current fiscal year's normative means to the finance officer of the aimag ECD. This needs to happen every year by July 1. Informal interviews with ECD finance officers suggest that three-year budget proposals submitted by schools are likely to be discarded as unrealistic. At the pre-approval stage, most small schools submit their budget in a needs-based format instead of using the funding formula. Finance officers are expected to train school principals and accountants on how to use the formula to submit budgets reflecting a distinction between variable and fixed costs. Even at the preparation and submission stages, finance officers work closely with the schools and may include corrections to the school budget.

In July of each year, all finance officers meet over a period of two weeks in the finance office of MECS in UB to prepare budget proposals in the official format. At this stage, and based on student numbers, reallocations may occur, affecting how the budget is distributed between variable and fixed costs. Furthermore, the school budgets are adjusted to the normative means for the following fiscal year. Since the normative means are increased annually, the school budgets prepared at the central-level are higher than those submitted by the ECD finance officers.

By August, the Finance Office of MECS submits the education budget to MOF and to the Cabinet in three different formats:

- (a) By line item (i.e., education, culture, and science);
- (b) By type of institution (i.e., pre-schools schools, higher education, etc.); and
- (c) By type of expense (variable cost and fixed costs).

Upon approval of the sector's budget, reallocations are, by law, only permissible within the sector<sup>26</sup>. Under the current practice, reallocations exclusively occur among schools by means of micro-coefficients. In addition, schools are allowed to submit budget amendments throughout the school year. However, the need for an amendment has to be justified under extraordinary circumstances.

Disbursements are made in monthly installments by the provincial treasury office into the school account. In turn, aimags receive their budgets from the central government in monthly installments. Schools claim their expenses upon the presentation of receipts (for items such as maintenance, repairs, etc.). Although the 2002 PSFM Law regulates the disbursement process, disbursements occur in different fashions. For instance, the disbursement plan does not necessarily reflect the monthly expenses of a school. In one of the aimags that was part of the PETS qualitative study, the disbursement plan was matched to the monthly school expenses because of the initiative and effort of the local finance officer. On the contrary, in another aimag

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<sup>25</sup> As an anecdote, during the PETS data collection, UB treasury offices demanded an authorization from the Mayor's office to release budgetary information. The authorizations by the MECS or MOF carried by the enumerators were not sufficient. Moreover, some of the treasury officers harassed the PETS enumerators by demanding that their honorarium be shared.

<sup>26</sup> Prior to 2002, the law allowed provincial and district government offices to reallocate budgets across sectors. Under the previous decentralized system, the central government shared decisions about public expenditure with provincial and district governments. It was common practice for the local governments to make cross-sectoral reallocations throughout the fiscal year. Schools were vulnerable and had to rely on the goodwill of local governors in order to keep their allocated funding. As a result, schools are generally supportive of the new centralized system.

covered in the study, disbursements were done in ten equal installments, with no consideration of schools varying needs throughout the year.

The 2002 PSFM Law requires each public institution to have its annual budget execution audited by the SPIA at no cost to the school. This agency's mandate is to oversee the implementation of general laws (such as labor laws or public sector finance laws) and sector-specific laws, regulations, and standards (such as the application of student normative means, class sizes, labor laws, etc.). This agency, established in 2003, is directly accountable to Cabinet. Additionally, through its provincial staff, this agency carries out annual fiscal audits of all schools in the country. Schools may also decide to have an independent agency conduct a review of their fiscal performance, but the schools are then responsible for paying the fees to this agency. A school is most likely to select this option if it feels that it has been evaluated fairly by the SPIA.

### **3.3 Expenditure Tracking**

#### ***Reallocations throughout the Budget Process***

PETS analyzed in great detail school budget information for FY2004 and FY2005. The budget was examined at different stages of the process: submission, approval, disbursement, and expenditure. For the flexible part of the school budget, we also constructed two further types of budgets: (a) the entitled budget a school is due in line with the funding formula; and (b) the adjusted entitled budget, the amount a school is due according to the combined use of funding formula and micro-coefficients.

Tables 14-16, compare spending figures at the different stages of the budget process across schools of different sizes, locations and financial zones. **Table 14** splits the sample into three groups of schools based on the size of the student body. Group cutoff points were defined at the 33rd and 67th percentiles of the distribution of student numbers of the schools in the sample. Due to the very small sample sizes for the Eastern and Midwestern financial zones, **Table 15** needs to be interpreted carefully. For comparability, all spending is expressed in per-student terms.

As a general pattern, schools across the country request more money than what they are entitled to based on the funding formula. They also request more money than what eventually gets approved. Interestingly, the bigger relative cuts when comparing the submitted and approved categories occur among those items that are smaller in magnitude: fixed and other costs and less in variable costs.

**Table 14: Per-student Spending at each Stage of the Budget Process by School Size**  
(FY2004, in thousands of MNT)

		Smallest Third	Medium Third	Largest Third
Variable costs	Entitlement	73.1	74.3	74.7
	Adjusted entitlement	85.4	78.2	69.4
	Submitted	117.9	87.6	72.5
	Approved	113.5	84.6	70.6
	Disbursed	114.7	85.7	73.2
	Spent	105.4	87.1	73.8
Fixed costs	Submitted	56.7	34.6	28.1
	Approved	45.0	27.2	26.2
	Disbursed	47.5	28.4	24.9
	Spent	49.6	28.1	25.8
Other costs	Submitted	17.8	13.6	2.9
	Approved	8.6	5.6	1.8
	Disbursed	9.6	6.4	2.1
	Spent	8.2	5.7	2.0
Total costs	Submitted	191.9	135.4	103.4
	Approved	166.6	117.1	98.5
	Disbursed	167.8	120.1	100.0
	Spent	162.0	120.5	101.5
Observations		35	37	36

Source: Mongolia PETS 2005 school budget fact sheets.

School groups are defined as sample quantiles at 33% and 67%. Exact cutoff points are: smallest third: <670 students, medium third: 670-1760 students, and largest third: >1760 students.

As discussed in Chapter 2, the micro-coefficient correction consistently favors reallocations towards small rural schools compared to how the funding formula alone allocates resources (i.e., adjusted entitlement versus entitlement rows in the tables). The effect dissipates in **Table 16** that focuses on financial zones as the micro-coefficients correction are budget neutral at the provincial-level and financial zones are also defined in the basis of aimags. It is also interesting to note that — relative to their adjusted entitlement — the submitted budgets are proportionately larger for smaller and rural schools than they are for larger urban ones. Given that the finance officers from the ECDs are involved in supporting the schools prepare the budgets that get submitted in all schools out of UB, this suggests that these officers' efforts are likely to — on average — favor small rural schools.

All interviewees in the qualitative study of PETS were satisfied with reallocations under micro-coefficients. Prior to the 2002 PSFM Law, reallocations at the beginning and throughout the fiscal year were common practice. However, local and provincial governments had the decision making authority to reallocate across sectors. Funds earmarked for one sector could be reallocated to any other sector. The decentralized system made schools vulnerable and dependent on the will of local governors. The recentralization of education finance that gave the power to make reallocations to MECS and the ECDs was evaluated positively by the school authorities.

Relative to the spending amounts that are submitted, the approved expenses are likely to be smaller for all schools. In proportional terms, the magnitude of these cuts is relatively constant across schools of different sizes and across urban and rural schools. Budget cuts between submission and approval appear to be systematically larger in the Midwestern and Western

financial zones, although the sample sizes for these two subgroups are small. Therefore, this finding ought to be treated with caution.

The comparison between the spending that was approved and the one that is disbursed shows relatively small changes. Although small in magnitude, increases in spending disbursement versus approval are slightly larger for urban and for large schools than for the others. This is true both for variable and fixed costs and therefore for total costs. The relatively close correspondence between submitted, approved and disbursed total spending is likely to be a reflection of the close cooperation between school accountants who prepare the budget and provincial finance officers at the ECDs who submit the budget for approval.

**Table 15: Per-student Spending at each Stage of the Budget Process by School Location**  
(FY2004 in thousands of MNT)

		Urban	Rural
Variable costs	Entitlement	75.1	72.9
	Adjusted entitlement	74.9	80.7
	Submitted	83.6	103.0
	Approved	80.8	99.6
	Disbursed	82.7	100.7
	Spent	83.8	94.4
Fixed costs	Submitted	35.0	45.2
	Approved	30.9	34.7
	Disbursed	30.8	36.4
	Spent	31.0	38.3
Other costs	Submitted	5.0	19.3
	Approved	3.4	7.7
	Disbursed	3.9	8.6
	Spent	3.5	7.4
Total costs	Submitted	123.4	166.6
	Approved	114.8	141.5
	Disbursed	117.0	141.6
	Spent	118.2	139.2
Observations		59	49

Source: Mongolia PETS 2005 school budget fact sheets.

From the comparisons of all subsequent pairs of steps in the budget process, the smallest percentage changes are found between the disbursement and spent categories. The small magnitude of these changes is particularly clear when looking at total costs. However, it seems there are some reallocations between spending items. Specifically, small rural schools are more likely to experience decreases in variable costs and increases in fixed costs between disbursement and spending stages.

**Table 16: Per-student Spending at each Stage of the Budget Process by School Financial Zone**  
(FY2004, in thousands of MNT)

		Central	Eastern	Midwestern	Western
Variable costs	Entitlement	73.9	73.6	74.0	74.8
	Adjusted entitlement	75.3	83.5	74.0	82.3
	Submitted	88.8	90.6	107.5	101.0
	Approved	89.9	90.1	91.8	86.9
	Disbursed	90.8	89.8	99.9	89.5
	Spent	88.3	92.4	100.1	86.0
Fixed costs	Submitted	34.9	41.3	43.5	51.5
	Approved	29.3	32.8	32.5	42.1
	Disbursed	29.5	34.4	31.3	44.0
	Spent	30.4	32.1	31.3	47.2
Other costs	Submitted	12.0	9.5	0.0	12.5
	Approved	4.3	7.4	2.7	8.0
	Disbursed	5.0	8.2	1.9	9.2
	Spent	3.7	6.9	1.9	10.6
Total costs	Submitted	135.4	141.4	151.0	164.5
	Approved	123.2	129.7	126.9	136.4
	Disbursed	123.1	131.0	133.1	140.8
	Spent	122.1	130.7	133.3	141.1
Observations		69	11	4	24

Source: Mongolia PETS 2005 school budget fact sheets.

The observed increases in spent resources relative to those that were submitted, approved and disbursed can be in part due to the fact that schools are likely to under-report revenues from their own income-generating activities at the budget proposal stage. However, they later use the self-generated income to cover over-spending at the end of the fiscal year. The 2002 Law on Unified Budget makes it impossible for schools to manage the income that they generate separately from centrally allocated funds. Thus, declared income-generation becomes part of the general school budget. However, the PETS data suggests that — from an accounting perspective — there are still gaps that need to be fixed as to how these resources get recorded and reported by the schools.

While not reported in the tables, PETS also found that there is a small systematic inflation of student numbers in the submitted budget, vis-à-vis the numbers of students reported in the approved and spent budgets. Student numbers are important, as they enter the funding formula as part of the flexible portion of costs<sup>27</sup>. The pattern observed is that on average, schools inflate the number of students they report at submission stage (relative to the numbers they report both at approval and at spending stages). This inflation is small in magnitude (two percent on average), but is observed across all school sizes and across schools in urban and rural areas.

### 3.4 Budget Amendments

The school-level budget fact sheets also collected information on requested and approved budget amendments. This information was gathered both as an aggregate figure for FY2004, but also on

<sup>27</sup> There is also disagreement among the school authorities that were interviewed on whether non-formal education students (that should be covered by the local government) should also be counted in the calculations for the school budget.

a month-by-month basis. As in the previous section, small discrepancies are noticeable between the two figures and are likely to be due to the differences in the recall period. **Table 17** presents the data on budget amendments.

**Table 17: Budget Amendments**

	Urban	Rural	Difference
<b>Annual data corresponding to FY2004</b>			
Schools that requested an amendment (%)	64%	63%	
Amount submitted (thousands of MNT per-student)	8.2	18.3	**
Schools that received an amendment (%)	58%	49%	
Amount received (thousands of MNT per-student)	4.9	13.0	*
Observations	59	51	
<b>Data from month-to-month reporting</b>			
Schools that requested an amendment (%)	56%	53%	
Amount submitted (thousands of MNT per-student)	9.9	31.7	*
Schools that received an amendment (%)	49%	37%	
Amount received (thousands of MNT per-student)	10.4	16.5	
Observations	59	51	

Source: Mongolia PETS 2005 school budget fact sheets.

Difference is significant at: \*\*\* 99%, \*\* 95%, \* 90%.

Note: average amounts received are computed only among those who received a positive amount

Table 17 shows that 50 to 60 percent of all schools submitted requests for budget amendments during FY2004, and between 70 to 90 percent of those who requested amendments seem to have received them. There are no statistically significant differences between urban and rural schools in submitting amendments, although there is a gap of over ten percentage points between the two types of schools in terms of their likelihood of receiving an amendment, with rural schools being less likely. In general, and after excluding the schools that did not receive any amendments, amendments received are smaller in magnitude than the amounts that were requested. Overall and in per-student terms, amendment amounts are substantially larger in rural than in urban areas.

PETS also identified that when schools do submit an amendment, they are likely to justify it with one of the purposes regulated by the law and that the amount requested is usually low relative to the total school budget (around five percent of the total per-student costs, or less). Most budget amendments are generally the result of an increase in fixed costs (electricity, gas, etc.) that occurs during the fiscal year. When these rates go up, the rate of increase is generally higher for rural schools than urban schools, which could partially explain why amendment amounts for rural schools are much larger than those for urban schools. Further, proximity to UB may also have an impact on the likelihood of a school receiving a budget amendment. All budget amendments must be sent to MECS by July through provincial officers. UB schools submit their amendments through district offices which are physically very close to schools, and it generally takes less time to transfer these to MECS. In rural areas, there is generally a large influx of these amendments and the aimags have to process them in a short period of time. The provincial officers are also less likely to be familiar with many of the rural schools compared to district officers in UB who are quite familiar with schools in the district. Thus, distance from urban centers may slow down the process for rural schools, and this may be affecting their likelihood of receiving amendments.

### 3.5 Aggregate Changes of the Budget throughout the Process

Consistent with the patterns observed in the school-level data collected for PETS, aggregate data from MECS confirms that the changes that occur throughout the budget process in the spending items are relatively small in magnitude. **Table 18** summarizes a detail of the items in the budget, using 2004 general education budget data. The table shows that variable, fixed and total costs increased by 13, 6, and 12 percent, respectively, through the different stages of the budget process. The biggest increases are observed when the budget is handled by Parliament, both at approval stage and during the phase of amendments.

**Table 18: FY 2004 General Education Budget**

(in millions of MNT)

	Budget received from aimag	Budget delivered by MECS to MOF	Budget approved by Parliament	Budget amended by Parliament	
					% of total
Variable costs	44,691	44,789	47,003	50,559	77.9%
Base salaries and additions	30,639	28,101	31,239	34,041	52.5%
Social insurance	8,089	7,419	8,247	8,987	13.9%
Stationary	198	201	167	167	0.3%
Communications	141	161	174	174	0.3%
Books and periodicals	14	321	70	70	0.1%
Lessons and training	468	1,326	568	568	0.9%
Business travel	121	241	171	171	0.3%
Dormitory food	3,921	4,459	3,941	3,941	6.1%
Gas for transportation	200	200	211	226	0.3%
Maintenance and repairs	723	963	1,123	1,123	1.7%
Furniture	90	1,044	167	167	0.3%
Uniforms and apparel	86	120	221	221	0.3%
Other	0	233	703	703	1.1%
Fixed costs	13,447	13,595	13,650	14,266	22.0%
Electricity	1,335	1,344	1,324	1,386	2.1%
Water and sewage	937	944	946	1,005	1.5%
Heating	11,175	11,308	11,381	11,874	18.3%
Subsidies and transfers	0	0	58	58	0.1%
Transfer to households	0	0	58	58	0.1%
Allowances and bonuses	0	0	58	58	0.1%
Total expenditures	58,137	58,384	60,711	64,883	
Sources of funding	58,137	58,384	60,711	64,883	
Primary activities	133	95	145	145	0.2%
Auxiliary activities	470	465	464	464	0.7%
Central budget	57,534	57,825	60,102	64,274	99.1%
Number of institutions	613	584	587	587	
Number of employees	28,259	29,696	29,493	29,493	
Administrative staff	1,437	1,448	1,457	1,457	4.9%
Executive staff	20,260	21,548	21,216	21,216	71.9%
Support staff	6,562	6,700	6,821	6,821	23.1%
Number of students	531,525	542,124	540,552	540,552	

Source: Mongolia PETS 2005.

The last column of Table 18 also illustrates the distribution of the budget amended by Parliament across items. Consistent with what was observed from PETS schools, 66 percent of all expenses are allocated to salary items and insurance, while 22 percent are ear-marked for fixed cost (heating alone absorbed 18.3 percent of the budget amended by Parliament). The remaining 12 percent is used for all other expenses of goods and services, including dormitory food, books and school repairs.

While the distribution of expenditures described in Table 18 is similar to that from the schools in the PETS sample, there are discrepancies between the two data sets in terms of the magnitude of the revenues coming from self-generated income from primary and auxiliary activities. While according to the budget presented, approved and amended, these items are less than one percent of total revenues, the PETS survey revealed a much larger magnitude (a median of five percent and a mean of ten percent, as described in Chapter 2). One last observation from Table 18 is that while the number of basic education institution decreases through each consecutive stage of the budget process, the opposite occurs to the size of schools' staff and to the student numbers, which increase by four and two percent, respectively, between the budget proposal submitted by the aimags and the final budget approved and amended by Parliament.

### **3.6 Leakages and Tracking**

PETS was designed to collect disaggregated budget information at the school-level and at the provincial-level so that these two could be compared. Potential incongruence between these two data sources could point towards problems of resource leaking at the different stages of the budget process. It is important to clarify that in this document, the term leakages encompasses any reallocation of resources from the use that was their original destination. In many instances, these reallocations can occur when resources get diverted to other purposes due to legitimate pressures in the budget, and they do not necessarily imply the presence of corruption.

Provincial-level data collection included interviews to both the ECD finance officers as well as to the provincial treasury officers. The interviews with the treasury officers revealed that these officers have no decision making authority to do any budget reallocations and, in turn, act as accountants who authorize disbursements to school accounts and payments to firms that have sold goods or services to these schools. Treasury officers are not very familiar with other stages of the budget process, such as preparation and approval. This role of treasury officers is consistent with what the 2002 PSFM law mandates.

The collection of provincial budget data sheets from ECD finance officers was problematic. Of the 118 schools in the PETS sample, provincial-level fact sheets were only recovered for 51. Part of the problem was that UB officers did not want to participate in the study. Governance problems and the unclear governance structure and roles of MECS and the Municipality of UB over these officers were discussed in Chapter 2. These same problems affected the ability of PETS enumerators to gather information. However, lack of success in interviewing ECD finance officers was not unique to UB and was particularly serious in schools in the Central, Midwestern and Eastern zones where only information on 28, 37 and 50 percent of the schools was recovered. Reasons for these failed interviews included the unavailability of officers due to traveling and their work responsibilities. It is also possible that at the time that PETS went in the field many of these officers were new to their posts as they had been appointed two years after the 2002 PSFM law was passed and therefore, they were not familiar with the information that they were being requested to provide.

Overall, the low levels of participation in this stage of the survey suggest that it is an area where alternative research instruments would be needed. At the same time, the fact that rejection was systematic and significantly larger could be consistent with the presence of irregularities in the handling of the budget. However, these are only speculations that need to be verified empirically.

**Box 7: Resource Flows in the Western Region**

The Western region was the only one for which school and provincial data was complete in the PETS. Therefore, this section offers a brief analysis of this region’s data. Half of the Western region schools in the sample were small in size, 33 percent were medium-sized, while only 16 percent had large student bodies. Moreover, 58 percent of the schools from the Western region included in the sample were rural and 62 percent were grades 1-10 schools.

The provincial-level budget fact sheets collected disaggregated information on budget items at three stages of the process: (a) the school’s budget proposal; (b) its revision done by the provincial authorities; and (c) the approved budget. These will be compared to the school reports of: (d) budgets submitted; and (e) budgets approved. For the purposes of this comparison, we analyze total budget figures and not those on per-student basis (see table below). For clarity of presentation, the table illustrates ratios between the data as reported by the provincial authorities and that reported by the school authorities. Specifically, three types of ratios were constructed. Following the letters in the list above, they are: a/d, b/d, and c/e.

**Budget Tracking for Schools in the Western Region**

	Ratio 1 <sup>a</sup>	Ratio 2 <sup>b</sup>	Ratio 3 <sup>c</sup>
Variable Costs	1.16	.77	1.25
Number of schools with ratio<=1	12	16	9
Number of schools with ratio>1	12	8	15
Fixed Costs	.73	.79	.71
Number of schools with ratio<=1	20	18	21
Number of schools with ratio>1	4	6	3
Total costs	.91	.67	.99
Number of schools with ratio<=1	19	22	19
Number of schools with ratio>1	5	2	5

a: School budget proposal reported by aimag/school budget proposal reported by school.  
 b: Aimag-revised budget proposal reported by aimag/school budget proposal reported by school.  
 c: Approved budget reported by aimag / approved budget reported by school.  
 Source: Mongolia PETS 2005.

The table documents that there are discrepancies across the records of the aimags and the schools. In the large majority of cases, these discrepancies seem to have the same direction. The magnitude of spending in provincial records is smaller than that in schools’ records. However, and especially in the recording of variable costs, there are cases in which provincial records actually record larger sums of spending than schools’ records do. In either case, the magnitude of the discrepancies also seems large, at around 20 percent of under and over reporting of variable and fixed costs. Interestingly, the discrepancies in variable and fixed costs seem to compensate each other so that the magnitude of total school costs as reported by the schools and by the aimags seems much more consistent. This is not the case, however, for the comparison across the aimag-revised budget proposals reported by the aimags and those reported by the schools (Ratio 2). In this one column, the direction of the changes is consistent throughout. Provincial records suggest that the provincial revisions forced to reducing the level of fixed, variable and total spending for the large majority of the schools.

### **Box 7: Resource Flows in the Western Region (continued)**

As anecdotal evidence, the team of data collectors reported that there seemed to be different levels of understanding, and even confusion on how schools and provincial budget officers define and treat fixed and variable costs. This would be consistent with the discrepancies found in the table. One common source of discrepancies was whether spending in school dormitory food was included in the variable costs. In terms of its magnitude, this is a non-negligible spending item that could result in reporting discrepancies.

Given that there are reasons to believe that the schools for which data was gathered differ in systematic ways from those for which data was unavailable. The validity of these findings should not be extended beyond this small sample of schools.

### **3.7 Conclusions**

This chapter began with a brief description of the flow of school resources through the various levels of government- both central and provincial. It also analyzed the available data to identify how budgets are modified as they transit throughout the budget process.

The general pattern is for Mongolian schools to request more money than what they are entitled to based on the funding formula and more money than what eventually gets approved. Relative to their entitlement, the submitted budgets were found to be proportionately larger for smaller and rural schools than for larger urban ones. Relative to the budgets that are submitted, it was found that approved expenses are likely to be smaller for all schools. There do not appear to be any biases (regional or across schools of different types) in terms of the magnitude of these cuts. In turn, the comparison between approved and disbursed budgets showed small changes. Still, when spending was higher during disbursement, the bias favored urban and large schools. The absence of large budget fluctuations across stages of the budget process could be a result of close cooperation between schools and provincial authorities.

The data also documented discrepancies in schools' reports of the money they actually spent vis-à-vis the budget that was submitted, approved and disbursed. This could be due to under-reporting of revenues from schools' self-generated incomes, and suggests that it is an area where increased coordination and transparency could be implemented.

PETS data also described the frequency and magnitude of budget amendments. While more than half of the schools in the sample submitted requests for amendments, between 70 and 90 percent of them succeeded in receiving them. Moreover, the data suggests that amendments received were for smaller amounts than those requested.

Lastly, an analysis of spending tracking by comparing school and provincial budget reports for the Western region illustrated the presence of important discrepancies across these two types of records. In general, provincial spending records show smaller amounts than those in the schools. The magnitude and frequency of discrepancies suggests that there is still significant work to be done to improve the transparency and coordination of school spending through the different stages and across the different actors of the budget process.

## Chapter 4: The Complex System of Teacher Compensation in Mongolia

Teachers are crucial factors in the education system; and they have a major impact on what students learn in the classroom. Therefore, it is important to analyze teachers' incentives and the policies in place to ensure that teachers perform well and thus, students learn. As civil servants, teacher salaries are a large percentage of educational costs (66 percent of Mongolia's general education budget) and are central in the politics and financing of education.

The purpose of this chapter is to examine teachers' income in Mongolia and to discuss different incentives teachers face in the education system. The first section gives an overview of teachers' salary structure and looks specifically at base salary. The second section looks at teacher incentives in Mongolia and provides international comparisons on the use of performance-based incentives. The third section examines other resources teachers receive from schools and the community and how these play a role in recruitment and retention of teachers. For the purpose of this analysis, data was collected on teacher salaries from a variety of sources<sup>28</sup> both at the school level and the central, administrative level in order to cross validate information and correct for any reporting biases.

### 4.1 Salary Structure

A teacher's remuneration in Mongolia has three main components: (a) a base salary; (b) salary supplements for specific tasks and responsibilities; and (c) performance-based bonuses. Both the base salary and the salary supplements are paid monthly to individual teachers from the school account by the school accountant. The school accounts are administered by the provincial Treasury Office, which is part of the MOF. Performance-based bonuses are meant to be awarded once a year to teachers based on an evaluation from the school administration of the teacher's outcome-based contract<sup>29</sup>. They are also paid from the school account.

As mentioned in Chapter 2, teacher salaries, supplements and bonuses come from the variable cost component of the school budget. Performance bonuses may also come from any savings made in the school's fixed budget. It is fairly common for deductions to be made from some teachers' salaries or salary supplements in order to pay for performance-bonuses for other teachers.

The survey examined the salary disbursement forms of 5 to 10 randomly selected teachers from each of the 118 schools for March 2005 (N=1,151). These forms are typically kept in the office of the school accountant, and function as receipts for the school. They are signed by the school accountant who then releases the cash and by the teacher who then receives the payment. **Table 19** gives the percentage breakdown of a teacher's income, and looks at the differences in income by category for rural and urban schools based on the salary disbursement forms.<sup>30</sup>

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<sup>28</sup> Data sources included teacher, principal, education manager, and school accountant surveys. Salary disbursement forms were also collected from the school accountants.

<sup>29</sup> Starting in 2003, all state institutions were required to develop outcome contracts. In schools, outcome contracts are made between the school principal and the teacher.

<sup>30</sup> Urban schools are those schools located in UB and aimag centers, and rural schools are those schools located in soum centers and baghs.

**Table 19: Decomposition of Teachers' Monthly Income by Location (in US\$)**

	Urban		Rural		Difference in value
	Value	Share	Value	Share	Urban -Rural
Base salary	56 (7.5)	55	52 (5.9)	62	4***
Supplement: extra teaching hours	17.6 (15)	17.4	11.2 (11)	13.4	6.5***
Supplement: class teacher	5.2 (2.8)	5.1	4.7 (2.45)	5.7	0.4***
Supplement: notebook checking	5 (2.4)	5.0	4.4 (2.13)	5.3	0.6***
Supplement for rank	4.7 (4.6)	4.7	2.7 (4.1)	3.2	2.1***
Supplement: cabinet	1.4 (2.3)	1.4	0.64 (0.50)	0.8	0.73***
Supplement: leader methodology unit	0.25 (0.8)	0.3	0.23 (0.7)	0.3	.03
Supplement for skills	1.79 (3.7)	1.8	1.13 (3.02)	1.4	0.66***
Supplement: examination <sup>31</sup>			0.41 (1.8)	0.5	
Performance Bonus	4.3 (6.18)	4.3	4.1 (4.92)	5.0	0.22
Transportation compensation	1.6 (2.05)	1.5	0.29 (1.45)	0.4	1.3***
Other	1.7 (4.7)	1.7	1.3 (5.4)	1.6	0.4
Gross Monthly Teacher Income (in MNT)	101 (33.8)	100	83.2 (22.6)	100	18***
Observations	632		519		

Standard deviation is in parenthesis.

T-test of difference is significant at: \*\*\* 99%.

For the purposes of this analysis, observations with zeros were treated as zeros and not as missing values.

Source: PETS Mongolia, 2005.

Table 19 shows that in almost every income category, teachers in urban schools earn more than those in rural schools. However, these figures are somewhat misleading, because they do not reflect the cost-of-living differential between rural and urban areas. For example, according to the 2002 Living Standards Measurement Study Survey (LSMS), the average monthly rent in urban areas is approximately US\$39, while in rural areas it is US\$12. The average price of a bag of coal (a common energy source in both rural and urban areas) also reflects this differential: it is US\$0.41 and US\$0.22, respectively, in winter months, and US\$0.10 and US\$0.04 in non-winter months<sup>32</sup>. Thus, the apparent salary differential between rural and urban teachers is reduced when one considers the different costs-of-living in rural and urban areas. Another shortcoming of the data is that it only provides information on performance-bonuses for the month of March. Because a majority of performance bonuses are given at the end of the school year in June, data

<sup>31</sup> Urban teachers did not receive salary supplements for grading exams. It is considered to be a part of their base salary.

<sup>32</sup> Information about cost-of-living was taken from Mongolia's 2002 Living Standards Measurement Study Survey.

for performance bonuses may not provide an accurate reflection of the importance of bonuses to teachers' annual incomes or any large differences in bonuses between rural and urban teachers.

## 4.2 Base Salary

In many countries, a teacher's base salary is set by years of experience and education level. However, in Mongolia, the base salary is solely based on a teacher's years of experience. Level of training is reflected in a salary supplement for rank. Base salaries are not adjusted to reflect different costs of living in urban and rural areas. On average, the base salary accounts for between 52 percent (in urban schools) and 58 percent (in rural schools) of a teacher's income. The distribution of experience across urban and rural teachers and the base salary increases are listed in **Table 20**. Table 20 shows that teachers' base salaries are in fact lower in rural schools. Additionally, Table 20 illustrates that rural schools have the largest representation of teachers with the least experience, which accounts for average lower base salaries in these schools.

**Table 20: Teachers' Experience and Base Salary Increases**

Salary Levels	Experience	% salary increase relative to previous level	Percentage of teachers in PETS	
			Rural	Urban
Level 1	<5 years		29	20
Level 2	6-10 years	6.6	14	18
Level 3	11-15 years	6.2	15	14
Level 4	16-20 years	5.8	14	17
Level 5	21-25 years	5.5	13	15
Teachers that can retire	>25 years		15	16
Total		24.1	1,574	4,112

Source: PETS Mongolia 2005, education manager's database (N=231).

There are five salary levels set by the GOM. After 25 years of service, teachers are expected to retire. The size of salary increases is decreasing in years of experience. Table 20 shows that the difference in the distribution of experience between rural and urban teachers is largest at the lowest level of experience, where rural schools appear to have a larger share of low-experience teachers. However, this difference becomes less clear among colleagues with more experience. There are several possible explanations for the difference in experience of teachers by location.

One, teachers may prefer to work in urban areas for a variety of reasons including increased access to services and information and greater economic opportunities. Consequently, the high demand for teaching positions in urban schools may leave many inexperienced teachers to find employment in rural schools. While PETS did not quantify the number of teacher vacancies at the school-level, we received qualitative feedback during the survey period that rural schools have more teacher vacancies, and have had more difficulty filling these vacancies than urban schools. In one case, a provincial governor explained that he has had to use the province's local budget to fill long-term vacancies in rural schools by providing one-time teacher bonuses in the amount of US\$446, equivalent to about five months salary<sup>33</sup>. The schools with vacancies did not have the resources themselves to offer this type of incentive to attract teachers. Second, the State Training Fund implemented a national program that gives student loans in teacher education provided that the graduates assume a teaching position in remote rural schools for at least three

<sup>33</sup> Conversation with Tuv aimag governor. Rural Education and Development (READ) Project Launch, June 2006.

years. This policy may be partially responsible for some of the differences seen in years of service among teachers between rural and urban schools. It also could be that rural schools prefer less experienced teachers, because they have lower salaries than more experienced teachers, enabling them to have more flexibility in the variable costs component of their budget.

There are also incentives for teachers to remain in the teaching force. Teachers with more than 25 years of service are eligible for retirement, but nevertheless remain in the labor force and represent 15 to 17.8 percent of a school's teaching force. Monthly pension payments are too low to encourage senior teachers to retire and quit teaching, and teachers can "retire" and receive monthly pension payments while continuing to receive income from teaching. PETS suggests that the presence of teachers with more than 25 years of experience is equally frequent in urban and rural schools.

A large percentage of teachers in Mongolia (97 percent) have completed a formal teacher education program — a good indicator of quality by most international standards. A teacher's experience is another potential indicator of teacher quality. Many recognize experience as contributing to a professional's skills, abilities and knowledge of their field. While this study did not focus on teacher quality, one could argue that having teachers with more experience in urban schools indicates that the quality of teachers in these schools is also higher. Because teacher quality has also been associated with student achievement, it is important to understand why teachers with more experience may prefer to teach in urban schools.

### **4.3 Teacher Incentives**

Teacher incentives are broadly defined to include instruments that affect who become teachers, how long they stay in the profession, and what they achieve in class. General incentives refer to salaries and benefits, while targeted incentives refer to bonuses and special rewards given to teachers for their performance or for undertaking special activities (e.g. teaching in rural schools, multi-grade teaching, etc.). Incentives can be both monetary and non-monetary. Non-monetary incentives include offering rewards of higher status, better working conditions (e.g. providing housing, teaching materials, in-service training), a well-defined teaching career with advancement opportunities and greater public recognition. Like many other countries, Mongolia has recently experimented with teacher incentives through salary supplements for specific tasks and performance bonuses. This section provides information on how salary supplements and performance bonuses are applied currently in Mongolia and draws on international experience with performance-based incentives.

### **4.4 Salary Supplements**

Salary supplements for teachers were introduced in Mongolia in 1995. At that time, it was a means to selectively target pay increases for teachers while avoiding an overall salary increase for all civil servants. However, the GOM has continuously issued salary increases for all civil servants, including teachers, since 1996. Because of salary supplements, increasing the salaries of teachers has less impact on the state budget, as only the base salary is increased. The greatest increase in recent years was in 2004 (25 percent total increase: 7.5 percent increase in base salary and 17.5 percent performance-based increase); and in 2005, the Government issued another salary increase of 7.5 percent for all civil servants. Many of the items that fall under the component of salary supplements, such as grading and checking student notebooks, would be considered by many education professionals to be core teaching tasks. There is a lively debate among policymakers and education specialists in Mongolia about the efficiency of salary supplements, and whether or not these should be incorporated to the base salary of teachers. Many feel that the

salary supplements have created an incentive structure for teachers which encourage them to take on an overwhelming number of tasks, leaving less time to focus on their core academic duties of educating and supporting their students.

There are eight salary supplements that teachers are eligible to receive. We found that the supplement received for teaching additional hours makes up the largest percentage of a teacher's monthly income excluding the base salary, greater than nearly all the other seven salary supplements combined. Teachers are only eligible for a full salary supplement if they score 70 points on the evaluation of the supplement by the school administration. Otherwise, teachers receive a percentage of the salary supplement depending on how many points they receive for each supplement. Each school develops its own policies for evaluating teachers and awarding supplements. A brief description of each supplement is given below, highlighting regional disparities where they exist.

#### Additional Teaching Hours

The duration of the school year in Mongolia is 34 weeks. By law, all civil servants work a 40-hour work week. In the case of teachers, only 19 of these hours are required to be spent in a classroom, and the other 21 hours are spent conducting school and relevant teaching preparation work. Some schools, in particular rural schools, are not able to hire full-time teachers under the current regulation in part because the 19 hour teaching workload can not be met due to the small numbers of students in these schools (this is particularly the case for subject specific teachers, such as chemistry or physics, at the lower and upper secondary level).

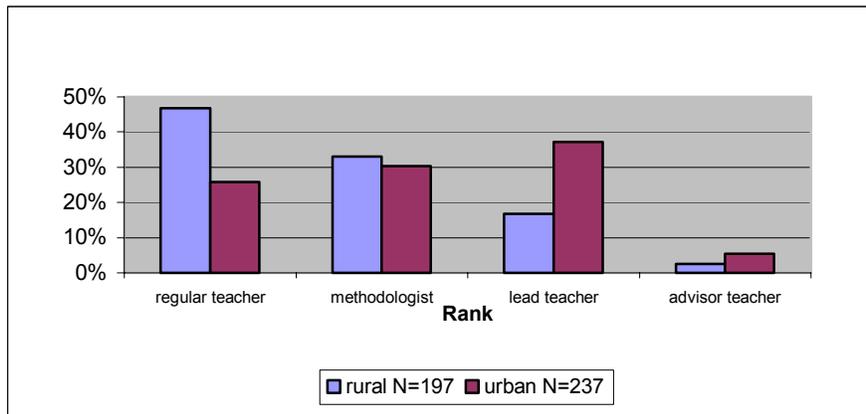
Teachers receive this supplement if they go over their required 19 hours of teaching per week. This supplement primarily benefits teachers in urban schools with high enrollment numbers. These schools accommodate large student populations by creating several shifts of students per day, enabling teachers to teach more than 19 hours per week. Table 20 shows this supplement makes up a larger percentage of monthly income for teachers in schools in urban areas and that the average amount teachers in urban schools receive for this supplement is significantly larger than for teachers in rural schools.

#### Rank

There is a promotion scheme consisting of three ranks above that of a regular teacher: (a) methodologist (leader of a subject matter at the school); (b) lead teacher (mentor of the methodologist); and (c) advisor teacher (honor signifying teacher is an expert in the field). Teachers receive a salary supplement based on their rank. For example, achieving the rank of methodologist increases a teacher's total income by 5 to 15 percent of their base salary relative to regular teachers with the same level of experience. Similarly, achieving the rank of lead teacher and advisor teacher increases total income by 10 to 20 and 15 to 25 percent of their base salary relative to regular teachers, respectively.

There is a high positive correlation between years of service and rank of teachers in that the likelihood of holding higher ranks (methodologist, lead teacher and advisor) increases with age. **Figure 9** shows that in addition to the differences in levels of experience observed, there is a similar distribution in teacher ranking where there exists a lower percentage of teachers with high ranks in rural schools and a higher percentage in urban schools. The rank a teacher is able to obtain could be associated with the location of his/her school. This may be an outcome of simply having more teachers in urban schools that have a greater likelihood of being promoted due to their higher levels of experience.

**Figure 9: Teacher Rank by Location**



Source: PETS Mongolia 2005: Survey of Teachers (N=434).

However, there may be greater costs associated with promoting teachers in rural schools relative to their counterparts in urban schools. Those in the educational system in charge of reviewing and evaluating promotions in rank incur a higher transaction cost to reach rural schools. Several different departments are involved in the review for teacher promotions. The following are the procedures for reviewing a promotion from one rank to the next:

- (a) A promotion from the rank of regular teacher to methodologist requires a review by the school administration and the provincial ECD<sup>34</sup> needs to be informed of the process.
- (b) For the promotion from the rank of methodologist to lead teacher, the provincial ECD is in charge of reviewing the promotion. The review is based on an evaluation of the teacher's portfolio and on a school visit including an in-class observation by ECD staff.
- (c) For the promotion to advisor (the highest rank of teachers) the teacher's portfolio needs to be submitted to the MECS in UB and reviewers from UB are required to evaluate the candidate for promotion on-site — meaning they must come to the school where the teacher works.

Based on these procedures, one would not expect to see a large difference in the number of methodologists in rural and urban schools because the promotion to methodologist is primarily the responsibility of the school administration. Figure 1 suggests that this may be the case. The centralist feature of the promotion review for lead teacher and advisor, however, most likely has a negative impact on teachers who work in rural schools that are located far from the provincial-centers and from UB.

In addition to the review, to receive a promotion, teachers are also required to complete a certain amount of additional coursework to qualify for a promotion. The amount of coursework required ranges from 10 credits for a promotion to methodologist to 20 credits for a promotion to advisor teacher. This requirement implies that there is a higher cost to the teacher and the school associated with being promoted. Often these credit-bearing courses are only offered in UB or in the provincial centers, placing a greater burden on teachers in remote, rural schools who want to enroll.

<sup>34</sup> The MECS has a provincial education office in each aimag called the Education and Culture Department.

Although a school's remote location may limit a teacher's ability to be promoted, the higher proportion of lead and advisor teachers in urban areas could be an indicator that teachers with more experience have more opportunities to move to more desirable postings in urban schools and be promoted to higher ranks.

#### Class Teacher

A class teacher is a leader of a group of students of the same grade level. For example, because students in lower and upper secondary school have different teachers for different subjects, a few teachers in each school are designated class teachers who are responsible for the discipline and administrative processes of a group of students for a certain grade. All primary school teachers are class teachers by nature of the way primary schools are organized in single classes. Although the percentage of class teachers is nearly identical in rural and urban schools, we found a significant difference in the average amount received for this supplement between teachers in urban and rural schools favoring teachers in urban schools. Deductions from this salary supplement are commonly given to teachers if a student is late to class or misbehaves at school. Larger deductions for rural teachers could be the reason for this discrepancy, but we can not verify this with current data.

#### Checking/Grading Student Notebooks

All class teachers have the opportunity to receive a salary supplement for monitoring and grading their students' notebooks. One would assume that this task would fall under a teacher's responsibilities and not qualify as a separate salary supplement given that teachers are designated 21 hours per week for lesson planning and other pedagogical activities. However, the data show that this is not the case. Furthermore, we also found that urban teachers receive significantly more for this supplement. Teachers in rural areas may have also experienced more deductions from this supplement than urban teachers.

#### Managing a Cabinet

Cabinets are a collection of educational materials that are subject-specific and serve as additional resources for teachers. Some cabinets are donor-supported, and others are supported by the school. We found that urban teachers receive significantly more for this supplement than rural teachers. The difference may be due to urban schools having more resources to spend on cabinets or better access to these materials.

#### Leading a Methodology Unit at the School

An allowance is given to methodologists in schools who lead and/or coordinate a group of methodologists in a similar subject area. We did not find a significant difference in the average amount received by teachers in urban and rural schools for this supplement. This is most likely a result of there not being a significant difference in the percentage of methodologists in rural and urban schools.

#### Relevant Sills

An allowance is also given to teachers who have taken additional courses in their subject area. Because most of the courses are offered in UB and in other urban centers, urban teachers have better access to these courses than teachers in rural areas. In fact, Table 20 shows that there is a significant difference in the amount received for this supplement between teachers in rural and urban schools. This also suggests that teacher quality is higher in urban areas where teachers have more opportunities for professional development.

### Grading Exams

Teachers in rural schools are compensated for grading their students' standardized exams and teacher written progress tests, while in urban schools this task is considered part of their regular workload (part of base salary), and they do not receive additional compensation. It is unclear why only rural teachers are eligible for this supplement.

## **4.5 Performance-based Education**

The goal of performance-based education is that teachers are evaluated and monitored throughout the school year and receive a performance-bonus based on achievement of outcomes.

Performance-based education reform officially began in Mongolia in 2002 with the PSFM<sup>35</sup>. However, an elaborate system of performance-based salaries and bonuses had been in existence in Mongolia for nearly three decades<sup>36</sup>. PSFM advocated accountability and efficiency in the areas of governance and finance and mandated that all public administration sectors, including education, adopt and enforce performance-based contracts. Towards this aim, in 2003, the MECS published a 319-page handbook on performance-based education with numerous examples of student benchmarks and teacher scorecards and distributed it to all school administrations<sup>37</sup>.

Performance-based contracts are agreed upon by individual teachers and school administrators at the beginning of each school year.<sup>38</sup> Ninety-eight percent of PETS sample schools reported using performance-based contracts for teacher evaluation. While this represents broad adherence to the new reform, many of the performance-based contracts that were shown to PETS enumerators were strikingly similar, signaling that in practice, these contracts may be failing to accurately evaluate individual teachers on measurable outcomes. Performance-based contracts also fail to mention or incorporate reforms that are being implemented at the central-level (e.g. child-friendly classroom practices). There has been very little training for school administrators about how to prepare these contracts to assess teacher performance and improve educational outcomes. This is particularly important in Mongolia given that some principals may not have an education background.<sup>39</sup>

Current performance-based contracts tend to emphasize student performance, rather than individual student progress. The focus on the high-performance of students and the average performance of the class has large repercussions for slow learners and students with special needs. Awarding bonuses based on student performance creates a disincentive to retain low-performing students and those with special needs and disabilities as they may lower the overall performance of the class and ultimately impact the teachers' income. At the school-level, administrators should be thinking about the right incentives for teachers to serve these students and, at the central-level, policymakers need to think about appropriate incentives for schools to serve these types of students.

**Table 21** summarizes performance bonuses given by school location. The first finding is that there is a significant difference in the likelihood of receiving bonuses between urban and rural schools, with rural teachers more likely to receive bonuses than urban teachers. However, there is

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<sup>35</sup> Approved by Parliament June 27, 2002.

<sup>36</sup> Educational Import - Local encounters with global forces in Mongolia, Steiner-Khamsi & Stolpe, 2006.

<sup>37</sup> Steiner-Khamsi & Stolpe.

<sup>38</sup> In small schools (soum and bagh), this is usually the education manager and principal and in large schools a school social worker may also be involved in the agreement.

<sup>39</sup> Principals are appointed by aimag governors who are appointed by the Prime Minister.

no significant difference in the average size of a bonus received by rural and urban teachers. There are a few possible explanations for this. First, rural communities are often very tight-knit and as a result the school administrations may feel more pressure to distribute bonuses to a greater percentage of teachers. Second, rural schools may also need to give bonuses to more teachers as a retention strategy.

**Table 21: Performance Bonuses (Percentage)**

	Rural	Urban	Obs.	Difference
Schools who Gave Bonuses	62	56	a	***
Teachers who Received Bonuses	49	39	b	***
Mean of Bonus (\$US)	4.3	4.1	b	
Reasons for Bonuses				
Student Won Olympiads	37	63	c	
Teacher Won Olympiads	45	55	c	
General Good Performance	51	49	c	
Good Performance-based on Outcomes Contract	51	49	c	
School wide Savings Award	48	52	c	

Source: PETS Mongolia 2005, Salary Disbursement Forms and Teacher Questionnaire.

Note: Many teachers reported more than one reason for receiving a bonus.

T-test of differences is significant at \*\*\*99%.

a=55 rural schools and 63 urban schools.

b=519 rural teachers and 632 urban teachers.

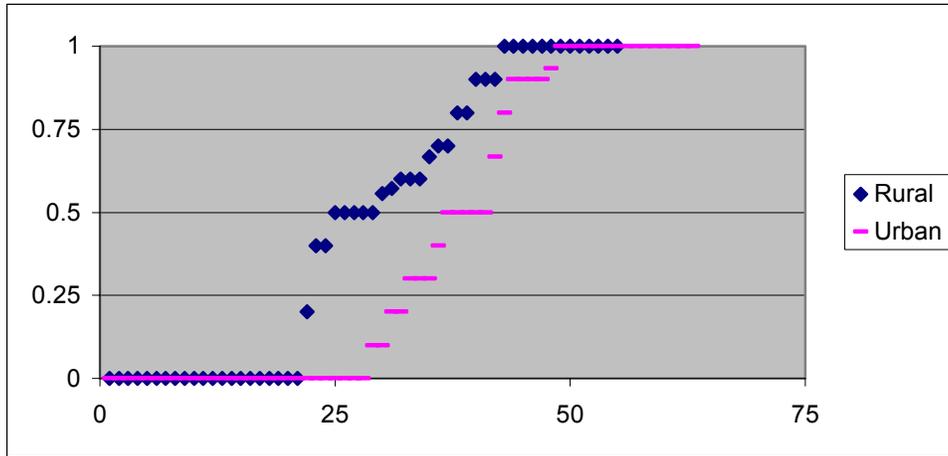
c=93 rural teachers and 105 urban teachers.

Table 21 also shows that the majority of teacher bonuses are awarded based on a teacher's overall good performance and successful achievement at local or national Olympiads. Olympiads are subject-based competitions held at each administrative level for teachers and students. Olympiads began under the socialist system and embraced many groups (teachers, students, workers, herders, mothers, etc.) and all state institutions (factories, agricultural collectives, animal husbandry collectives, government offices). These were traditional ways bonuses were awarded prior to the introduction of performance-based contracts in 2003. Many schools continue to use these traditional means alongside performance-based contracts to evaluate teachers. In the case of Olympiads, this appears particularly for urban schools. Olympiads continue to be viewed by government, schools, and parents as an important basis for evaluating the quality of schools and teachers and awarding performance bonuses. The practice of awarding teachers bonuses on the basis of their student's performance at Olympiads may encourage teachers to focus solely on a few promising students and on a limited number of outcomes that are tested in the Olympiads, coach this select group of students for Olympiads, and neglect the rest of the class.

Table 21 also shows that bonuses are often awarded as the result of overall school-wide savings. If school savings are made from school maintenance, heating costs, or salary and supplement deductions, the school administration may decide to give a bonus to all teachers in the school.

**Figure 10** provides a closer look at the distribution of bonuses among sampled teachers by location. Forty-one percent of schools who gave bonuses distributed them equally across all sampled teachers of each school, while 42 percent of all sample schools did not distribute any bonuses to sampled teachers. It suggests that if the school administration gives bonuses, it does not give them to a select number of teachers, but prefers to distribute bonuses more broadly to a larger percentage of teachers. Figure 10 illustrates that rural schools are more likely to give bonuses to a higher percent of teachers in the school.

**Figure 10: Percentage of Teachers per School Who Received Bonuses**



Source: PETS Mongolia 2005, Salary Disbursement Forms N=1,151.

Schools that did not distribute performance bonuses (42 percent of sampled schools, 38 percent rural and 44 percent urban) may not have had enough in the variable component of their school budget to cover performance bonuses. Alternatively, they may have decided not to award any bonuses and instead used this portion of the budget on other variable costs, such as stationary or books. There are tradeoffs to this type of decision making at the school level. The advantage is that schools generally have more information about what the needs of the school are and can therefore make better decisions about how to spend their resources. In this particular case, it might have been more important to supply textbooks and stationary to students than to award teacher bonuses (particularly if they were not merited). However, if schools are not able to fund performance bonuses for teachers where they are merited, then the variable cost component of the school budget should be adjusted to enable schools to reward high-performing teachers.

#### 4.6 Deductions

A unique feature of teachers' incomes in Mongolia is that the school administration can make monthly deductions from a teacher's base salary or salary supplements. Deductions from base salary are serious and are only made for teacher absences, tardiness or drunkenness<sup>40</sup>. By contrast, deductions from salary supplements are fairly common. A teacher's income could vary significantly from one month to another depending on the frequency and amount of deductions. It is important to note that we were unable to obtain information regarding deductions from teachers' salaries from the salary disbursement forms. The salary disbursement forms only list traditional tax deductions and do not list deductions made by the school administration. This suggests that the process of making deductions is not transparent for teachers, and that there is no reliable information at the provincial or central-level about the frequency or size of these deductions.

<sup>40</sup> Steiner-Khamsi & Stolpe.

Thirty-four percent of all sampled teachers reported receiving a deduction in their salary or salary supplements the previous month. **Table 22** below disaggregates this information by location. According to the figure, it does not appear that a teacher would be more or less likely to receive a deduction based on location alone. Moreover, we did not find a significant difference in the total amount of the deductions for teachers in urban and rural schools.

**Table 22: Deductions (Percentage)**

	Rural	Urban	Obs.	Difference
Teachers who received deductions	33.5	34	a	
Mean of deductions (\$US)	2.0	2.5	a	
Reasons for bonuses				
Poor class management	32	37	b	
Poor lesson planning	12	19	b	
Poor teacher attention to student development	1.5	10	b	**
Poor organization of official documents	11	9	b	
Poor personal organization	12	9	b	
Poor teacher morality	0	7	b	**
Poor maintenance of property	18	12	b	
Other	37	40	b	
Teachers who felt reasons were not completely justified	57	69	b	
Teachers who felt reasons were not made completely clear	24	52	b	***

Source: PETS Mongolia 2005: survey of teachers (N=434).

T-test of differences is significant at \*\*95% \*\*\*99%.

Note: Many teachers noted more than one reason for deductions.

a= 237 urban teachers and 197 rural teachers.

b=81 urban teachers and 66 rural teachers.

The school administration is given significant authority to deduct from teachers' salaries and salary supplements based on their own criteria and evaluation without much provincial or central oversight of these deductions. Thus, there are a wide range of reasons for salary deductions. Deductions from salary supplements and base salaries lack measurable and clear evaluation criteria, similar to the processes of awarding bonuses. Therefore, many teachers and those in the education community in Mongolia feel that many school administrators resort to purely subjective evaluation criteria which are at times more personal than professional.

According to PETS, 64 percent of teachers felt that the reasons for their deductions were not completely justified. More teachers in rural areas felt that deductions were justified than teachers in urban areas did. The large size of urban schools most likely makes it more difficult for school administrators to effectively monitor and evaluate teachers, and thus justify both bonuses and deductions. Further, 63 percent of teachers did not feel that the reasons for these deductions were made completely clear to them.

Principals and education managers have the authority to reallocate savings from deductions to other school activities (including paying bonuses or salary supplements to other teachers), thus creating opportunities for reallocations at the school-level. Fifty-five percent of principals stated that they are unable to cover all of the salary supplements and bonuses from the budget for salaries alone. They listed deductions from other teacher's salaries and savings from previous years as the two most common ways they deal with this funding gap. From a budget perspective,

the deductions from salary supplements and salaries and the awarding of bonuses are inter-related, and based on the principle of redistribution.

#### **4.7 Teacher Transfers**

To fully understand the incentive structures teachers face, we need to understand the process by which teachers transfer from one school to another. Principals in Mongolia have full discretion to hire teachers at their schools. Generally, teachers with more experience and higher qualifications have increased chances of being hired. The criteria for judging qualification are subjective and depend on the principal. Anecdotal evidence from the qualitative interviews suggests that teachers who have won Teacher Olympiads, completed a Master's degree program at a teacher training institution, or produced a research paper or book on education are considered by principals when making the decision to hire teachers (this is the case in competitive placements in urban schools). In recent years, teachers from rural schools who have participated in education reform projects supported by international and national organizations have been accepted into more centrally located schools, including UB schools. Most likely, the exposure to new practices and to education professionals for participating teachers is attractive to principals.

#### **4.8 International Experience with Teacher Incentives and Performance-Based Pay**

A large number of countries around the world have experimented with teacher incentives and performance-based pay over the past 15 years. Many of these performance-based pay programs have been abandoned or limited after a few years for failure to achieve desired results. Proponents of performance-based pay argue that many of the failures can be attributed to teacher and union opposition. Critics, on the other hand, argue that the failures are a result of difficulties in identifying effective teachers and rewarding good practices. Overall lessons learned from performance-based pay are discussed below with country-specific examples.

The literature on teacher incentives provides evidence that general incentives (overall increases in teacher pay and benefits) do have an impact on teaching quality and supply. In the United States, the research on teacher recruitment and retention published since 1980 has found that higher salaries are associated with lower attrition, and that teachers respond to higher salaries both outside their school district and outside the teaching profession. In less-developed countries, there is also evidence that teachers respond to general incentives. In Chile, the large increase in teacher salaries over the past decade is often associated with an increase in the quality of students entering teacher education programs<sup>41</sup>.

The education and experience of teachers, however, does not necessarily lead to increases in student learning. Because the ultimate goal of an education system is to increase student learning, many researchers and policymakers have advocated that teacher salaries be linked to student outcomes through targeted incentive programs. In recent years, there has been widespread criticism that fixed teacher salaries fail to properly attract, motivate and retain high quality teachers. Other professions have merit-based pay and this creates incentives for talented teachers (who would also be effective at other professions) to leave teaching. In addition, others agree that there is great variation in the effectiveness of teachers, and those who are more effective should be rewarded accordingly<sup>42</sup>. Targeted incentive programs may be financially

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<sup>41</sup> E. Vegas and I. Umansky, Improving Teaching and Learning through Effective Incentives: Lessons from Education Reforms in Latin America, (The World Bank, 2004).

<sup>42</sup> R. Murnane, "Performance-Based Incentives for Teachers", (Presentation at World Bank, April 2006).

more feasible for many countries in improving the quality of teaching, rather than instituting across the board increases in base salaries.

The goal of performance-based incentives is to provide the stimulus for talented, well-qualified teachers to: (a) enter the teaching force and stay long enough to be of real service; (b) work in the schools where they are most needed; (c) invest in increasing their classroom effectiveness; and (d) focus their time and abilities on enhancing the skills of all of their students. The main challenge in implementing performance-based pay is to measure accurately the performance of individual teachers. In most cases, a teacher's performance is evaluated based on the achievement of his or her students. However, the relationship between what teachers do in the classroom and student learning is not always identifiable. Further, some incentive programs may lead to undesirable behaviors such as keeping low-performing children out of their classes (alternatively, competing among teachers for high-performing students), teaching to tests, and not working together with other teachers as a team in the school<sup>43</sup>.

Evidence from international experience suggests that teacher incentive programs can be most effective when the following conditions exist: (a) teachers know how to do the things that are rewarded; (b) teamwork is not critical in accomplishing the things that are rewarded; (c) it is relatively low-cost to monitor the performance of teachers; and (d) supervisors can provide a convincing explanation of why a certain individual received a financial reward. Giving performance bonuses to teachers for things that are within their control has been more successful in large part because the desired behavior was easier to identify and to monitor. Examples of this type of behavior include: (a) becoming a teacher of a particular subject; (b) staying in teaching; (c) regular attendance; (d) working in a hard-to-staff school; and (e) completing a training program on teaching in a hard-to-staff school.<sup>44</sup>

Mexico's Program to Reduce the Educational Backlog (PARE) is an example of a program that provided bonuses to teachers for an identifiable behavior: regular attendance. Teachers were given a monetary reward if they could prove that they did not miss more than a few days during the academic year. The program was unique in that parent associations — and not school administrators — were responsible for monitoring teacher attendance. Many of these associations were created as a part of PARE, which offered parent associations up to US\$500 per year to be more involved in school activities. The program was found to effectively reduce teacher absenteeism only in the schools with relatively strong school principals and existing parent associations prior to PARE's implementation. The program was also more effective in schools that had lower levels of absenteeism prior to PARE.<sup>45</sup> Despite this, PARE provides an example of how a targeted benefit can be used to reduce teacher absenteeism in schools with certain characteristics (strong principals and parent associations).

Chile's National System of School Performance Assessment (SNED) provides an example of a program tailored to reward the overall performance of schools rather than individual teachers. The program was designed in this way to avoid some of the aforementioned problems that arise when incentives are targeted to individual teachers. The program provides merit awards to basic and secondary schools to be used for bonuses to teachers. The awards are based on a school's performance as measured by an index including six factors. The index comprises absolute levels of test scores in math and Spanish and improvements in past test scores, along with other

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<sup>43</sup> Vegas and Umansky.

<sup>44</sup> Murnane.

<sup>45</sup> J. Ezpeleta and E. Weiss "Las Escuelas Rurales en Zonas de Pobreza y sus Maestros: Tramas Preexistentes y Políticas Innovadoras," (Revista Mexicana de Investigación Educativa 1.1, 1996) pp. 53-69.

indicators of educational outcomes and process measures. Awards are made to the best performing schools in each of a number of strata, meaning that competition is between relatively comparable schools. Teachers in winning schools typically receive what amounts to one-half of one month salary. Evidence suggests that the incentive has had a cumulative positive effect on student performance for those schools facing relatively good chances of winning the award.<sup>46</sup>

A program such as this may be preferable to the way bonuses are currently distributed in Mongolia. By providing a school-wide incentive, teachers in a school are encouraged to work as a team. Because many schools in Mongolia appear to favor distributing bonuses equally across all teachers, it may be attractive to teachers and school administrators. Evaluating progress at the school-level is also preferable to doing it at the class-level. There tends to be more variation in class-level indicators making it more difficult to assess progress. The success of the program, however, is in part due to the testing system in Chile, which produces national data on student achievement. This type of data is not available anymore in Mongolia on a periodic basis.

There has not been a formal evaluation of the effect of performance-based pay on teacher retention, recruitment or student learning in Mongolia since the PSFM law was introduced in 2003. Because approximately half of a teacher's salary in Mongolia is based on performance-based supplements and bonuses, there is a need to evaluate whether or not these incentives are achieving their desired results, most importantly, improving student learning. Additionally, as schools in rural areas struggle with teacher vacancies, teacher absenteeism and high salary costs, policymakers may want to consider teacher incentives aimed at placing teachers in rural areas, reducing teacher absenteeism, and teaching multiple subjects or grades to reduce costs.

#### **4.9 Other Income and Non-Monetary Benefits Teachers Receive**

This section looks at after-school activities that teachers engage in to generate additional income. It also looks at non-monetary benefits that teachers may receive from the school or the community. Both practices are fairly widespread in Mongolia and thus are important to analyze when looking at teacher compensation.

##### ***After-School Activities***

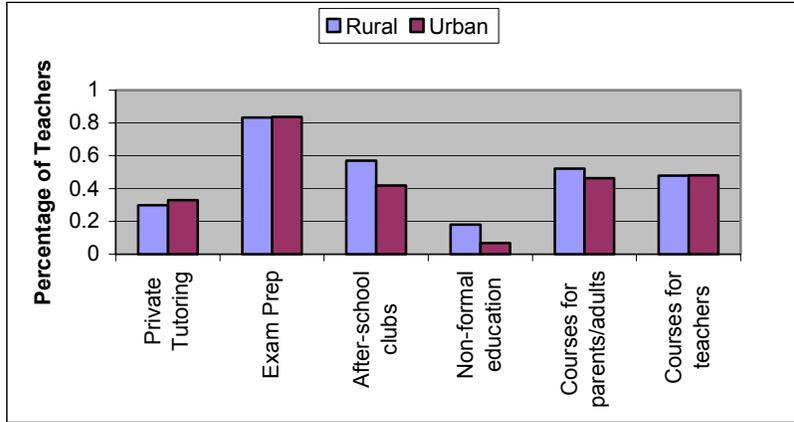
PETS quantified income that teachers receive from individual students and families for conducting various fee-based after-school activities using their responses to the teacher questionnaire. After-school activities consist of the following: private tutoring of students; exam preparation of students; moderation of clubs and after-school courses (IQ club, debate, chess, English, etc.); non-formal education classes; and courses for parents or adults.

Seventy-four percent of teachers surveyed are involved in some type of fee-based after-school activity. We found no significant difference in the probability of teachers in rural or urban schools to engage in fee-based after-school activities (**Figure 11**). However, we found a significant difference in the mean income teachers receive from these activities in rural and urban areas. Teachers in urban schools earn on average US\$5 per month, while those in rural schools earn on average US\$2 per month.

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<sup>46</sup> Vegas and Umansky.

**Figure 11: After-school Activities Performed by Teachers by Location**



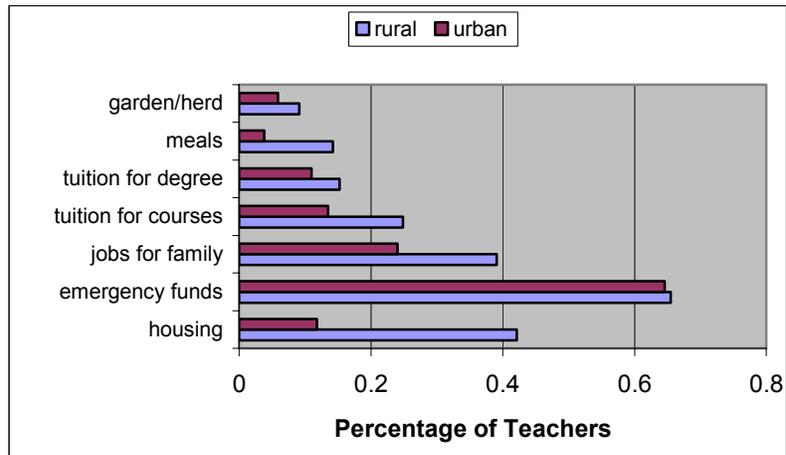
Source: PETS Mongolia 2005: survey of teachers (N=434), number of teachers who reported receiving income from after-school activities (N=323). Rural teachers N=93. Urban teachers N=105.

Most likely the larger student populations and higher disposable incomes in urban areas account for the large difference in remuneration for after-school activities between rural and urban teachers. Again, the lower living costs in rural areas must be acknowledged when making these comparisons. The ability to generate more income through after-school activities most likely acts as an incentive for teachers to teach in urban schools.

### ***Non-Monetary Benefits***

Approximately 82 percent of teachers reported receiving some type of non-monetary benefit from their school. A majority of non-monetary benefits are not regulated or monitored at the provincial or central-level. However, it is somewhat common for certain benefits (tuition for training courses and housing) to be a part of the contract a teacher may sign with a school. Non-monetary benefits thus play some role in attracting and retaining teachers. **Figure 12** provides a breakdown of the type of benefits teachers received by school type.

**Figure 12: Discretionary Benefits Teachers Receive by School Type**



Source: PETS Mongolia 2005: survey of teachers (N=434), number of teachers who reported receiving discretionary benefits (N=357).

The likelihood of a teacher in an urban school receiving non-monetary benefits is 78 percent, while for a teacher in a rural school the probability is 87 percent and is largely driven by the need to provide rural teachers with housing facilities. In rural areas, there is often a strong sense of community which may make them more inclined to provide non-monetary benefits to teachers due to community pressure to help provide for them and their families and also, in part, to help attract and retain teachers.

During the qualitative interviews, rural schools explained that they cannot attract or retain teachers without providing them with housing. If the school has a dormitory, teachers are usually given a room there, otherwise the teacher may be provided with a *ger*.<sup>47</sup> Because it seems that providing housing for teachers in rural schools is so widespread that it has become the norm for attracting and retaining teachers in rural schools, it is useful to quantify this benefit. According to the 2002 LSMS, the average monthly rent of a dwelling in rural communities is US\$12. Once the US\$12 is accounted for as a part of a teacher’s total monthly income, there is much less of a salary differential between rural and urban teachers.

#### 4.10 Conclusions

This chapter explored teacher’s incomes in Mongolia and the incentive structure teachers face in schools, with particular attention to the differences in income between teachers in rural and urban schools.

Teachers’ salaries in Mongolia have three components: (a) a base salary; (b) salary supplements for specific tasks and responsibilities; and (c) performance bonuses. An initial analysis of teachers’ incomes suggests that teachers in urban areas earn significantly more than rural teachers. However, once one considers the cost-of-living differential between rural and urban areas and quantifies non-monetary benefits teachers receive in rural areas, it implies that there is less of a rural-urban teacher pay gap, if one at all. Demand for teaching positions is higher in

<sup>47</sup> Ger is the Mongolian word for yurt, a traditional dwelling place.

urban schools than in rural schools suggesting that rural teachers may not earn enough to compensate for the perceived disadvantages of living in rural areas. If rural Mongolian schools continue to have staffing difficulties, policymakers might consider targeted incentives to bring teachers to rural schools in the form of monetary incentives or encourage teachers in rural schools to teach multiple subjects or grades.

Mongolia introduced performance-based contracts in 2003 with the passing of the PSFM law. Performance-based contracts are agreed upon by the school administration and teachers at the beginning of the year. Teachers are awarded performance bonuses based on achievement of outcomes generally at the end of the school year. Although there appears to be broad adherence to the use of performance-based contracts in schools, the lack of training for school administrators and the continued reliance on traditional practices of awarding teacher bonuses (namely, Olympiads and general good performance) questions the effectiveness of performance-based contracts. In addition, a teacher's reliance on a wide range of salary supplements (approximately 50 percent of monthly salary) makes his/her monthly income subject to the will of the school administration. Simplifying the current salary structure by reducing the number of salary supplements and increasing the base salary could reduce complexity in teacher compensation for schools and help make it more transparent. Because performance-based pay has been used in a wide range of countries over the past 20 years, Mongolia should reflect on the lessons learned in these countries if it wants to create teacher incentives to solve educational challenges.

From a policy perspective, it is important to understand how teacher salaries and other incentives affect the quality of rural and urban schools, namely, what types of improvements in the work conditions of the teaching profession are most effective at producing better outcomes. Teachers in urban schools often work more hours than teachers in rural schools, because the large student populations and limited space have forced urban schools to create several shifts of students per day. In addition, teachers in rural areas are more likely to be absent than teachers in urban areas, increasing the gap between the number of real hours worked by urban teachers compared to rural teachers. The fact that teachers in urban areas appear to be overworked could have a negative effect on quality in urban schools. While declining school quality in rural areas appears to be contributing to migration to urban areas, schools in urban areas are becoming overcrowded. A 2005 report by Save the Children found that one-third of households in their survey reported their children's schooling or giving their children a better education, after seeking employment, as the most important reason for migrating. At the same time, there are differences in other characteristics of students, teachers, and schools themselves which also influence learning outcomes. Despite all these difficulties, students in urban schools score higher grades in the national examinations than those from rural schools. Understanding how teachers' salaries and other incentives can contribute to closing the gap across urban and rural schools and improving access to quality education remains a challenge for the education policy community in Mongolia.



## Chapter 5: Towards a Transparent, Equitable, and Efficient System of Education Financing

### 5.1 Introducing Incentives for Efficiency in School Spending

**Because teacher salaries drive the high variable spending, particularly for small, rural schools with shrinking student enrollments, Mongolia should encourage a more efficient use of human resources within and across schools.** Measures that will provide incentives for schools to use resources more efficiently include:

- (a) A revision of the 2002 Education Law to allow for multiple subject teachers in grades 6-11. By allowing teachers to teach multiple subjects, it would reduce both the costs of teacher salaries and address another common challenge in rural areas, teacher vacancies.
- (b) A campaign to promote and encourage multi-grade teaching in small schools with low enrollments. While not prohibited by law, multi-grade teaching has not been adopted by many schools in Mongolia, in part due to its unpopularity among teachers and parents. The fears and perceptions of the public could be overcome by promoting successful experiences and models from countries that have used these schemes for many years.
- (c) Complement a policy that advocated both multi-subject teaching and multi-grade teaching with changes at the level of teacher education programs and in-service teacher training. Teacher training colleges should develop courses that expose teachers to strategies to teach a multi-grade classroom. The curriculum should also be adapted to allow teachers to specialize in multiple subjects. Current teachers should also be exposed to strategies of teaching a multi-grade classroom or teaching multiple subjects. This can also help a school respond to subjects that may be in particularly high demand (technology, English). This would help ensure that the quality of education would not suffer from a policy change.
- (d) Provide monetary incentives for teachers and schools that adopt multiple subjects or multi-grade classrooms. Incentives should be aligned to reduce overall teacher salary spending and to induce a more efficient allocation of teachers to schools where they are most needed.

**The funding formula should be modified to provide incentives for schools to make savings in their fixed costs.** At the moment, all schools receive funding for fixed costs based on past expenses. This provides schools with a perverse incentive to spend as much as possible on fixed costs to ensure a higher base of spending for the next year. Many countries now apply a formula to the funding of maintenance and energy costs based on a combination of space, student enrollment, and quality of infrastructure. In addition, schools that make savings on their fixed costs are allowed to keep these savings. International experience demonstrates that when schools receive such a combination of incentives and responsibilities, there is greater attention to economy of use.

**Schools should have the autonomy to generate their own incomes and the responsibility of reporting them transparently.** School autonomy is an important precondition for an efficient system of school financing because it relies on schools to make decisions about how resources should be spent. It is important for schools to exercise their autonomy by allowing them to raise

funds that may be necessary to offset any gaps which cannot be met by government funding. However, schools should not be allowed to collect money from students and families directly and should instead focus on other fund-raising activities in the community. Schools must report the income generated from other sources and its use to the central authorities and to the community to maintain transparency.

**Performance bonuses should target behaviors that teachers can control and that the school administration can monitor.** International experience has been very mixed on the effectiveness of teacher incentive programs that are based on student performance. Instead, incentive programs that are based on factors that are within a teacher's control (e.g. teaching in a remote school, teaching a multi-grade classroom, teaching multiple subjects, or good attendance) have been shown to be more effective, because the desired behavior is easier to identify and to monitor.

**Mongolia should consider reducing the number of salary supplements for teachers and increasing the base salary.** While this should be part of a larger civil service salary reform, it would reduce the complexity of teacher salaries and make teachers' monthly incomes more predictable and transparent.

## 5.2 Enhancing Equity Across Schools, Students, and Teachers

**While micro-coefficients improve equity in the allocation of school financing, regional inequalities could be reduced by applying national rather than provincial-level criteria.** It is widely recognized that the simpler the funding formula, the greater its transparency. The practical implication is that the funding formula should not be overburdened by a number of cost factors. Implementing micro-coefficients at the provincial-level not only complicates the funding formula, but introduces unequal treatment of similar schools based on geographic location alone. A simple adjustment such as introducing national-level coefficients would lead to a more equitable allocation of resources across schools.

**School finance tools and institutions that are designed to be national should be uniformly enforced in all aimags, including the capital city.** It was documented that schools in UB have not adopted the funding formula. Nor have the institutional reforms that redefined responsibilities for budget preparation and disbursement been implemented in the capital city. On one hand, by not applying the funding formula, schools in UB are receiving a differential treatment. Per-student financing formulas have been shown to improve the efficiency, equity, effectiveness, transparency and predictability of spending. On the other hand, because one agency at the MOF continues to handle both budget preparation and disbursement for schools in UB, it reduces the checks and balances on the system there. One-third of all schools in the country are located in UB, so the system is most likely missing out on some important benefits of the last generation of reforms in education finance.

**Financial management training should be provided for provincial and school-level budget officers.** PETS documented a general misunderstanding of both school accountants and provincial officers regarding general budget processes and definitions of various items. Although this may be related to the recent reforms, in general, there seems to be a lack of capacity for reporting practices. A homogeneous understanding of the processes and regulations will translate in uniform quality of finance planning and execution.

**Teacher promotion procedures should be adapted to provide equal opportunity for rural teachers.** In order to retain teachers in rural schools, there needs to be greater opportunities for advancement and professional development. Achieving different levels of promotions requires

visits from provincial and even national authorities. Additionally, teachers must complete training courses in aimag centers or in the capital city from accredited institutions to qualify for the promotion. This implies much greater costs for education officials to evaluate teachers in remote and rural schools, as well as for individual teachers and schools to receive training. This system needs to be simplified so that rural teachers have the same opportunity to receive a promotion as urban teachers do. An alternative could be developing a network of school principals and administrators in remote areas who can evaluate promotions of local teachers. Further, the provision of professional development training courses could be decentralized by accrediting other organizations or institutions, such as non-profit organizations specializing in teacher training, who may be willing to provide teacher training at the local level.

### **5.3 Promoting Transparency at all Stages of School Finance**

**Deductions from teachers' salaries and salary supplements should be reported at the school, provincial and central-level.** While a considerable number of teachers receive a salary or a salary supplement deduction, these deductions are not reported by the school at the provincial or central-levels. Increased transparency in the reporting procedures would enhance accountability both from the teacher who is being sanctioned for an unsatisfactory behavior as well as from the school administrator who is administering the sanctions. Moreover, provincial officials should closely monitor and investigate schools and teachers who experience a large magnitude of deductions so that they can dismiss negligent teachers or school administrators.

**Encourage schools to develop strategy for sharing school budget information with parents and the community to increase budget transparency and school accountability.** During its school visits, PETS found a great variation in school practices regarding transparency and record-keeping of the school budget. For example, out of its own initiative, one school posted budget information on the school walls, including information regarding teacher salaries. This type of transparency promotes a school's good use of resources and inevitably makes the school more accountable to students and parents.



## **Annex 1: Design and Sampling of Public Expenditure Tracking Survey (PETS) Mongolia**

### **Design of the PETS**

PETS Mongolia used both quantitative and qualitative instruments to examine the financial flow and the resource allocation in the education sector.

PETS Mongolia differs from a public expenditure review in that it does not exclusively rely on central-level information, but rather explores the interaction between central institutions, provincial institutions and schools. By tracking budget information at various stages of the budget process (proposal, approval, revision, allocation), the study identifies reallocations (from one budget post to another) and re-distributions (from one institution to another) that were made over the course of fiscal years 2004 and 2005. In addition, PETS Mongolia describes how resources are allocated at the school-level.

### **Quantitative Data**

Quantitative data was collected from different institutions in the sector: central government institutions, provincial government institutions, and schools. The school-level instruments were piloted in a total of eight rural and urban schools. The school-level surveys were administered in March 2005<sup>48</sup>. Provincial-level data was collected in June and July 2005.

### **Central-level Data**

Central government data collected for PETS came from two sources: MOF and MECS.

The budget information from MOF was retrieved from published sources. No interviews were conducted at MOF for the purposes of data collection, although MOF officials were consulted during the pilot stage of PETS.

In contrast, there was a close collaboration with MECS, in particular with the Department of Economics and Finance, which made available the following datasets:

- (a) Student numbers for school years 2000-2001 through 2004-2005 disaggregated by level.
- (b) General education sub-sector provincial budgets for fiscal years 2004 and 2005:
  - (i) Student numbers disaggregated by schools; and (ii) Budget data disaggregated by budget post items as well as by amounts submitted, by amounts approved, and amounts amended<sup>49</sup>.
- (c) Budget amendment made to General Education sub-sector's salary fund for fiscal year 2004 and salary fund execution for fiscal year 2003, disaggregated by province.
- (d) Budget execution data for fiscal year 2004 disaggregated by budget post items for PETS schools excluding UB city schools<sup>50</sup>.

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<sup>48</sup> Mongolian Education Alliance, an UB-based NGO, was in charge of the selection and training of enumerators as well as of the administration of the school surveys.

<sup>49</sup> Amendments were only available for fiscal year 2004.

<sup>50</sup> Because of the differences in the institutional organization, UB schools budget execution data is not available at MECS.

- (e) Data on reallocations made by MECS on the budget approved by Parliament, by item, for fiscal year 2004.
- (f) Per-student variable cost for 1998 through 2004, by province.
- (g) MECS-approved micro-coefficients, disaggregated by school.

### Provincial-level Data

PETS Mongolia attempted to interview provincial government officials of all 21 provinces and UB, which included representatives of MOF and MECS in charge of each province. However, not all of these interviews were equally successful. Moreover, the success in obtaining school-specific information from these officers was substantially lower. The data from the MECS finance representatives — usually the finance officer at the provincial ECD — was more complete than the data gathered from MOF representatives – provincial treasury officers. Differences are likely to be due to the fragmentation of the education budget data at the Treasury Office<sup>51</sup> and to the reluctance of treasury officers to share budget information. **Table 23** summarizes the complete cases of provincial data in the PETS.

**Table 23: Valid Cases of Provincial Data in PETS**

	Total	PETS
<b>MECS Finance Officers</b>		
Provincial ECDs	21	21
UB <sup>52</sup>	-	-
<b>MOF Treasury Officers</b>		
Provinces	21	19
UB <sup>53</sup>	9	9

Source: PETS Mongolia, 2005.

### School-level Data

The school-level data includes surveys of principals, education managers, school accountants as well as randomly selected teachers (two to four per school), parents (two per school) and student class monitors (two per school). In addition, detailed budget information and teacher salary disbursement forms for the months of February and March 2005 for five randomly selected teachers per school were obtained. **Table 24** summarizes the number of valid cases for each type of school-level data.

<sup>51</sup> At the Treasury, the budget officers collect school proposals; banking officers hold budget disbursement data; and budget execution reports are shared between the ECD budget officers and the Treasury general accountant.

<sup>52</sup> The position of budget officer at the UB city ECD is vacant. Instead, the city-district treasury officers (N=9) were interviewed for PETS.

<sup>53</sup> Due to a different organizational arrangement of the education sector's financial management in UB, officers at the Treasuries of the nine districts are in charge of the education budget.

**Table 24: PETS School-level Data**

Unit of Analysis	Comments	Valid Cases
Principals' survey	2 were substitute principals	118
Education managers' survey	8 were substitute education managers	233
School accountants' survey	16 were substitute accountants	118
Teachers' survey	2 grade 4 teachers 2 grade 8 teachers	436
Parents' survey	1 grade 4 parent 1 grade 8 parent	225
Class monitors' survey	1 grade 4 class monitor 1 grade 8 class monitor	225
Budget fact sheets for fiscal years 2004 and 2005	Proposed, approved, submitted, and disbursed school budget	118
Salary disbursement forms for February and March 2005	By line item, for 5 teachers per school	1,151

Source: PETS Mongolia, 2005.

### Qualitative Data

Case studies were carried out in ten sample schools of two different provinces, Bulgan and Gobi-Altai. The focus of the case studies was on clarifying discrepancies that surfaced after the analysis of the quantitative data. The case studies involved semi-structured interviews with provincial government officials (ECD, treasury office, Professional State Monitoring Agency) and interviews with principals, educational managers, accountants, and teachers at the school-level in all the PETS sample schools of the two provinces. The two provinces were selected based on the following criteria: (a) location in different financial zones for the purposes of school funding; (b) diversity in their socio-economic status; and (c) availability of village-center schools.

Schools included in the qualitative study and some of their characteristics are presented in **Table 25**.

**Table 25: Attributes of Schools in Qualitative Case Studies**

	Location	Type	Pupils
<b>Bulgan Aimag</b>			
School # 1	Province-center	0-10	1711
Dashinchilen	District-center	0-10	739
Orkhon	District-center	0-8	232
Hyalganat	Village-center	0-10	816
Saikhon Ovoo	Village-center	0-4	30
<b>Gobi-Altai</b>			
School # 2	Province-center	0-10	1459
School # 5	Province-center	5-10	325
Darvi	District-center	0-8	423
Sharga	District-center	0-8	321
Takhiin Tal	Village-center	0-4	30

Source: PETS central-level data provided by the Economic and Finance Department of the MECS.

## School Sample Design

Based on the data available in 2005, which was used as a sampling frame for the PETS, Mongolia had a population of 565 schools. Of them, 51 (or 9%) were grade 1-4 schools, while 170 (30%) were grade 1-8 schools, and 344 (61%) were grade 1-10 schools.

The selection of the PETS sample was linked to a parallel exercise supported by the Mongolian Education Alliance (MEA) that aimed to collect data on 8th grade student performance. The original idea — a request from the advisory panel for PETS and the Mongolian Education Evaluation Center- was to link the school spending data to the data on student performance. Therefore, the PETS sample selection was structured around the design of the MEA study, which had already been determined at the time the PETS sampling strategy was designed. Unlike the MEA study, however, the PETS population included only public schools. Special schools (such as art schools or schools for students with special needs) were excluded from the population of study for PETS.

The selection of the PETS sample followed different rules between three subsets of the population of Mongolian schools: (a) grade 1-4 schools only; (b) grade 1-8 or grade 1-10 schools with 20 students or less in 8th grade; and (c) grade 1-8 or grade 1-10 schools with more than 20 students in 8th grade. The partition along these three groups was unintended — for the purposes of PETS — but resulted from the research design of the MEA study. This is a brief description of the selection of schools in the PETS sample:

- (a) Grade 1-4 schools: out of a population of  $N=51$  schools,  $n=10$  were selected randomly.
- (b) Grade 1-8 or grade 1-10 schools with 20 students or less in 8th grade: out of a population of  $N=17$  schools,  $n=3$  were selected at random.
- (c) Grade 1-8 or grade 1-10 schools with more than 20 students in 8th grade: for this group, sample selection was done in three stages.
  - (i) Out of a population of  $N=497$ , 111 schools were selected at random for the MEA sample. However, the PETS sample had two additional constraints. It would be limited to 110 schools, and it would include the other subpopulation of schools described in points (a) and (b) above. For that reason, out of this sub-sample of 111 schools, 14 randomly selected schools were dropped, leaving a sample of  $n=97$ .
  - (ii) At a later moment, it was decided to increase the total sample size of PETS from 110 to 120 schools. Therefore, out of the population that was not selected in the sample of  $n=97$  schools (i.e.,  $N=497-97=400$  schools), a sample of  $n=10$  was chosen at random.

## Sampling Weights

Based on the sample design, sampling weights can be calculated for each of the three subsets of population of Mongolian schools:

- (a) Grade 1-4 schools: sampling weights are the inverse probability of selection, or  $51/10$ .
- (b) Grade 1-8 or grade 1-10 schools with 20 students or less in 8th grade: sampling weights are the inverse probability of selection, or  $17/3$ .

- (c) Grade 1-8 or grade 1-10 schools with more than 20 students in 8th grade: here, the exercise is slightly more complicated given that a subset of 14 schools that was selected in the random sample were then dropped out of it and re-introduced in the pool of potential schools from which an additional random sample of 10 schools was chosen. The crucial element is that these 14 schools were selected randomly<sup>54</sup>. For that reason, the sampling weights are also computed as the inverse probability of selection, or 497/107.

**Table 26** describes the final distribution of schools along these three subsets, both in the population of Mongolian schools as well as in the PETS sample. By design, the sample maintained the distribution of these three types of schools observed in the population.

**Table 26: Population and Sample of Mongolian Schools**

	Population		Sample	
	N	%	N	%
Grade 1-4 schools	51	9.0	10	8.3
Grade 1-8 or 1-10 schools				
With 20 or less students in grade 8	17	3.0	3	2.5
With more than 20 students in grade 8	497	88.0	107	89.2

Source: 2005 school-level data used as PETS sample frame.

For the purposes of PETS, sample selection could have been stratified around criteria such as school type, size of the student population, or school location. Therefore, it is necessary to explore how well the PETS sample corresponds to the overall distribution of schools based on these other criteria. **Table 27** compares the distribution of school size in the population of Mongolian schools to that of the PETS sample (with and without sampling weights).

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<sup>54</sup> There is a small caveat to this statement. The schools that were dropped out of the sample were chosen out of the sub-sample of schools that had no other school of their exact same size in the population. There were 94 schools in the sample of 111 schools that satisfied this condition, i.e., they were the only schools in the population of a particular size. In practice, this meant that the individual probability of any school of being dropped out of the sample decreased from 1/111 to 1/94. Given the small difference between these two numbers, we treat these two rounds of selection as one random draw.

**Table 27: Distribution of School Size in Population and Sample**

	Population		Sample Unweighted		Sample weighted	
	N	%	n	%	N	%
Number of students						
9-292	113	20.0	14	11.7	71	12.7
293-500	113	20.0	24	20.2	113	20.1
501-729	113	20.0	17	14.3	79	14.2
731-1,360	113	20.0	20	16.8	93	16.6
1,364-10,609	113	20.0	44	37.0	204	36.5
Type of school						
Grades 1-4	51	9.0	10	8.3	51	9.1
Grades 1-8	170	30.1	22	18.3	105	18.6
Grades 1-10	344	60.9	88	73.3	409	72.3
Location						
UB, apartment area	30	5.3	15	12.5	70	12.3
UB, ger area	36	6.4	13	10.8	60	10.7
UB, mixed	18	3.2	5	4.2	23	4.1
Province center	87	15.4	28	23.3	131	23.1
District	394	69.7	59	49.2	281	49.8

Source: 2005 school-level data used as PETS sample frame.

The sample resembles the closest to the population distribution of schools by type of school. This is coherent, given the design of the MEA study, which determined the criteria for sample selection. However, data from Table 27 reveals that large schools (those in the top quintile of the population) are over-represented in the sample, while small schools (those in the bottom quintile) are under-represented). In terms of the regional distribution of the sample — and consistent with the over-representation of larger schools — UB and province center schools appear to be over-represented to the detriment of district and village schools. Despite this and most importantly, Table 26 reveals that the effect of using sampling weights based on probability of selection is negligible in correcting these discrepancies. For that reason, the sample is treated as a self weighted sample, and no sampling weights are applied. However, in the interpretation of the findings and the inferences that can be made about the population of Mongolian schools out of the PETS data, it is very important to keep in mind the limitations introduced by the sample design.

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