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Per-capita financing in basic education in Tajikistan

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Per-Capita Financing in Basic Education in Tajikistan

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While being in Tajikistan on behalf of GTZ - Deutsche Gesellschaft für Technische Zusammenarbeit GmbH to support the Ministry of Education in relation to the financing of basic education, the consultant was asked by Mr. Sharipov, Deputy Minister of Education, to undertake a simulation of the effects of the per-capita financing scheme that is implemented in five pilot regions starting from January 2005. The following paper presents the results of the analyses and provides some background information for those readers who are not familiar with the economic situation and the education system in Tajikistan.

Introduction

With support by the International Monetary Fund and the World Bank preparations are underway in Tajikistan to implement a per-capita financing scheme for basic education. In the past, education financing was input-oriented as it is still the case in many other countries, although there is, in recent years, a strong trend to employ output-oriented approaches instead, as for example vouchers or per-capita-financing (PCF).

Vouchers and per-capita financing are very similar, with the main difference that in the first case a coupon is handed over to participants and their parents, which is called voucher. In fact, the coupon which is actively handed over by the student to the institution may have a psychological impact on participants as the process of decision making may be more conscious than in the case of per-capita financing. In the case of the latter, the link between the student's decision to enroll at a certain institution and the resulting budget allocation may be out-of-the-view, while a voucher requires an active handing over to the institution actively. ("You are receiving my voucher, since I value your course supply/the quality of your instruction".) Additionally, in the case of means-testing a voucher may be easier to employ as each family applies for it and receives a voucher with the corresponding face value. As the vouchers should have the same value for each student from the school's point of view to avoid discrimination, this approach contains income-related tuition fees to be paid to the government. Some evaluations suggest that the total educational budget will be higher when a means-tested voucher system is employed.

Some background information on Tajikistan

Tajikistan, a former part of the Soviet Union, is one of the poorest countries in the world. Affected by a civil war in the aftermath of the disintegration of the Soviet Union with its severe economic implications and hit by several draughts, GDP has decreased

during the 1990s. Over the last couple of years, economic growth is at rates of up to 10 % and may be even somewhat higher in 2004. Average GDP per capita was at € 180 (US$ 240) in 2003 and is expected to increase to € 205 (US$ 280) in 2004. In more detail, data suggest that 34 % of the families spend between € 12.50 and 25 each month, a same number between € 25 and 62.50 and 9 % between € 62.50 and 95. In total, 85 % of the population is reported to live in poverty. The same share lives in rural and remote areas, though this does neither mean that all people in rural areas are poor, nor that those living in cities, such as Dushanbe, are generally better-off.

In 2003, 2,0 % of GDP was spent for general education, a share that will increase to roughly 3,0 % if the budget estimate of € 45m (US$ 60m) will be spend as planned and GDP increases to € 1,490m (US$ 1,960m) as estimated. In total, 80 to 85 % of the schools are located in rural and remote areas, serving roughly 70 % of the children.

It should be highlighted that public spending is insufficient to finance all educational needs, even though it is planned to increase by roughly 60 % in 2005 compared to 2004. Thus, additional private in-cash or in-kind contributions are expected, which may explain possible decreasing attendance rates to some extent. Other factors adding to this are lacking heating in schools or inappropriate clothes and shoes and the low quality of instruction. Thus, although education is free of charge according to the law, in fact, contributions are to be made for several items, what may contradict the official notion to some extent. These expected private contributions should be born in mind during the more detailed discussion of PCF in the following sections.

The per-capita financing scheme

Even at the time the implementation of per-capita financing scheme (PCF) is started, many details still remain unclear, as, for example, the amount of money that is finally allocated to the schools. Based on a total budget of TJS 181.1m (€ 45m; US$ 60m) for general education the allocation per student would be TJS 108 (€ 27; US$ 36). However, preliminary data of allocations to regions suggest that the allocation will be less. The same applies according to planning figures of the Ministry of Finance, which estimated allocation between TJS 55 and TJS 71 per student for Kulyob district (rayon). Since this is a difference of roughly 30 %, it is evident that the consequences for schools will be totally different. In addition, calculations were made with adjustments for smaller schools, linked to reductions in the average allocation per student. It has to be emphasized that the

analyses in this paper reveal that the effects of such changes are very sensitive to even very small changes and will have important consequences for the schools' budgets.

The Deputy Minister himself suggested to rely on an allocation of TJS 74 per student, which should according to the instructions lead to a share of 20 to 30 % left for other recurrent expenditures after teacher salaries being paid. However, it should be understood that allocations to schools are expected to vary between rayons, with those better-off allocating more than those worse-off.

In general, the number of schools that will suffer from insufficient allocations will increase the lower the per-capita-allocation will be. The following table investigates the effects of allocations per student between TJS 45 and 80, while the shaded area depicts the range which is probably close to the final allocation, according to recent information. Furthermore, it considers the effects of different averages of teacher salaries (incl. social security contributions of about 25 %[1]). The middle section is based on an average salary for (formally) high qualified teachers, while the section on the right considers schools whose teachers are less well qualified.

allocation per student and year in TJS	Average teacher salary TJS 70*)		Average teacher salary TJS 50*)	
	required student-teacher-ratio	required student-teacher-ratio (plus 30 % for other recurrent spending)	required student-teacher-ratio	required student-teacher-ratio (plus 30 % for other recurrent spending)
45	18.7	24.3	13.3	17.3
50	16.8	21.8	12.0	15.6
55	15.3	19.9	10.9	14.2
60	14.0	18.2	10.0	13.0
65	12.9	16.8	9.2	12.0
70	12.0	15.6	8.6	11.1
75	11.2	14.6	8.0	10.4
80	10.5	13.7	7.5	9.8

*) incl. social insurance contributions of about 25 %; the figures are rounded up

Table 1: The break-even point of PCF in relation to student-teacher-ratio and average teacher salary

It becomes evident, that the higher the per-student allocation, the lower the student-teacher-ratios (STR) can be to arrive at the breakeven point, where at least the teachers' annual salaries are financed by governmental payments. For example, if the allocation per student is TJS 60, a school with highly qualified teachers requires a STR of 14.0 to pay the

1 However, it should be noted that it is still unclear whether social insurance contributions are to be paid out of schools' budgets.

teachers' salaries, while the school with less qualified teachers needs only 10.0 students per teacher. In contrast, if the allocation per student is TJS 80, the former needs 10.5 students and the latter 7.5 students to pay at least the teachers' salaries.

Thus, a first result is that schools with less qualified teachers arrive at their breakeven point earlier than schools with better qualified teachers, in case schools get the same amount of money independent from the teachers' qualification. A second issue is that this contains an incentive to reduce teacher qualification. This in general suggests that the allocation per student should to be adjusted to teachers' qualification.

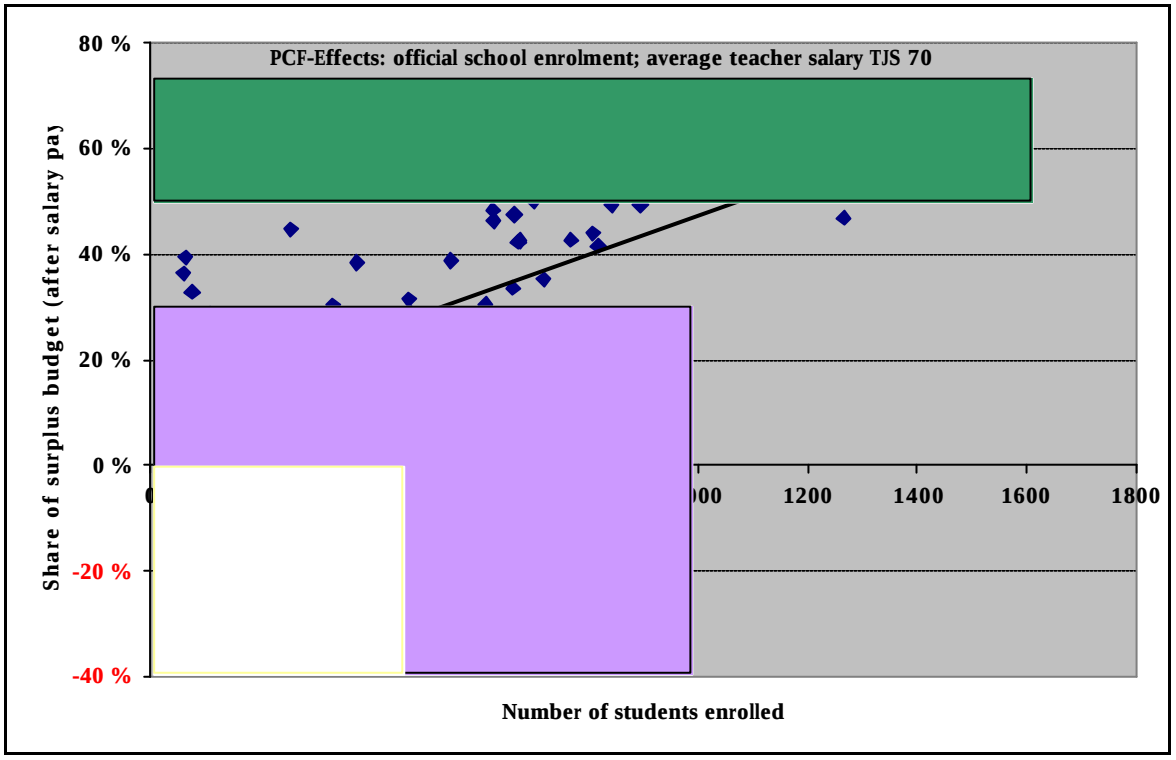
A third finding is that schools with a low STR will suffer from insufficient allocations. On the contrary, those schools with the largest STR will gain most from the introduction of the new system, though large classes do usually not mean high quality teaching. Furthermore, good teaching in larger classes requires highly skilled and trained teachers, which are not only in short supply in Tajikistan but also disadvantaged due to a uniform allocation per student. This leads to the question, whether and how teaching quality will increase, when there is higher pay-off for schools with less qualified teachers.

Thus, even though there may be a reason to increase the STR to improve the efficiency of the education sector in Tajikistan, it should be taken into account that increasing STR or class size is not a goal in itself, but needs carefully to be considered separately for each school (and teacher). Thus, the applied model inherits two major problems concerning teaching quality: an incentive to deploy less qualified teachers and to increase class size and STR.

Furthermore, the following pictures show that particular small schools will be affected by the introduction of the PCF. Based on an allocation of TJS 74 per year and student, some small schools with better qualified teachers will receive a budget allocation that is too low to even pay the teachers' salaries. However, the picture also reveals that not all small school do have the same problem. Some small schools have a budget surplus (after teacher salaries being paid) of 50 % and sometimes even 70 %. Later, it will be analyzed what accounts for such differences between these schools.

In addition to those schools that will not be in a position to fully pay their teachers' salaries there are some other schools with a budget surplus between 0 and 30 %, with the latter being the suggested ratio for recurrent expenditures, other than teachers' salaries. Thus, these schools can pay the teachers, while other staff or supplies can only be paid partially. It depends on each school’s environment and setting what the introduction

of the PCF means to it. Some will be able to pay the support staff but nothing else, others may also be able to finance heating etc.; but neither of these schools will be able to pay for all their non-teacher obligations. Furthermore, some costs may be "fixed", like heating, water or whatsoever. In this case, the most important question for a school director is how s/he can save money to balance the budget. As some items are more or less fixed, the major budget line that is open for changes is salaries, either for teachers and/or for non-teaching staff. Finally, it should be considered that schools with (roughly) more than 400 students do not face the risk of having an insufficient budget in relation to teacher salaries.

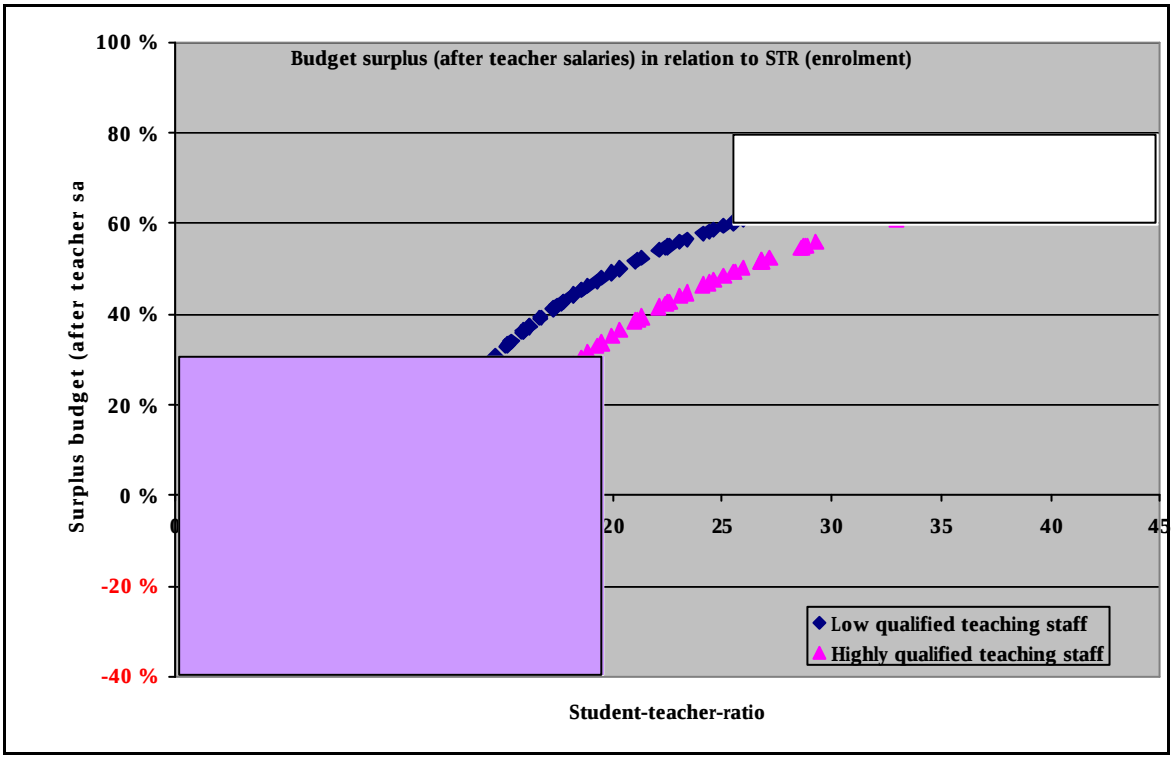


Picture 1: Effects of the per-capita financing model

In contrast to those schools which will suffer there are other schools that will experience a budget surplus well beyond 50 % and sometimes even 60 or 70 %. Most probably, these schools will really gain from the new financing scheme as will be shown later on. Although even some small schools gain an equally high budget surplus, it is particular the large schools that will find themselves in such a good financial situation. All schools with more than 1,000 students will gain a budget surplus of at least 45 %.

In addition, it should be understood that schools with a teaching staff which is on average less well-qualified will be better-off, as was already shown above. The trend line in Picture 1 moves upwards the less qualified the teaching staff is, since salary expenses are lower, resulting in a relatively higher budget surplus.

Above, it was referred to the fact that some small schools suffer a loss, while others do not.. The same applies to other schools as well, where some have a higher budget surplus than others. The next picture reveals why this is the case. It considers the relationship between student-teacher-ratio and budget surplus, again by comparing schools with better and less qualified teaching staff. It becomes evident that there is very strong relationship between STR and budget surplus. The higher the STR, the higher the budget surplus, and vice versa, the lower the STR, the higher the probability to suffer from an insufficient budget. Therefore, small schools with a higher STR are better-off than small and medium-sized schools with a low STR. Furthermore, schools with less well-qualified teachers gain a higher budget surplus than other schools, as the darker line depicts.



Picture 2: Breakeven point in relation to student-teacher ratio

Thus, in accordance with the intention of the per-capita financing system the major strategy to overcome the insufficient budget allocation is to increase the STR; either by

increasing the number of students or by reducing the number of teachers. Increasing the number of students will mainly be a possibility for schools in urban and semi-urban areas, i.e. for schools which already tend to be larger in size and therefore often have a higher STR. However, an increasing student number in one school goes at the cost of another school, where the STR will decrease.

The consequences can be exemplified for some schools in Kulyob district. Most probably, there will be 3 schools that will face problems, school no. 8, 42 and 47. These schools have a STR of 15, 12 and 13. While the first 2 schools are at least medium sized schools (1,344 and 551 students), school no. 47 has only 154 pupils, but 12 teachers (see also Table 2). Thus, the question for the school director is what can be done. Firstly, s/he can try to enroll more students, provided that there are children that are either not yet enrolled otherwise or whose parents are willing to enroll their child at this school. But the core question is, for what reason should the parents be willing to do so? The theoretical expectation that parents select their school on quality criteria is highly challenged by empirical evidence. A number of studies reveal that school choice is strongly related to parents', particularly mothers' educational background and that most parents do not consider alternatives but enroll their child in the nearest school. Thus, the chance to gain additional students seems rather limited. Furthermore, reliable information on the quality of schools is not yet available.

Particularly for poor parents the best motivation is probably related to money, either by reducing costs or by spending some. Furthermore, "ghost-students" may appear on the screen. If per-student allocation is based on enrolment only, there is no incentive to care for children's attendance. On the other hand, an attendance-based model has its rationale but will further complicate the model and its supervision.

Finally, in the advent of competition school directors will be pushed too hard if they are expected to take such decisions since they have never had such a responsibility nore any kind of training. How can they act like "entrepreneurs" when market responsiveness is nearly unknown? Even if there will be some training in January, this is by far too late and probably not directed at solving such problems, but related to the more immediate problems of the new scheme, i.e. budget planning etc.

On the contrary, if a school is not able to enroll additional students, the only other option is to close it down and to transfer the students to other schools "in the neighborhood", provided there is any school close enough, which has capacity to enroll additional

students. For example, the school that is nearest to school no. 47 nearest school is one kilometer off. Thus, this should be close enough to consider a closure of school no. 47 and enroll its students at the other school. But who is supposed to take this decision? For the school director him- or herself this is most probably too big a challenge and, furthermore, s/he cannot take this decision on his/her own as s/he is depending on the capacity of this other school. Thus, the decision has to be taken by the District Education Department. It is not yet clear, whether any provision for such action has already been made, but the consultant guesses that this it not the case.

In addition, there is discussion whether larger schools should take care of smaller schools with an insufficient budget. But, again, the question arises why should a school director re-allocate funds to the advantage of another school and to the disadvantage of his/her own school. It seems highly realistic, that there is no incentive to do so. Thus, it seems that this approach is questionable, at least.

Another option would be to provide additional funds for schools that are otherwise forced to close down, but this would weaken the incentive to increase efficiency and requires provision, i.e. available funds. In addition, this presupposes that not all the budget is spent, but that a certain amount remains at the disposal of the DED or MoE.

Furthermore, Table 2 shows some examples as to how different PCF-approaches might affect small schools. Column 5 reveals that the "breakeven"-allocation per student which balances teacher salaries is roughly thrice the amount for school no. 34 than for school no. 43 (TJS 91 to 32). The difference between both figures is due to different STRs. While the former school has a STR of 9, the latter's is 26. The remaining three schools have a STR of about 13 and would require an allocation of TJS 66 to 67. It should be understood that the per-student allocation that would balance the 30 % surplus to finance other recurrent expenditures than teacher salaries would even be higher. School no. 34 would need an amount of TJS 118 per student, while for school no. 43 TJS 42 would be fully sufficient. The remaining three schools' minimum allocation is between TJS 85 to 87. However, since the final allocation will be about TJS 70, in practice, it seems highly probable that four out of these five schools will face serious problems.

	no. of the school	no of students	no of teachers in 2003	student-teacher-ratio	"breakeven" allocation for teacher salaries*)	distance to the nearest school	distance to the district center, km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
k-h Khamodani	43	78	3	26	32.3	4	14
k-h Amirshoev	34	83	9	9	91.1	17	35
k-h Khatlon	45	100	8	13	67.2	3	11
s-h Nazarov	48	141	11	13	65.5	2	7
Kulyab, center	47	154	12	13	65.5	1	5

*) calculates the minimum allocation per student to balance teachers' salaries

Table 2: Some differences in school's budgets

Thus, without adjustments, neither of these schools will be in a position to finance all their expenditures, and school no. 34 will not be in a position to even pay the teachers' salaries. However, this school cannot be closed down easily since the next school is 17 km away. Thus, there is an urgent need to adjust the allocation formula or to provide solutions for such small schools to avoid problems similar to those presented here. However, it should be mentioned, that the figures applied in this example may differ from other figures for the same schools, since data obviously differ, depending on the particular survey. For example, for school no. 34 it was said that this school has only five teachers and not nine, as indicated in Table 4. Although this is not too important when providing examples at a general level, as in our example, it highlights another issue that is surely of importance, namely insufficient data quality and often even differing information. Thus, there is an urgent need for qualitative and reliable data, since the effects of the implementation cannot be assessed appropriately, otherwise.

Furthermore, whether and to what extent schools will face a problem depends heavily on the amount of money that is allocated per student. To avoid (some) small schools to suffer a loss requires a minimum allocation that is different from the one proposed now, i.e. an allocation that is based on the STR of the particular school (see table above), plus spending for other recurrent expenditures.

The second major option to reduce the number of teachers will usually be difficult to apply in rural and particularly remote areas. For example, school no. 34 in k-h Amirshoev

has 83 students and 9 teachers, i.e. a STR of 9, provided that the number of heads is equal to full-time equivalents. The next school is 17 km away. If this school will not be able to enroll additional students to raise its budget allocation, teachers (and other staff) will have to be dismissed. Whether this might be possible or not cannot be judged without knowing details of teachers' qualifications etc. Furthermore, the question arises, which prescription will be 'stronger': requirements to cover all subjects in the curriculum, or to meet expenditures in accordance with set budget items. However, who is going to take this decision and, in particular, who will be dismissed? And finally, what shall the decision be like?

From an economic point of view, everything may be clear: The decision will somehow be related to teaching quality and salary. Alternatively, non-teaching staff may be dismissed. (Although it seems that the ratio between teaching and non-teaching staff is already absurd in some schools, the need to employ an accountant or bookkeeper even contradicts the intention to reduce staffing number in schools.) However, it should be understood that such a decision is not that easy, since school directors are usually not in a position to change all the factors necessary to address a problem in the most optimal way. For example, one decision might be to either keep a highly qualified teacher by increasing class size and to dismiss another less qualified teacher or to keep the less qualified teacher by reducing class-size, but dismissing the better teacher. If there is no chance to change class size, the most economic decision in relation to budget constraints is to dismiss the better-trained teacher since s/he is more expensive! That this would worsen the quality of instruction at this school may be considered a pity, but what would be the alternative? Thus, it seems worth to discuss an adjustment according to teacher qualification. Furthermore, who guarantees that a school director might not be inclined to minimize conflict or resistance by dismissing one teacher instead of several non-teaching staff? "Having only one enemy in your local community is easier to bear than having five or six." Finally, are school directors sufficiently trained to have a clear view on what the nature of their decisions and which alternatives are available to them?

Taking into account macro-economic effects, it should also be considered that dismissing staff will reduce the income available to a particular village and, thus, affect its economical situation. Furthermore, it may lead to additional spending in other budgets, e.g. in that of the Ministry of Labour and Social Protection (MLSP). However, this should not be understood as suggesting to leave the education sector as inefficient as it is, or to spend the education budget for such purpose, but the overall effects should be taken into

account. And, if staff is deployed in schools for social reasons, their salary should be paid by a budget line other than the education budget.

To summarize the aforesaid, dismissing teachers – without reducing quality – is an option only for schools which have a real surplus of teachers, which, again, is more likely in larger schools. Besides, the question whether the labor market situation politically allows to dismiss teachers, which may be addressed separately, dismissing teachers leaves school directors with many problems, as they are neither yet prepared to take such a decision nor are they able to fully assess the effects and consequences or their decision. However, it should have become evident, that smaller schools in non-urban areas may face problems.

An approach to overcome this problem might be to increase the allocation for these smaller schools. However, it should be taken into account that there is no general need to support small schools, as the following example (only for instructional purposes) shows.

With respect to the example above, where school no. 43 was the smallest school in the sample, but the one with the highest STRs in Kulyob, with 26:1, it should be "warned" to assess this as the most efficient school, unless it has been considered how many vacancies this school has, and which subjects therefore cannot be taught etc. Particularly for those schools with a low STR it has to be investigated how many FTE are employed etc., though this question needs to be addressed with regard to all pilot schools. If the consultant is not mistaken, this has not yet been finalized and figures seem to differ between surveys and data collections.

Thus, the purpose of this exercise was to show that there is a need for detailed analyses and tailor-made strategies to overcome the problems schools might face. It appears that such analyses have not yet been undertaken to the full extent necessary, although the pilot already started. Instead, according to the consultant's analysis there seems to be a huge number of open and unsolved questions and possible problems. Without questioning the need to pilot the effect that every particular scheme would have in Tajikistan, based on international experience the consultant would highly like to recommend a thorough analyzed and designed model for implementation, even for a pilot. If the pilot will not work, which pretty sure will be the case unless major changes are introduced, it may be discredited in general, although the problem lies not with the PCF in general, but with the particular approach chosen. For instance, in Germany the whole PCF approach is now questioned, after two badly designed models of per-capita-financing were introduced and went terribly wrong, as was expected by experts prior to implementation. And neglecting

all warnings and to repair the political damage amounted for one of these cases to millions of Euro!

Furthermore, at the moment the schools with the highest STR will gain most, i.e. the model includes an incentive to increase class size as much as possible. In contrast, there is empirical evidence that students' performance decreases with too big classes, although it is not yet possible to determine a certain number where performance starts to decrease. This depends to some extent on the teacher's qualification and the quality of instruction. Good teachers may very well be able to teach 30 or even 40 pupils at a time, while poorly performing teachers will not be able to adequately teach 15. However in general, it seems realistic that classes of more than 40 or even 50 students are too big to provide quality instruction. Thus, it seems worth to discuss limits for class size and STRs. Another option would be that STRs beyond a certain level will not be financed. Otherwise, there remains an incentive to increase class sizes and STRs as much as possible.

In addition to the problems already discussed there are some other aspects which need further consideration.

Firstly, it should be highlighted that per-student allocations depend on the economic performance of a particular region, i.e. better-off regions will be able to pay higher per-capita allocations than worse-off regions. In addition, schools are expected to generate additional revenues, for example, by offering chargeable educational services, other income generating activities or through textbook renting. However, even without questioning this approach in general, schools in better-off regions and communities will be able to generate more income than those in worse-off regions where parents are already struggling to get (all) their children to school. Thus, again, the economic well-being of the local community strongly affects the revenue expectations, and schools, e.g. in Dushanbe, can expect more income generation through such activities, while this will usually not occur in less developed rural and remote areas. An appropriately designed financing model has to address such differences. Otherwise, schools in rural areas will not be able to perform like schools in urban areas, due to an inappropriately designed financing scheme although these schools may initially be comparatively good. Therefore, from the consultant's viewpoint, fair competition needs a sound basis, since uneven opportunities to operate "in the market" may even disadvantage better schools in rural areas compared to poorer performing schools in urban areas.

Secondly, one may address parents who are already struggling to get their children to school. Often, this is due to the direct and indirect costs, sometimes even hidden or unofficial contributions, linked to education. Thus, it seems appropriate, if not indispensable to compensate for such differences, at least to some extent. Otherwise, quality differences between schools and regions will spread to the disadvantage of rural and remote areas. From a purely economic or theoretical point of view, one may argue that this problem will not arise since schools have an incentive to improve their quality and to gain additional students. However, this neglects that rural schools often do not have this opportunity, due to their local environment. This option comes up against limiting factors, e.g. when all children are enrolled in school and where merging of schools to generate economies of scale is impossible due to distance. From the consultant's viewpoint this is a very strong argument in favor of regional and economical differences in the per-student allocation, as it is already mentioned in the instruction paper, though, to the consultant's knowledge, they are not yet applied.

Thirdly, a more general question is whether the allocation per student is sufficient to cover the corresponding costs and whether the allocation has to be the same for all students independent of age or grade. Are there reasons that may justify different allocations for basic and secondary education students? Is the most appropriate class size or STR the same for all grades or are there justifications for differing class sizes/STRs? Though difficult to answer, the current model implies this without mentioning it! From the consultant's viewpoint and in accordance to empirical evidence it might be better to have smaller classes in the earlier grades and larger classes later. Such a strategy would free money for basic education. Furthermore, it might be worth discussing whether or to what extent there are justifications for a STR that is smaller, on average as in other countries, as, for example, 70 % of school children are living in rural and remote areas. If this is valid, what does it mean for the "appropriate" STR and for international comparisons, which are often providing the floor for comments that the Tajik STR is to small?

The same is valid for special programs, mentioned in the instruction paper as well, particularly if they are linked to higher costs. Otherwise, there is an incentive to close down such programs since their costs are not covered by the allocation. One may also discuss whether higher quality programs as well as better-trained teachers should be linked to higher allocations, since they may be linked to (justified) higher costs. It should be mentioned, that even economists reject per-capita spending, as they fear that it leads to mediocre quality. To the consultant these aspects need consideration, at least in the medium

run. A central performance assessment system, which is according to the consultant's information planned for 2005 or 2006, would be very useful for this issue. This assessment could also provide the basis for reliable data concerning school quality, which is a precondition to enable parents to take rational and well informed enrolment decisions.

Another more general question, for example, is to ask whether the per capita allocation is generally sufficient to cover all costs a school has to bear. As far as the consultant understood, the current spending level seems too low to finance the school/education system appropriately. However, the consultant also understood that the public budget is too limited to increase the spending level appropriately for a number of reasons. In addition, the education system is operating inefficiently. Thus, there is room for improvement within the school system.

Finally, it seems worth noting, that many details of the scheme are still not clarified. For example, it is rather difficult to get detailed information on the (final) per-student allocation and a budget breakdown by line items to calculate the average allocation per student. Furthermore, there should be clarification what finally has to be paid out of the schools' budget: for example, have textbooks, social security payments or capital rehabilitation to be financed by schools? Also, there is a need to employ an accountant, at least on a part-time basis, which increases the costs, as do bank charges, too. It seems unclear, what the minimum costs to run a school are, depending on size etc.

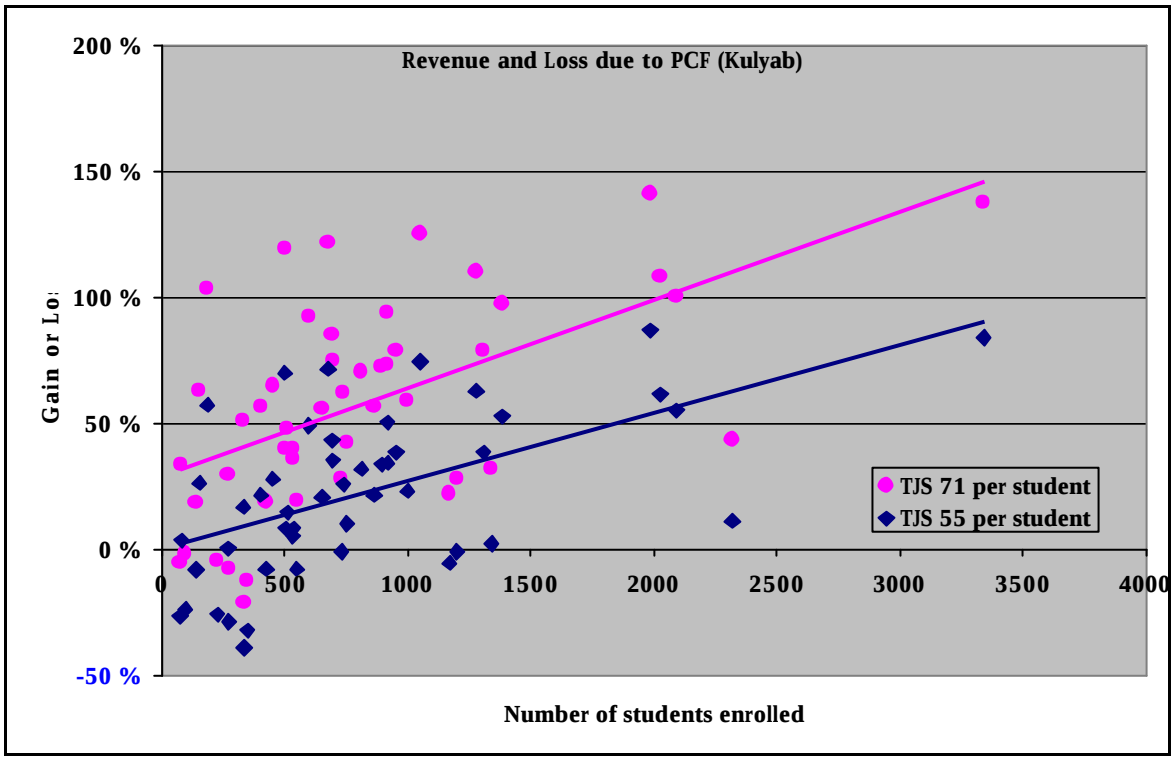
In some discussions it has also been highlighted that even the pilot schools are not in a position, according to effective rules and regulations, to redirect funds from one purpose to another or only within certain limits. If this information is correct, as it seems, the general proposal will not work as good as possible. For example, if 70 % of the budget has to be spent for teacher salaries, how shall a school respond whose funds are insufficient to pay for teachers' salaries? Should it dismiss even more teachers than required to balance its budget? Many more questions are open and need immediate attention.

A final issue relates to the redistribution effects of the new model.

Redistribution effects of the PCF model

The question of redistribution effects is related to the question who wins and who looses due to the introduction of the particular approach that is to be implemented in January 2005. The following sections will highlight that not only an insufficient governmental allocation is responsible for the problems but also the concrete approach chosen.

The following picture reveals that larger schools will gain more than smaller schools in case the PCF will be introduced without adjustments for small schools. The size of the gains and losses depends on the final allocation per student. If the allocation is only TJS 55 per student particularly small schools will receive less than they would have received, when the "old" budget allocation mechanism would still be applied and the allocation would have been increased by 25 % compared to 2003. On the contrary, schools with more than 500 students will be in a better position mostly, and all but one large school will be in far better-off position. If the per-student-allocation is increased to TJS 71 the number of schools whose budget is lower than it would be, if increased by 25 %, in general, is less, but some small schools will still suffer, though less than before.



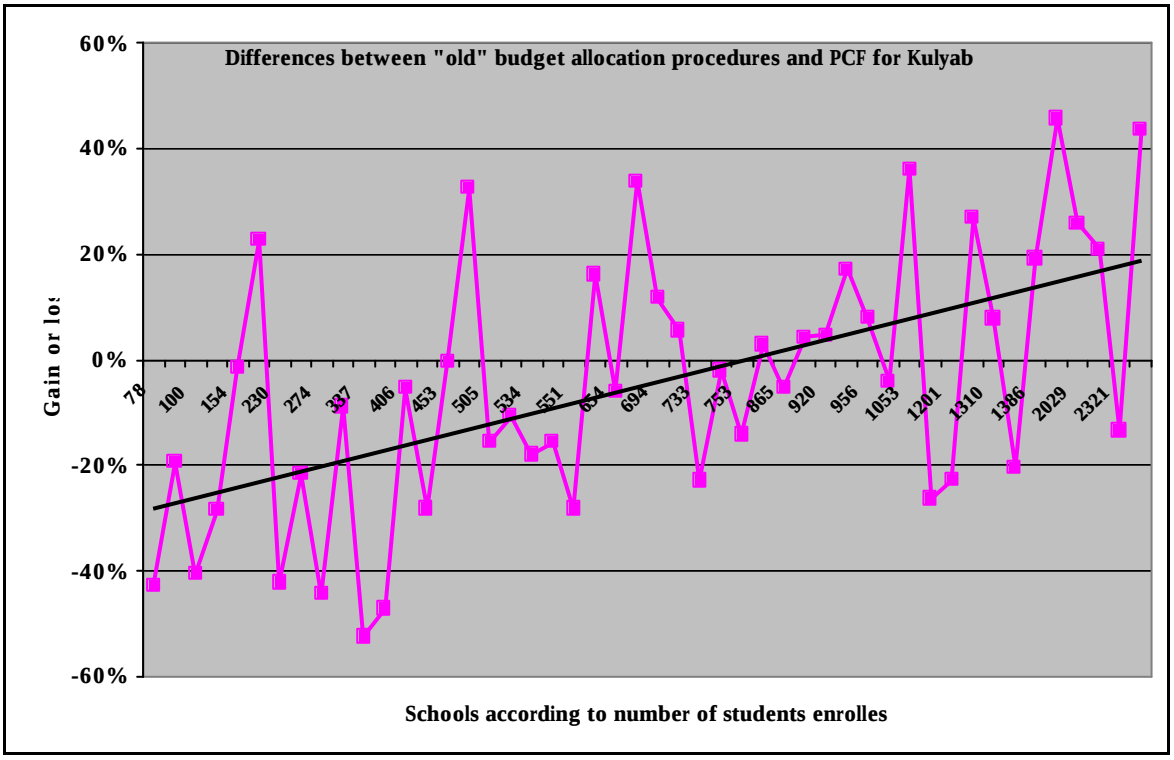
Picture 3: Gains and losses due to PCF

However, since the budget in 2005 is higher than in 2004, the more important question is, what would this will mean for each school's budget and how they will gain or loose in relation to this when PCF is introduced (see).

Here, the underlying assumption is that all schools would have received a budget allocation that is, equally, 25 % higher than in 2003, when the old (input-orientated) budgeting procedure would still be applied. In contrast, due to the introduction of the PCF they

would not receive an allocation according to their number of students. The following pictures highlight these differences.

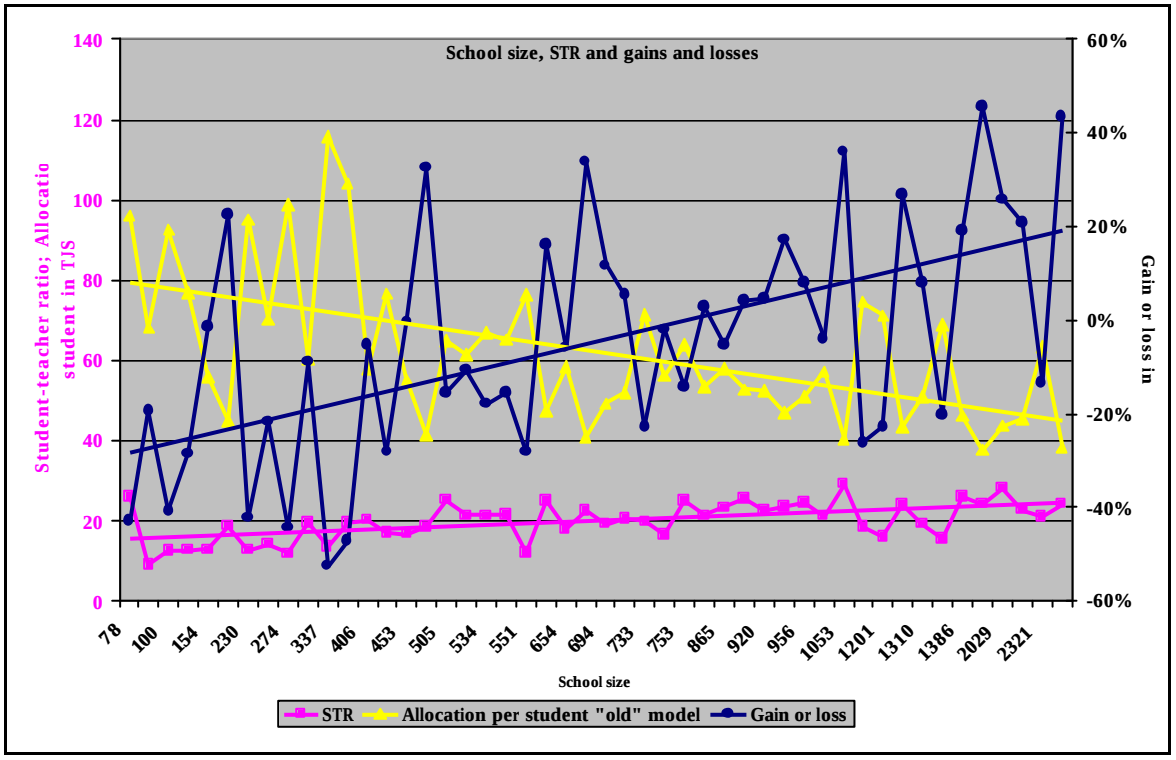
reveals that nearly all small schools will receive a budget allocation that, mostly, is lower by more than 20 % and sometimes by even more than 40 % than the allocation would have been if the "old" allocation mechanism would still be applied, and then (?) increased by the same share to all schools. In contrast, although some large schools, too, receive less due to PCF than with the "old" mechanism, it becomes evident - as indicated by the trend line - that the PCF-approach redistributes to the disadvantage of small schools and to the advantage of large schools. However, there is no standard picture, as gains and losses depend on the environment of the particular school. The question is what accounts for this erratic line.



Picture 4: Gains and losses according to school size

Picture 5 considers the relation between school size, STR and gains and losses due to the introduction of PCF. Since both trend lines increase with the number of students enrolled, the expectation is that large schools have a higher student-teacher-ratio, on average and a higher revenue due to the new model. Thus, for each school there should be a positive correlation between STR and gains or losses, meaning that smaller schools are

more probable to experience a loss since having a smaller STR while larger schools would gain due to their larger STR. However, although this appears to be correct on average, the picture of the two curves does not follow this picture. Instead, when calculating the average allocation a school would receive per student, when the "old" procedure would still be applied in the future, it becomes evident that the schools' provision with money is different. The light line falls clearly downwards when school size increases, which may be an indicator of economies of scale. However, it becomes evident that the "old" model considers such economies of scale or at least adjusts for them, though probably unconsciously or unintended.



Picture 5: School size, STR and gain or loss

Thus, such diseconomies of scale for small schools need to be adjusted for by reducing the allocation per student with school size, i.e. number of students enrolled. The major intention of this section was to show that the new model redistributes funds from small to large schools.

Another question is whether there will be a redistribution from rural to (semi-)urban or from smaller to larger districts. Table 8 reveals that this is not the case in general, at least not for Kulyob district. However, Kulyab center will gain some 10 %, while Ziraki jamoat

and Zarbdor jamoat are expected to get less than they would have received if the old model would still be in place in 2005. In contrast, the more distant jamoats, Dagana and Ziraki, will gain different experiences. While the more distant Dagana jamoat will even gain some 10 %, schools in Ziraki jamoat will loose on average approximately one fourth of their budget although both jaomats differ only slightly with regard to their number of students. Thus, the question of redistribution between rural and (semi-) urban or between smaller and bigger districts still needs investigation. Due to lacking detailed information, this cannot be undertaken in this paper.

	total no. of students	Student-teacher-ratio	Gain or loss in %	allocation per student as per the "old" model	"Average" distance of schools to district centre, kilometer
Kulyab, center	**18,087**	**21.3**	**9.5 %**	**50.2**	**2.5**
Ziraki Jamoat	**6,640**	**19.7**	**-23.3 %**	**71.7**	**13.0**
Dagana jamoat	**6,029**	**23.1**	**9.7 %**	**50.2**	**26.0**
Zarbdor jamoat	**5,210**	**18.9**	**-8.7 %**	**60.2**	**8.3**
Kulyab Jamoat	**3,445**	**20.8**	**13.7 %**	**48.4**	**3.9**

Table 8: Redistribution between rural and (semi-)urban areas

Conclusion and proposal

A more detailed analysis of the effects of the introduction clearly reveals that it is not only an insufficient budget allocation that provides for problems but that the allocation mechanism itself is an even bigger problem. If the budget would be allocated to schools as practiced in former years, many schools, particularly small ones, would have a higher budget than they will receive based on the per-capita financing scheme. Thus, the PCF makes the situation clearly worse than it would have been in the old system. An analysis of the redistribution effects provides clear evidence that the new model will redistribute from smaller to larger schools and from districts with fewer inhabitants to those with more inhabitants. Thus, the latter model turns out to be redistributing funds from more rural to more urban areas. As urban areas are usually economically better off this will increases the economic discrepancies between rural and particular remote and urban areas.

This is the more of a problem as roughly three quarters of the population lives in rural areas and approximately 85 % are living below the poverty line.

To summarize the most important findings:

- Small and in particular rural schools are disadvantaged compared to (semi-)urban schools; they often cannot increase the number of students or dismiss teachers without a reduction in quality of instruction
- Large school with a very high STR gain most and may be able to gain a surplus budget (after teacher salaries have been paid) of more than 50 or even 60 %
- Although the incentive to increase class size and STR to a certain level is appreciated, there is an incentive to further increase them without taking into account the effects on teaching quality
- The model incorporates an incentive to dismiss higher qualified teacher and to keep less well performing ones for budgetary reasons
- Differences in the opportunity to generate income or parental financial support are insufficiently taken into account so far
- School directors are not yet prepared to manage schools after January 1, 2005
- And, finally, many details are not yet specified and analyses of their consequences and impacts on different schools are insufficiently drawn.

Thus, it seems that many questions, emerging from the currently proposed model, are not yet addressed properly. The same applies to analysis of the consequences of the model and the adequate preparation of school directors for their new duties. Even at the ministry level, many questions cannot be answered in all details. If another six months were left, there would still be time to address these issues. According to the consultant's experience – he is working on per-capita financing for more than 15 years and is actually conducting a large-scale assessment – such a change, even as a pilot needs careful and detailed analysis of its effects at the school and district level and thorough preparation to appropriately provide the floor for (necessary) changes in each school. "Throwing the school directors into the cold water"– as a saying goes in Germany – of education management, without training and preparing them accordingly, will surely not solve any of the problems of the Tajik education system. The reader is asked to carefully answer the ques-

tion, whether s/he would like to be in a situation of a school director on January 1, 2005. Who of the readers has already drawn a business plan for a school or a company?

Therefore, even when accounting for the (urgent) need to increase the efficiency of the Tajik general education system and despite of the IMF conditionalities and the fact that the reform process has been started, the consultant would like to suggest that the reform is postponed for about half a year and is commenced starting with the next school year. This could be achieved by allocating only half of the budget to schools and by starting to operate the pilot at the same time only on an "as-if" basis to identify the consequences for the piloted schools themselves. In this case, the school directors could gradually get ready for the introduction of the new financing scheme, in co-operation with international agencies and the district DEDs. This would provide school directors as well as department and ministry officials with sufficient time to develop a strategy for action and improvement. Beginning with the new school year in the second half of 2005 the pilot may start by allocating the second half of the budget directly to schools. For the schools, too, it seems more promising to start a new financing scheme with a new school year, instead of in the mid of the term. This would also allow for developing and discussing the most appropriate strategy for schools and regions.

The introduction of the financing scheme as actually planned on January 1 will require immediate action by school directors during term to ensure that they are not running out of money at a certain time of the year. Even the worlds' top-managers have more time as well as more staff, more consultants and more experience when they have to address such a ‘crisis’. Furthermore, such responsibility is not demanded from them ‘over night’ as it is the case with the school directors.

Finally, the upcoming parliamentary elections may also be taken into account. If the pilot starts as it is planned at the moment, particularly small schools in rural areas, where most of the Tajik population lives, will suffer from insufficient allocations, as possibly will, too, (semi-) urban schools in poorer parts of the villages or towns. Thus, a question, which the consultant cannot answer appropriately, is, whether the experiment in general, if it is mis-conducted, can affect the elections. Though, it might be worth consideration.