

S e c t i o n 3

Achieving
results: options
and priorities for
public policies



*UPE
demands
resources,
an efficient
use of these
and effective
management*

The first section showed that no country develops in economic and human terms without moving nearer to Universal Primary Enrolment (UPE). Crossing the 70-75% threshold for the Primary Completion Rate (PCR) also triggers off the formation of human capital fostering both an alleviation of poverty and a reduction of disparities. As the saying goes in Cameroon: «It's the last strike of the axe which chops the tree down».

The second section noted that although certain countries were progressing sufficiently to give reason to believe they may attain Universal Primary Enrolment (UPE) in 2015, in line with the Dakar EFA and the New York Millennium Goals, others show a recent tendency to insufficient growth.

It is now important to scrutinize key current policies in the different countries and to compare their efficiency in terms of quantity, quality and equity. The comparative empirical approach is used to identify the key factors of success and therefore to assess (1) the constraints prevailing in each country and (2) the room for manoeuvre within systems to facilitate a move towards quality UPE and a balanced and efficient education sector policy. The underlying idea is that to make progress in many countries, it is crucial to ensure better management of education systems by public authorities on the basis of education policy options chosen (and not imposed by the system itself), discussed nationally and accepted by all for their impact on the common good and lasting development. These past tendencies, inadequate in many countries, can be accelerated by the influence of more efficient public education policies. It is the choices made today which will determine the Africa of tomorrow.

In view of the fact that the success of education systems is dependent on (1) a sufficient level of resources, (2) an efficient use of the resources and (3) the successful implementation of quality education based on good management, this section is divided into three corresponding parts. The first part examines the mobilization of resources for the education sector. The second part analyses the various (more or less efficient) policy options within the overall budgetary constraints for the education sector. In particular, this part deals with the question of various trade-offs with which policy-makers are faced as well as the crucial question of pupil flow management. Finally, the third part looks into the issues of system management, under the dual spectrum of the allocation of means in schools and that of the transformation of these resources into results (quality and survival).

3.1 Adequate mobilization of resources: a budgetary priority for education consistent with commitments to «Education for All»

Even though direct donor funding is necessary in many countries to achieve ambitious goals (UN Millennium Project 2005b, Gersher 2005, Bruns *et alii.* 2003), the main funding of current expenditure of the education sector stems from domestic revenues. A commonly used measure of a nation's will to develop its education system is the current public expenditure on education expressed as a % of GDP (national wealth). The share of GDP allocated to education provides a reference point in respect of nationally available resources (as it is the case for other social sectors) and in respect of the long term sustainability of public policies.

An examination of current public expenditure on education as a % of GDP for all African countries shows extreme differences. On the continent, the current public expenditure on education ranges from 0.4% of GDP (DRC) to 9.6% (Lesotho). The statistical mid-point⁴⁷ on the African continent is 3.2%. Considering total public expenditure (including capital expenditure), the cross-country average in Africa is 3.9% of GDP, higher than the Asian average (3.2%) but lower than the averages observed on other continents (4.3% in South America, 5.2% in Europe, 5.6% in Pacific and 5.7% in North America-Caribbean).

The differences between countries as regards resources available for education are the combination of differences concerning two factors: (1) the «macro-economical/fiscal» capacity of the government to appropriate national resources (exogenous factor for the education sector) and (2) the priority accorded to education which is expressed by the budgetary allocation attributed to it, in relation to all the other budget allocations (the education ministry(ies) are not the only «spending» ministries and each one negotiates to obtain the most sizeable share of the budget). In the countries where education expenditure is not up to the level that it should be, the methods to increase the resources depend on the country's situation concerning the two points above.



47 The statistical mid-point of a series of values is the mid-point value: half of the African countries have a value higher than the mid-point and the other half have a lower value.

Table 3.1: Macroeconomics constraints and budgetary priority for education

Mobilization of domestic resources (macro-economics/fiscal context)		Education as a budgetary priority					
		LOW (Current public expenditure on education < 20% of government domestic revenues; average 13%)			HIGH (Current public expenditure on education > 20% of government domestic revenues; average 25%)		
		Current public expenditure on education as			Current public expenditure on education as		
LOW (Government domestic revenues ≤ 16% of GDP; Average 12%)	GROUP F	% of GDP	% of Gov. Rev.	GROUP D	% of GDP	% of Gov. Rev.	
	Average	1.7	14.8	Average	2,9	25,4	
	Togo	2.7	18.3	Sierra Leone*	3.7	31.3	
	Rwanda	2.4	18.9	Benin	3.6	22.6	
	Guinea	2.0	18.4	Tanzania	3.6	29.7	
	Sudan	1.8	16.2	Uganda	3.2	30.1	
	Cent. Af.Rep (CAR)	1.2	10.0	Mozambique	3.0	21.0	
	Dem.Rep.Congo (DRC)*	0.4	7.1	Niger	2.6	24.1	
				Madagascar	2.5	22.8	
				Burkina Faso	2.4	21.9	
				Chad	1.9	24.9	
	AVERAGE (Government domestic revenues between 16 and 22% of GDP; Average 19%)	GROUP E	% of GDP	% of Gov. Rev.	GROUP B	% of GDP	% of Gov. Rev.
Average		2.7	14.6	Average	4.6	24.5	
Comoros		3.7	19.6	Ghana	5.2	25.3	
Senegal *		3.7	18.2	Malawi	4.8	26.0	
Mauritius		3.3	18.3	Côte d'Ivoire	4.3	24.5	
Burundi		3.1	16.4	Gambia	4.1	22.0	
Ethiopia		3.0	15.9				
Mali		2.7	16.6				
Cameroon		2.9	15.1				
Guinea-Bissau		2.1	11.7				
Zambia*		2.0	11.1				
Equatorial Guinea		0.6	2.9				
HIGH (Government domestic revenues > 22% of GDP; Average 31%)	GROUP C	% of GDP	% of Gov. Rev.	GROUP A	% of GDP	% of Gov. Rev.	
	Average	3.3	10.7	Average	6.5	24.1	
	Namibia	5.9	18.5	Lesotho	9.6	24.3	
	Seychelles	4.7	13	Zimbabwe	7.1	30.1	
	Gabon*	3.9	16.1	Kenya	6.4	27.6	
	Mauritania	3.9	14.1	Morocco	6.0	23.2	
	Algeria*	3.5	8.7	Tunisia	5.8	20.5	
	Nigeria*	3.5	8.6	South Africa	5.3	21.5	
	Swaziland	3.5	13.7	Cape Verde	4.9	21.7	
	Congo	2.8	10.2				
	Angola	2.6	6.7				
	Eritrea	1.9	7.5				
	Botswana	1.9	4.9				
	Egypt	1.3	5.9				

Note:
Year 2002 or close, «*» stands for total expenditure (including public capital expenditure).
Current public expenditure on education is the combination of those indicators:
1. Government domestic revenues as % of GDP
2. Current public expenditure on education as % of government domestic revenues.

Table 3.1 classifies the countries in six categories.

- **Group A** countries are those whose education systems are the most well provided for: Governments have a high mobilization of the domestic resources and Education has a high budgetary priority. The resources channelled into education in these countries are the highest (an average of 6.5% of GDP in this group, from 4.9% in Cape Verde to 9.6% in Lesotho).
- **Group B** countries are also countries where the education systems are privileged. Education is high on the list of budgetary priorities. They stand out from those of Group A by a slightly lower capacity for mobilization of the domestic resources, essentially due to less significant economic development⁴⁸ (the average GDP per capita of this group is only 247 US dollars). The education resources vary in this group from 4.1% of GDP (Gambia) to 5.2% (Ghana) and the group average is 4.6%.
- **Group C** countries benefit from a better than average capacity to mobilize resources but suffer from a lack of budgetary priority for education. Current education expenditure ranges from 1.3% of GDP to 5.9% (average 3.3%) in this group. Owing to a high level of GDP per capita for most of these countries (average of 1,955 US dollars) or substantial oil-producing revenues (Angola, Nigeria, Gabon for example), these countries benefit from quite a high resource for education. **However, there is still room for manoeuvre to increase resources intended for the education system, through a negotiation with the Ministry of Finance and the other Ministries for an increase in the State's budget for education.**
- **Group D** countries are those with a severely limited capacity to mobilize resources (low resources for the Government) but this difficulty is compensated by a high budgetary priority for education. The current education resources range from 1.9% of GDP to 3.7% (average 2.9%) in this group. **The solution in order to increase resources for these countries resides in the macro-economics/fiscal field, whilst bearing in mind that progress in this field is slow and dependent on economic growth.**
- Conversely, **Group E** countries benefit from a greater ability to secure domestic resources (between 16 and 22% of GDP for Government revenues, relatively high in view of the low economic development level of these countries - an average of GDP per capita equal to 312 US dollars, excluding Equatorial Guinea and Mauritius, which are atypical countries in this group) but suffer from a lack of budgetary priority for education. The resources for current education expenditure represent on average 2.7% of GDP (from 0.6 to 3.7% according to the countries). **There is, as for Group C countries, room for negotiating the share for education in the Government budget⁴⁹.**
- Finally, **Group F** lists the countries that are exposed to a difficult macro-economics/fiscal context and a lack of priority for the education sector in budgetary discussions. Consequently, the resources available for current education expenditure in these countries are the lowest (only 1.7% of GDP on average, from 0.4% in DRC to 2.7% in Togo). **The recommendations put forward for Groups E and D also apply for the countries in this group: to increase the resources available for the education system, it is important to (1) improve macro-economics/fiscal policy and (2) renegotiate the share of the national budget given over to education.**

The countries do not all have the same constraints and do not demonstrate the same priority for education

The availability of resources is obviously a pre-condition for the development of education systems, but it is not by any means sufficient. The use of available resources is of vital importance, perhaps even greater than the resources themselves. The differences between countries in this field should be documented, by examining current sector and sub-sector policies. This is the subject of part 3.2.

⁴⁸ Several studies have shown that the fiscal pressure rate increases in relation to GDP, see for example Chambas (2004).

⁴⁹ Senegal constitutes an exception regarding this recommendation, as the 2004 and 2005 budgets show an important increase in the education allocation.

3.2 A genuine efficient sector-wide policy: credible and sustainable policy choices

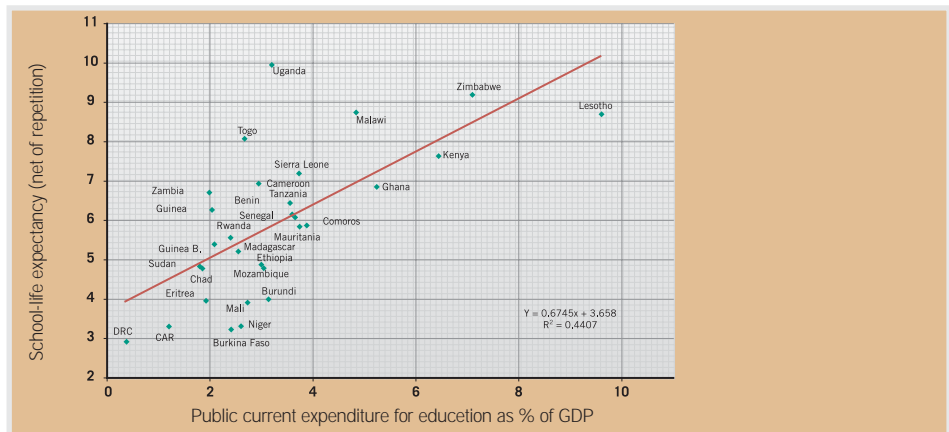
The availability of resources is not enough to develop education systems. As shown in graph 3.1, there is a tendency towards better results in countries which spend more on education, but there are also variances around this tendency. Certain countries obtain better results for equivalent expenditure, which means a higher capacity for transforming available resources into educational coverage (a better efficiency).

A national financial priority for education is not either a guarantee of equity in the distribution of educational human capital which is, as shown in Section 1, an important condition in order that the education system's progress brings about economic growth. Even if a propensity exists for improved equity in the distribution of resources as education expenditure increases (see graph 3.2), we also observe that within a same level of expenditure the countries differ greatly in terms of concentration of this expenditure to a restricted number of individuals. For example, amongst the countries spending approximately 3% of GDP on the current functioning of their education system, the share of this expenditure accumulated by the 10% of individuals proceeding with the longest studies ranges from 25-30% (Comoros, Guinea Bissau, Togo) to over 60% (Burkina Faso, Burundi, Rwanda, Niger).

The transformation of resources into results counts even more than the resources themselves

Source: authors' calculations, countries with GDP per capita under 900 US dollars, year 2002/03 or close; for the school life expectancy (net of repeaters) see Amelewonou et al (2003b).

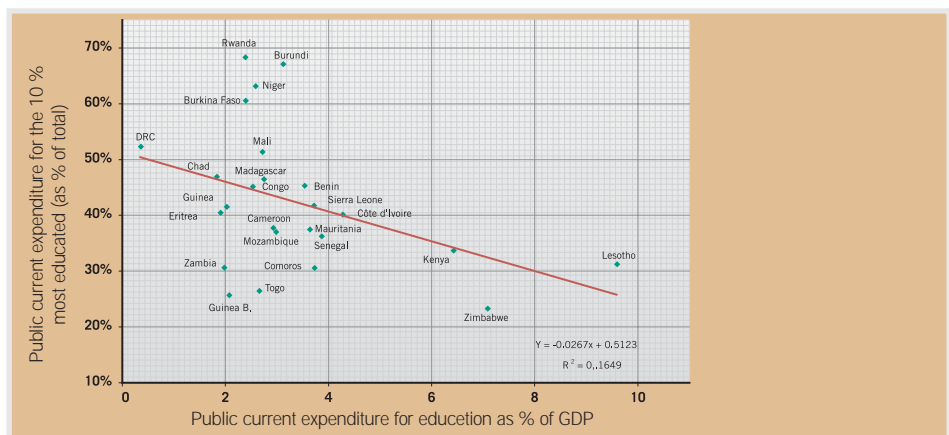
Graph 3.1: Quantitative efficiency of systems



The efficiency of policies varies greatly from one country to another

Source: authors' calculations, countries with GDP per capita under 900 US dollars, year 2002/03 or close; for the % of resource to the 10% more educated people, see inset 1.2 in section 1.

Graph 3.2: Equity efficiency of systems

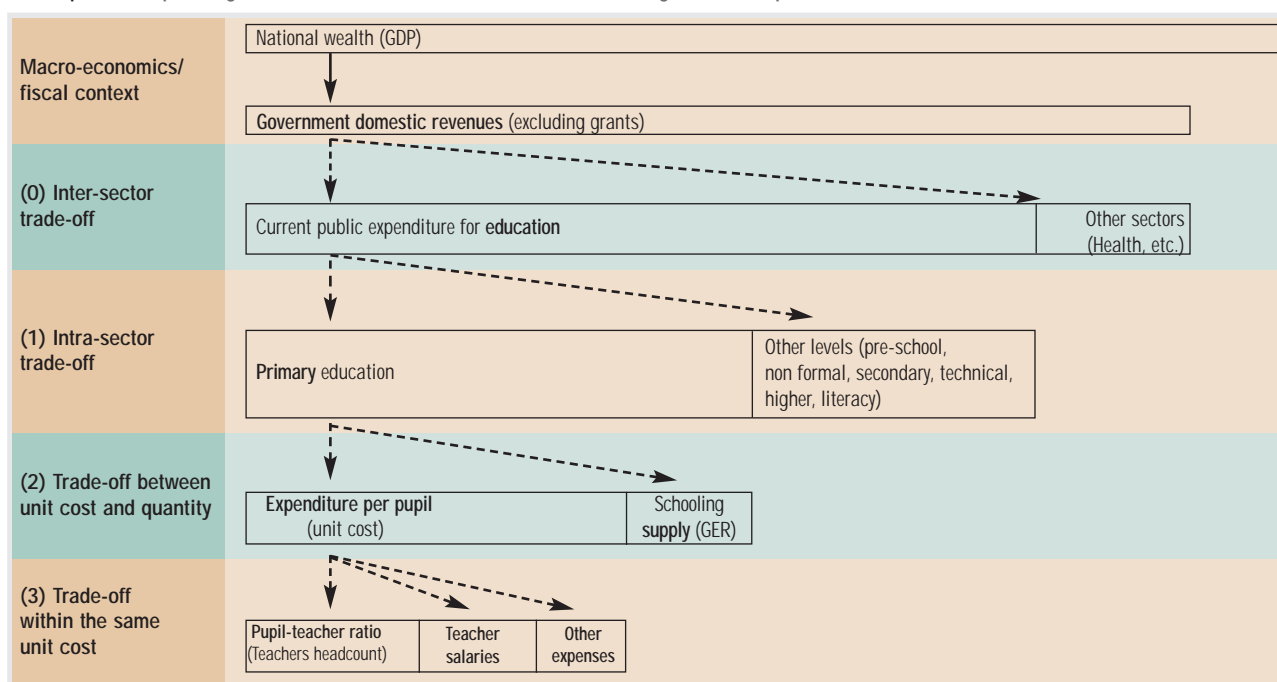


The pillars of education policies are the choices in the use of resources

In other words, there are several ways to use the available resources and they are not equally efficient (see also Amelewonou and Brossard, 2003a) whether in terms of quantity of education supply, of equity in the distribution of this supply or of quality (see graph 3.18 in section 3.3.2). It is the choice in the use of the global envelope for education that are the first levers of education policies able to influence results in terms of quantity, equity and quality⁵⁰. **These choices (trade-offs), with which the policy-makers in the education ministry(ies) are confronted, can be ranked at three levels (see graph 3.3):**

- the first trade-off regards the **choice of allocation of resources to the various sub-sectors or education levels** (pre-school, primary, literacy, non-formal, general secondary, technical and professional, higher education).
- the second major trade-off regards, at each level, **the allocation between the quantity of pupils enrolled and the expenditure per pupil (or unit cost)**, knowing that, within a given budget, the more enrolled pupils there are, the lower the unit allocation, and vice versa.
- the third trade-off is, still for each level, **at a given unit cost**, in the factors which constitute the unit cost (generally speaking, a trade-off between **teacher salaries, the pupil-teacher ratio and expenditure excluding teacher salaries**).

Graph 3.3: Sequencing of trade-offs in the mobilization and use of the global envelope of resources for education



Education systems always adjust in one way or another within the budgetary constraints at each of these three trade-off (for example, for a given budget, the higher the allocation to primary level, the lesser will be available for other levels). In some countries the choices made result from a societal consultation; in others no explicit policy exists and the implicit choices stem from the effect of habit and the sum of individual pressures and lobbies. The idea here is to document these choices (or absence of choices) in a comparative perspective in order to (1) assess the rooms for manoeuvre and constraints (both different from one country to another) at the different levels and (2) propose consequent steps to be taken to move towards a balanced and efficient sector policy and therefore no longer let the system adjust itself.

⁵⁰ The options for improving the quality (learning) are dealt with in part 3.3 of this section.

3.2.1 Choosing the distribution of expenditure by level: adapting the intra-sector trade-off to the common good

The first major policy choice is the distribution of resources by level of education

In the same way as the Government resources are shared between the different sectors (education, health, etc.) the resources available for the education sector are shared between the different education levels (from pre-school to higher education), which sometimes come under different ministries⁵¹. The advocates of each level argue, and one can well understand, that the choice of shares allocated to each level constitutes the linchpin of sector policy. The intra-sector trade-off (the share allocated to education) indicates the surface area of the «sector policy house» under construction. The inter-sector trade-off (the distribution of resources by level) informs us about the number and size of each of the types of room in the house, knowing that these have to be, as much as possible, adapted to the family's needs. For example, if there are more children, it is logical to have more bedrooms (or more sleeping space). In the same way, if a country is behind in primary schooling and if this is the first priority of education policy, this has to be reflected in budgetary terms in the distribution of public expenditure for education. Generally speaking, the intra-sector allocation of resources is the prime lever for giving priority ranking to system development. This hierarchical structuring must as far as possible be consistent with the common good of the nation. As pointed out in Section 1, it requires (1) universalization of the base of the education pyramid (primary education for countries with low achievement rates, and lower secondary for countries more advanced in terms of primary education) and (2) improved adequacy of the top of the pyramid for economic needs (avoid producing students at high cost for the nation, who exit upper secondary, technical and higher education, unable to find a job suited to the training received or not finding a job at all).



⁵¹ Amongst information we have on 46 African countries, 21 have only one Ministry of Education, 13 countries have two ministries, 10 countries have three ministries and 2 countries have 4 ministries.

⁵² Because of lack of data, unfortunately it is impossible to distinguish in the secondary education expenditure between those for lower secondary, upper secondary, and technical education.

⁵³ This result is consistent with the presence of a great number of African countries with (at least) two ministries in charge of education, one for the primary and secondary levels (and therefore the distribution between primary and secondary education is a direct prerogative of this ministry) and one for tertiary education (whose budgetary allocation is chosen outside of the Ministry of Education: very often by the Ministry of Finances and the Parliament).



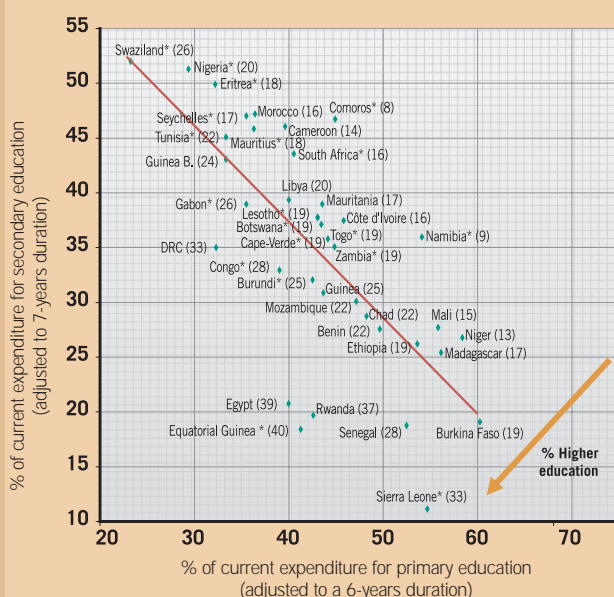
3.2.1.1 The distribution of resources by level is very variable across countries...

Graph 3.4 shows an inventory of the choices in terms of intra-sector trade-offs existing in African countries. The comparative perspective therefore classifies the countries according to the degree of priority granted to each main level: primary, secondary (including technical education) and higher education⁵². Three main findings emerge from the graph:

1. There is a great variability between countries with regard to the main levels. The share of current education expenditure allocated to the primary level (taken from a six year enrolment period) varies from 23% to 62% (mid-point 44%), to the secondary level (seven year period) from 11% to 52% (mid-point 36%) and to the tertiary level from 8% to 40% (mid-point 19%).
2. There is a negative correlation between the «primary» share and the «secondary» share ($R^2 = 0.52$) and the correlation is higher than those observed with the other possible combinations (0.05 between % primary and % tertiary and 0.27 between % secondary and % tertiary). This underlines a trend in the way the trade-offs operate in African countries at the moment: **the share allocated to tertiary is more «exogenous» than those allocated to primary and secondary education, and therefore less favourable to change⁵³**. This result is important for debating the student flow management policy (cf. Section 3.2.4.2).
3. The straight line shown on the graph represents the average relation between the «primary» share and the «secondary» share. A country's position in relation to the straight line distinguishes between the various countries according to the remaining share, i.e. the part allocated to higher education. The countries below the straight line are those which give the most priority to higher education in the intra-sector budgetary allocation.

The distribution of resources by level of education varies a great deal from one country to another

Graph 3.4: Distribution of the global education public expenditure envelope by main education level



Source: authors' calculation, year 2003 or close.

Inset 3.1: Note relative to graph 3.4

1. Because the financial data on the other levels of education (pre-school, literacy, non-formal) is inadequate, the budgetary shares allocated to these levels (low in relation to the main levels) are not included here and the primary-secondary-higher total has been restored to 100% to compare the countries.

2. Because as the duration of educational cycles vary from one country to another, it is wrong to compare the % of expenditure allocated to each level on the basis of raw figures. To correct this, the percentages have been adjusted to correspond with the structure of the duration of the most common primary and general secondary levels in Africa (6 years duration for the primary level and 7 years duration for the general secondary level).

3. The graph can be read horizontally to obtain the share of the primary level, it can be read vertically to obtain the share of the secondary level but it is also possible to read it diagonally to obtain the share for higher education: the sum of three percentages being equal to 100% (see note 1), the more a country is situated towards the left hand lower corner of the graph (low primary and secondary %) the higher the share allocated to higher education. The % figure allocated to higher education is given in brackets beside the country.

4. The countries with an asterisk are those for which the distribution by level has been calculated from the overall public expenditure (including capital expenditure).

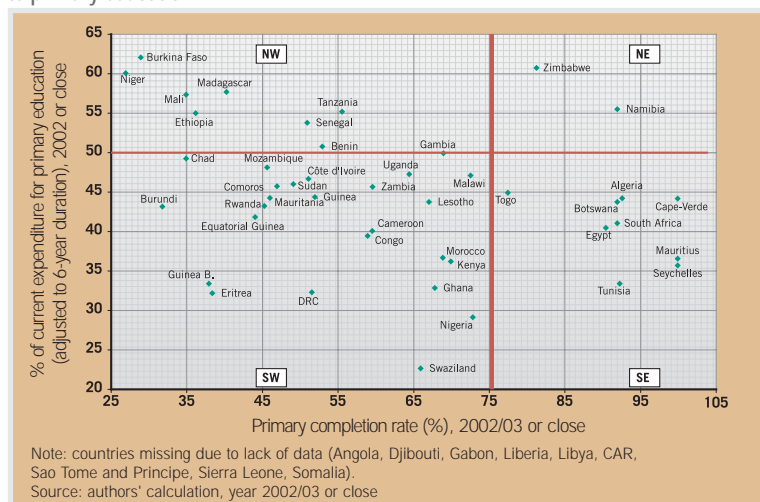
3.2.1.2 ...and the priority for primary education varies from one country to another

All African countries, by signing the Dakar framework for Action, have undertaken to make Universal Primary Enrolment their first priority; however, it is important to distinguish between countries according to their progress towards Universal Primary Enrolment (UPE).

Graph 3.5: Progress towards Universal Primary Enrolment (UPE) and priority given to primary education

The priority for primary education is very variable across countries...

If it is certainly necessary for the countries far from UPE to allocate a large share of their resources to primary education, this is not true for the countries that have attained or are close to UPE. These countries must now increase the development of the post-primary levels and therefore allocate a larger share to these levels. Graph 3.5 classifies the countries according to the two dimensions, the progress level in terms of primary enrolment and the degree of priority given to this level. The countries are classified in four categories represented by the graph's four quadrants.



Note: countries missing due to lack of data (Angola, Djibouti, Gabon, Liberia, Libya, CAR, Sao Tome and Principe, Sierra Leone, Somalia).
Source: authors' calculation, year 2002/03 or close

- The **North-West** quadrant (**NW**) groups the countries where the primary completion rate is low or average (below 75%) and where primary education is favoured in the distribution of expenditure for education (primary share exceeding 50%). These are the countries for whom the intra-sector trade-off matches their stated aim of making Universal Primary Enrolment a real priority: Burkina Faso, Ethiopia, Gambia, Madagascar, Mali, Niger, Tanzania and, to a lesser degree, Benin and Senegal.
- The **South-East** quadrant (**SE**), on the other hand, groups the countries for which Universal Primary Enrolment (UPE) is a reality or almost (Primary Completion Rate [PCR] exceeding 75%) and whose current expenditure share allocated to primary education is below 50%. For these countries also, the trade-off is consistent with the shape of the education pyramid; education development priorities are now situated on the side of post-primary levels and the allocation of expenditure is consistent with this policy choice. This group mainly includes the most developed African countries (Tunisia, Mauritius, etc.) and Togo, even though Togo is near the South-west quadrant.
- The **North-East** quadrant (**NE**) has the least number of countries (only Zimbabwe and Namibia). These two countries grant a high budgetary priority to primary education (61% and 55% of education expenditure respectively) despite a high primary completion rate (81% and 92% respectively⁵⁵). In these countries, the post-primary levels could be under-funded (for example, the share allocated to higher education in Namibia is only 8.7%, very much lower than the African mid-point level of 19.4%) and there is probably good reason to review the budgetary trade-offs for secondary and higher education.
- The **South-West** quadrant (**SW**) raises the most questions. It contains countries where primary education budget allocation is not a real priority (primary education share below 50%) despite the fact that they are a long way from the Universal Primary Enrolment goal (PCR below 75%). This absence of priority for the primary cycle favours either secondary education, or higher education, or both. **For these countries, a readjustment of the intra-sector trade-off in favour of primary education is definitely an action strategy to be seriously considered.**

...including across the countries furthest from Universal Primary Enrolment (UPE)

54 50% has been chosen as the reference value due to the fact that it corresponds to the average value observed in the countries achieving the highest levels of UPE, and has been consequently become the target value in the indicative framework of the Fast Track initiative, see Bruns et al (2003).

55 This can be explained by the high unit costs in these two countries. As in Botswana and South Africa (which are near the North East quadrant), these countries, after having lived in a dual education system (one high quality school system for white people and one low quality system for black people) are upgrading the whole system to the higher standard. For example, in Namibia, pupil-teacher ratios are much better than the African average (the pupil-teacher ratio for primary education is 22 as compared with the average which is 42).

3.2.1.3 Options for increasing the primary share in the countries far from Universal Primary Enrolment

Table 3.2 gives the list of countries in the South-West quadrant (those where primary education has a low budgetary priority despite being far from Universal Primary Enrolment (UPE)) and specifies the relative shares of each main education level. This enables us to assess where there is room for manoeuvre (the education levels whose share could be lowered) in order to increase the relative share of the primary level. This does not mean lowering expenditure on these levels, only their share of total public education expenditure.

The room for manoeuvre is shown in bold characters in the table; it corresponds to the relative proportions for secondary and/or higher education higher than the mid-points observed in Africa. By using this criterion, out of the 18 countries for which the data is available, 9 (Equatorial Guinea, Rwanda, Chad, Mozambique, Guinea, Burundi, Congo, Democratic Republic of the Congo and Zambia) seem to have room for manoeuvre as regards the share allocated to higher education, 7 (Côte d'Ivoire, Lesotho, Mauritania, Cameroon, Comoros, Morocco and Eritrea) for the share allocated to secondary education and 2 (Guinea-Bissau and Swaziland) for both.

■ **Table 3.2: Distribution of expenditure and room for manoeuvre for increasing the primary education share, countries far from Universal Primary Enrolment (UPE) and where primary education has a low budgetary priority**

Countries	PCR	% primary (6 years)	% secondary (7 years)	% higher
African mid-point	57	44.2	35.4	19.4
Burundi	32	43.1	32.0	24.9
Congo	59	39	32.9	27.8
Cameroon	60	40.0	46.0	14.0
Comoros	47	45.7	46.7	7.7
Côte d'Ivoire	51	46.6	37.4	16.0
Eritrea	38	32.1	49.8	18.1
Ghana	68	35.2		
Guinea	52	44.3	30.8	24.8
Guinea Bissau	38	33.3	43.0	23.7
Equatorial Guinea	44	41.8	18.3	39.9
Kenya	70	36.1		
Lesotho	67	43.7	37.7	18.6
Malawi	73	47.0		
Morocco	69	36.6	47.1	16.3
Mauritania	46	44.2	38.9	16.9
Mozambique	46	48.0	30.0	21.9
Uganda	64	47.2		
Dem. Rep. of Congo	52	32.2	34.9	32.8
Rwanda	45	43.2	19.6	37.3
Sudan	49	46.0		
Swaziland	66	22.6	51.9	25.5
Chad	35	49.2	28.7	22.2
Zambia	60	45.6	35.0	19.4

Source: Authors' calculations, year 2002 or close.

56 On this subject, see also Brossard (2004).

3.2.2 Refining the choice between the number of pupils and expenditure per pupil to achieve a quality universal primary enrolment

Once the number of each of the types of room in the «sector policy house» has been firmly established, these have to be fitted out. In the case of bedrooms, for example, there can be a choice between more beds or fewer beds but of a better quality using the same budget. Better quality beds provide better quality sleep, even if, consequently, some children have to sleep on the floor. Education policy-makers enjoy a similar situation: for each level, they can choose between the number of pupils enrolled and the expenditure per pupil (the unit cost, which is hopefully linked to the quality) knowing that, with a given budget, the more enrolled children there are the lower the unit allocation, and vice versa⁵⁶.

A simple mathematical calculation (cf. inset 3.2) reveals the quantity/unit cost trade-off in the form of an equality between, on one side, an indicator of available resources for the level and, on the other, the product of the Gross Enrolment ratio (GER) and of the unit cost of one academic year for one pupil. In other words, with a given level of resources for a level, there is a choice between the system's quantitative offer (represented by the GER) and the unit cost which is hopefully linked to the system's qualitative result.

The second major choice within each level is the choice between the number of pupils enrolled and the expenditure allocated per pupil (unit cost)

Inser 3.2: GER-UC trade-off, example of primary education

$$PCEP = UC \times Ep$$

$$Ep = (1 - \%Pr) \times E$$

$$\frac{PCEP}{GDP} = \frac{UC}{GDP} \times Ep$$

$$\frac{PCEP}{GDP} = \frac{UC}{GDP} \times (1 - \%Pr) \times \frac{E}{SPop} \times \frac{SPop}{Pop} \times Pop = \underbrace{\frac{UC}{GDP/Pop}}_{UCGDPC} \times \underbrace{\frac{E}{SPop}}_{GER} \times \frac{SPop}{Pop} \times (1 - \%Pr)$$

$$\frac{PCEP}{GDPC \times SPop \times (1 - \%Pr)} = UCGDPC \times GER$$

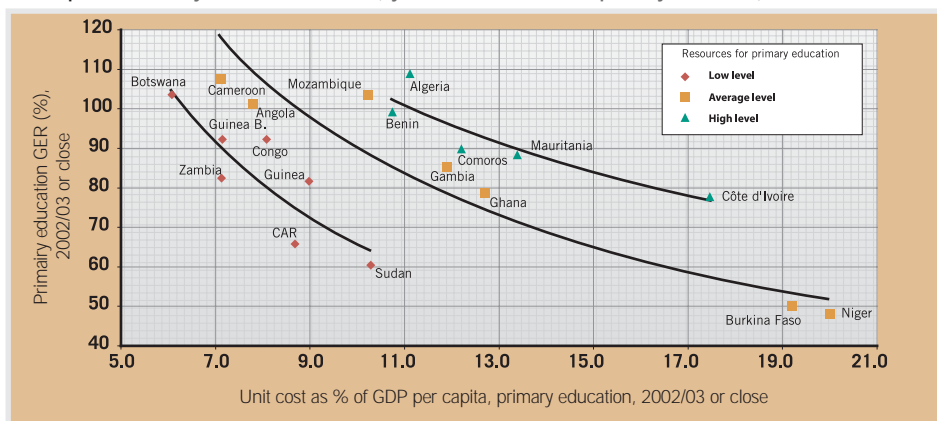
$$RCPE_{relative} = UCGDPC \times GER$$

PCEP = public current expenditure for primary education,
 UC = current cost per pupil (unit cost),
 Ep = number of pupils enrolled in public schools,
 %Pr = percentage of pupils enrolled in private schools,
 E = total number of pupils enrolled,
 GDP = Gross Domestic Product,
 SPop = school-age population (primary education),
 Pop = total population,
 GDPC = gross domestic product per capita,
 UCGDPC = current unit cost in units of GDP per capita,
 GER = Gross Enrolment Ratio,
 RCPE_{relative} = resources available per child potentially enrollable in public schools, expressed in units of GDP per capita.

3.2.2.1 Choices in terms of quantity/unit cost trade-off are extremely variable from one country to another

Graph 3.6 illustrates the choices made (or imposed by the system itself) for primary education by separating the countries according to resources available.

Graph 3.6: Quantity/unit cost trade-off (by level of resources for primary education)



Note: The countries for which the data is insufficiently consistent are not represented on the graph.
 Source: authors' calculations, year 2002/03 or close.

There are large differences between countries regarding the quantity/unit cost trade-off

- There is a wide **variety of unit costs in the different countries**. Whereas certain countries spend 7% of GDP per capita or less for one year of schooling for one primary pupil (Botswana, Gabon, Equatorial Guinea, DRC, Togo) others allocate up to 20% or more (Djibouti, Lesotho, Morocco, Namibia, Niger). This variety is not only explained by the cultural and/or geographical contexts. Geographically and culturally similar countries have very differentiated unit costs. The variety between countries is also very wide for the other levels: from 14% of GDP per capita (in Guinea Bissau, Gabon or Mauritius) to 63% (in Burundi) for secondary education and approximately 50% of GDP per capita (in South Africa, Gabon or Mauritius⁵⁷) to 791% (in Mozambique) for higher education.

57 The lower values observed for certain countries are not considered here because of doubts concerning the data.

- **Excessively high unit costs are detrimental to Universal Primary Enrolment.** For example, amongst the countries with an average level of resources (between 1 and 1.5% of GDP allocated to primary level current expenditure - countries in orange on the graph), we can see that those spending per pupil around 8-10% of GDP per capita (Cameroon, Angola, Mozambique) have Gross Enrolment ratios (GER) exceeding 100% whereas at the opposite extreme, countries with high unit cost (around 20% of GDP per capita) can only achieve a GER of about 50%, much lower than is necessary to attain UPE. On the other hand, excessively low unit costs can have negative repercussions on quality. This point is dealt with in part 3.3 of this section.

To achieve UPE some countries must either increase resources or reduce unit cost, or both

- Because of the link, at a given level of resources, between quantity and unit cost, for a number of countries, achieving Universal Primary Enrolment (GER around 120%⁵⁸) involves either decreasing the unit cost, which is shown on the graph by a movement on the same curve towards the left and therefore towards the top (rise in GER) or increasing the resources available for primary education (see parts 3.1 and 3.2.1), which corresponds to a vertical movement on the graph (for example the movement from one curve to the upper curve), or both.

3.2.2.2 Identifying the room for manoeuvre as regards increase in expenditure allocated to primary education and reduction of the unit cost

To ascertain the type and scale of room for manoeuvre currently available (increased mobilization of resources for primary education and/or reduction of the unit cost), table 3.3 shows, for the countries with a low primary completion rate, the position of the country in relation to the African countries mid-point on two dimensions: the «expenditure allocated to primary education» dimension (column e) and the «unit cost» dimension (column f).

The comparative approach allows to highlight the room for manoeuvre in the system. One considers that the more a country moves away from the African mid-point on one of the dimensions identified above, the greater the room for manoeuvre available in respect of this dimension. For example, in Eritrea the share of GDP allocated to primary education is 2.6 times smaller than for an African mid-point country (0.6 against 1.6%); which implies that a rise would be possible. Conversely, Tanzania raises above-average resources for primary education (room for manoeuvre ratio 0.7) but has a unit cost 1.5 times greater than the African countries mid-point, showing a possibility of downward adjustment to allow UPE. The room for manoeuvre is pinpointed in columns (e) and (f) of table 3.3 by shaded areas.

A comparison with the value 1 of factors of room for manoeuvre in respect of the two dimensions enables the **countries to be classified in three groups.**

- The Congo (1.5 times less resources for primary education than a mid-point African country), Guinea Bissau (1.9), Guinea (1.8), Mozambique (1.2), Rwanda (1.5), Sudan (1.8), Swaziland (1.5), Chad (1.8) and Zambia (1.5) can definitely work towards an **increase in resources for primary education** (either by an increase in global resources for education, or by an increase in the share allocated to primary education). It is perhaps even advisable in some of these countries for the increase in resources be used to raise unit cost which is too low.
- The Comoros (unit cost 1.1 times higher than a mid-point country), the Côte d'Ivoire (1.6), Ethiopia (1.1), Gambia (1.6), Ghana (1.6), Morocco (1.8), Mauritania (1.2), Niger (1.8), Senegal (1.2) and Tanzania (1.5) have, as far as they are concerned, resource mobilization levels for primary education which it would be difficult to raise, leaving only the possibility of a **reduction of unit costs** as an option to attain UPE
- Finally, Eritrea (in reference to the mid-point country, 2.6 times less resources for primary education and unit cost 1.1 times higher), Burundi (1.2 and 1.1 respectively), and Burkina Faso⁵⁹ (1.1 and 1.7 respectively) have **room for manoeuvre in relation to the two dimensions.**

⁵⁸ See 2.1.1.1 for an explanation of the necessity to have a Gross Enrolment ratio of over 100% in order to achieve Universal Primary Enrolment.

⁵⁹ Note that in Burkina Faso, the room for manoeuvre for increasing resources is low (factor 1.1) and cannot be found at inter- and intra-sector trade-off level but should be gained from a rise in fiscal pressure (see section 3.1).

3.2.2.3 Simulation of funding gap if the policy parameters on the resources available as % of GDP and on the unit cost remain unchanged

An alternative interpretation of table 3.3. can be made based on column (h) which gives the funding gap (on current expenditure) to reach UPE in 2015 if the resource mobilization policies and the unit cost remain unchanged⁶⁰. This **funding gap varies greatly from one country to another: from 5% of total current expenditure necessary in Morocco to 67% in Eritrea**. Even if the international community has begun to fund current expenditure, particularly through the Fast Track initiative, it is unlikely that the direct donor funding rates of current expenditure reach the necessary levels for all the countries if the policies remain the same⁶¹. **Excessive dependence on external funding of current expenditure are in any case not recommended** due to the fact that it is: (1) inconsistent with the strategy of government sustainability of public education policies, (2) not well adapted to the funding absorption capacities of States, and (3) very risky in societal terms because of salary funding provided by unpredictable and often variable direct donor aid.

⁶⁰ On this subject, see also Pôle de Dakar (2004c).

⁶¹ High rates of external funding are often observed for capital expenditure. However, for current expenditure, despite the ascendancy of budget and program support, the proportion of external funding remains lower than that of government funding.

This funding gap indicator can also be seen as the difference between the current policies and the efficient policies wished for in order to achieve UPE.

Table 3.3: Room for manoeuvre aimed at achieving Universal Primary Enrolment and funding gap with current policies

Country	PCR (%)	Duration of primary education (years)	% of GDP for current expenditure on primary education	Unit cost at primary education (as a % of GDP per capita)	Room for manoeuvre on expenditure allocated to primary education (relation between the mid-point and the country value)	Room for manoeuvre on expenditure allocated to primary education (relation between the mid-point and the country value)	% of GDP for current expenditure on primary education necessary to achieve UPE with the current unit cost (simulations)	Factor progress necessary on the mobilization of resources with the present unit cost	Funding gap with present mobilization of resources and unit cost (as a % of necessary expenditure)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(g) / (d)	(h) = ((g)-(d))/(g)
Mid-point in African countries	57		1.6	11,2	1.0	1.0			
Eritrea	38	5	0.6	11.8	2.6	1.1	1.8	3.0	67.1
Guinea-Bissau	38	6	0.8	7.2	1.9	0.6	1.3	1.5	35.0
Guinea	52	6	0.9	9.0	1.8	0.8	1.3	1.4	29.0
Sudan	49	6	0.9	10.3	1.8	0.9	1.4	1.6	36.7
Chad	35	6	0.9	11.6	1.8	1.0	2.0	2.2	54.3
Rwanda	45	6	1.1	8.1	1.5	0.7	1.6	1.5	32.4
Congo	59	6	1.1	8.1	1.5	0.7	1.4	1.3	23.1
Swaziland	66	7	1.1	11.2	1.5	1.0	2.4	2.2	54.2
Zambia	60	7	1.1	7.1	1.5	0.6	1.5	1.3	25.5
Mozambique	46	5	1.3	10.2	1.2	0.9	1.8	1.3	23.8
Burundi	32	6	1.4	12.5	1.2	1.1	2.7	2.0	50.5
Burkina Faso	29	6	1.5	19.2	1.1	1.7	3.3	2.2	55.4
Niger	27	6	1.6	20.0	1.0	1.8	3.6	2.3	56.6
Mali	35	6	1.6	10.8	1.0	1.0	1.9	1.2	15.5
Uganda	64	7	1.6	9.8	0.9	0.9	2.1	1.2	18.9
Comoros	48	6	1.7	12,2	0.9	1.1	2.3	1.4	27.0
Ethiopia	36	6	1.7	12.7	0.9	1.1	2.2	1.2	19.1
Benin	53	6	1.8	10.8	0.9	1.0	2.0	1.1	11.1
Ghana	68	6	1.8	17.6	0.9	1.6	2.2	1.2	16.8
Mauritania	46	6	1.8	13.4	0.9	1.2	2.4	1.3	24.8
Senegal	51	6	2.0	13.9	0.8	1.2	2.1	1.1	8.2
Côte d'Ivoire	51	6	2.0	17.5	0.8	1.6	2.8	1.4	28.1
Gambia	69	6	2.1	18.3	0.8	1.6	2.8	1.3	23.8
Tanzania	56	7	2.2	16.3	0.7	1.5	3.0	1.4	26.6
Morocco	69	6	2.4	20.6	0.7	1.8	2.5	1.1	5.4

Note: Countries with unavailable or inconsistent data: Angola, Cameroon, Djibouti, Gabon, Equatorial Guinea, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, CAR, DRC, Sao Tome and Principe, Sierra Leone, Somalia. The countries are classified in decreasing order of the existing room for manoeuvre on the mobilization of resources dimension. Source: authors' calculations, year 2002/03 or close.

3.2.3 Trade-off inside the unit cost for more and better enrolment

Once the per bed expenditure of the «sector policy house» has been set, several options are still possible: at a given unit cost, thicker but smaller beds can be preferable, or an extra blanket may be wanted for possible cold nights to the detriment of thickness and/or size. Each householder makes his choice according to benefits foreseen to obtain better quality sleep. The situation is similar for the education policy-maker: at a given level of spending per pupil, he has various organization options available and it is his role to choose the best option for the quality of the education (so that the pupils learn). The unit cost is determined by three major factors (see technical inset 3.3): the teachers' salaries (main item of expenditure in all the systems), the other expenditure (salaries of non-teaching staff, teaching aids, administration, etc.) and the pupil-teacher ratio (the less pupils there are per teacher, the higher the cost per pupil). Two systems can spend the same amount per pupil but in different ways; for example, one by giving precedence to the size of classes and the other to recruiting better qualified teachers (so better paid).

The third major choice is the distribution by nature of expenditure: teachers salaries, teachers recruited headcount and other expenditure

As for the upper trade-off levels, this sub-heading will aim to (1) document the choices made (or imposed by the systems themselves), using a comparative framework, regarding the three items of current expenditure and to (2) track down the existing room for manoeuvre in decreasing the unit cost in the countries where this is necessary to reach Universal Primary Enrolment (UPE).

■ Inset 3.3: Trade-off within a specific unit cost

$$UCGDPC = \frac{PCEP}{Ep} \times \frac{1}{GDPP}$$

$$UCGDPC = TSal \times \frac{PCEP}{TSal} \times \frac{1}{Ep} \times \frac{1}{GDPP}$$

$$\frac{PCEP}{TSal} = \frac{1}{\frac{TSal}{PCEP}} = \frac{1}{\frac{PCEP-OCE}{PCEP}} = \frac{1}{1 - \frac{OCE}{PCEP}} = \frac{1}{1 - \%OCE}$$

$$UCGDPC = TSal \times \frac{1}{1 - \%OCE} \times \frac{1}{Ep} \times \frac{1}{GDPP}$$

$$UCGDPC = ATSal \times \frac{Tp}{Ep} \times \frac{1}{GDPP} \times \frac{1}{1 - \%OCE}$$

$$UCGDPC = \frac{ATSal_{GDP}}{PTR} \times \frac{1}{1 - \%OCE}$$

or UCGDPC = current unit cost per pupil in units of GDP per capita,
PCEP = public current expenditure for primary education,
Ep = the number of pupils enrolled in public schools,
GDPP = Gross Domestic Product (GDP) per capita,
TSal = salaries of public school teachers,
OCE = current expenditure other than teacher salaries,
%OCE = Current expenditure other than teacher salaries as % of total current expenditure,
ATSal= average public school teacher salary,
Tp= number of public school teachers,
ATSal_{GDP} = average public teacher salary in units of GDP per capita,
PTR= Pupil-teacher ratio in public schools.

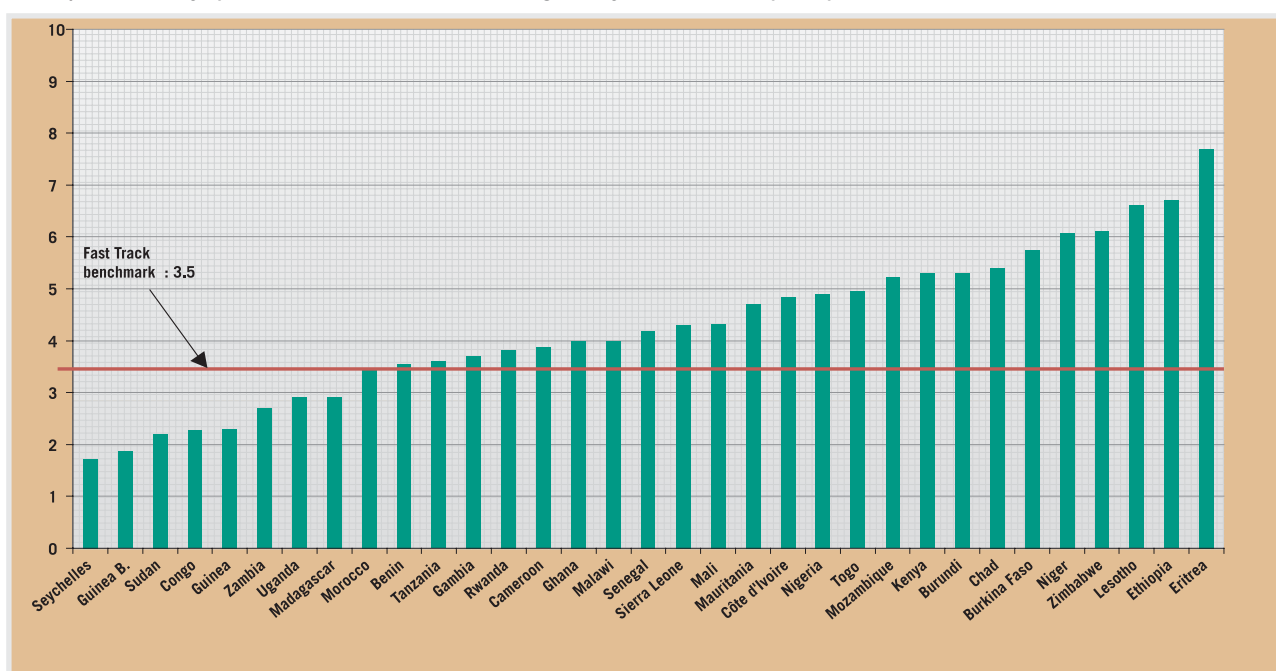
3.2.3.1 Country-specific expenditure allocations

Graphs 3.7 and 3.8 present the situation of African countries regarding the three major spending items making up the unit cost. Like in other education policy parameters, differences from one country to another are significant.

Teachers' salaries vary across countries by a factor of 1 to 5

The average teacher's salary varies from 2 units of GDP per capita or less (Seychelles, Guinea Bissau, Sudan, Congo or Guinea) to about 7 units (Lesotho, Ethiopia or Eritrea). The cross-country average is established at 4.1 Units of GDP per capita, slightly above the value observed in the countries that have been most successful in achieving UPE (3.5) - reference value for the Fast Track initiative Indicative framework (Bruns et al., 2003). Even if this reference does not constitute a standard, it is of interest to compare the value of each country against this yardstick.

■ Graph 3.7: Country-specific differential in teachers' average salary (as units of GDP per capita)



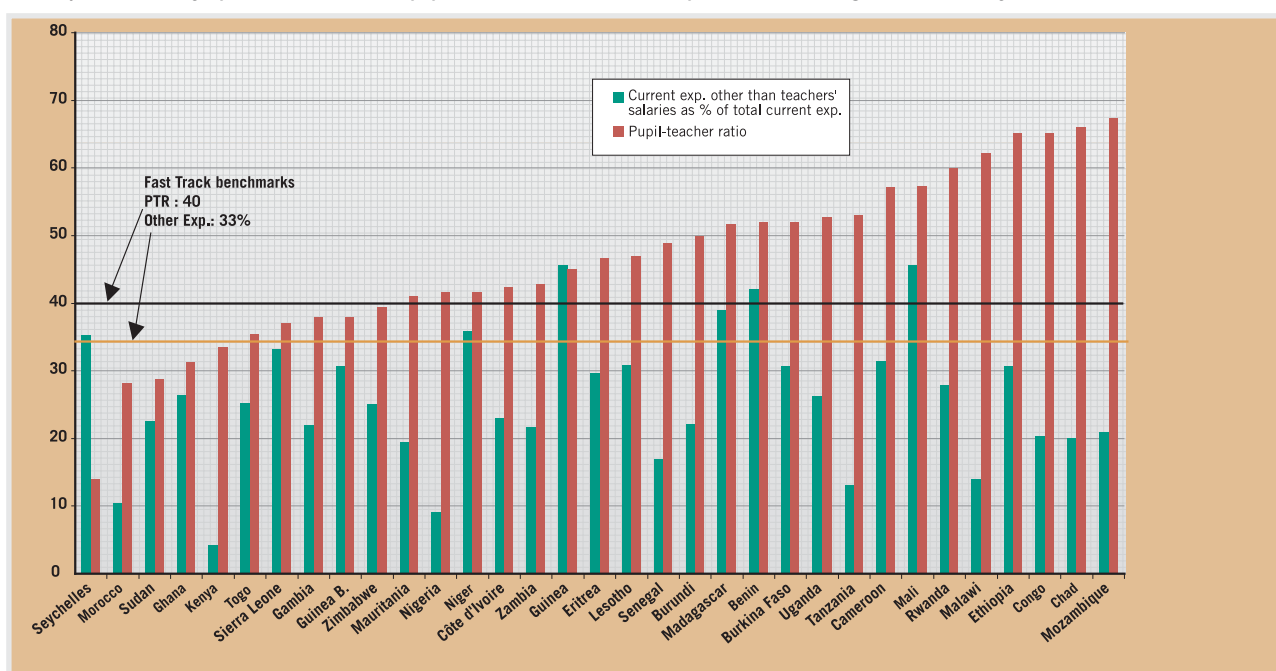
Source: see appended Table 4.

The pupil-teacher ratios vary by a factor of 1 to 4, and the current non-salary expenditure by a factor of 1 to 10

The **pupil-teacher ratio** also varies dramatically from one country to another, by fewer than 30 pupils per teacher in Seychelles, Morocco or Sudan to almost 70 in Congo, Chad or Mozambique. The cross-country average is 41 pupils per teacher, which is very close to the Fast Track reference value (40).

Lastly, there is also a differential in the percentage of current expenditure excluding teachers' salary (salaries of non-teachers staff, pedagogical material, administrative expenses). It amounts to 24.8 % on average but ranges from 4% in Kenya to approximately 45% in Mali and Guinea.

Graph 3.8: Country-specific differential in pupil-teacher ratio and % of expenditure excluding teachers' salary



Note: Only shown here are the countries for which both data is available. Countries for which only one piece of data is available are referred to in the appended Table 4.
Source: See appended Table 4.

3.2.3.2 Identification of rooms for manoeuvre within unit cost for the 3 spending items

The differential observed between culturally/geographically similar countries is proof that rooms for manoeuvre exist. This assures opportunities for change towards UPE. If in some countries policies do not change, chances are that the system will continue being self-adjusting for access to a complete primary cycle for only an elite. Similarly to what was presented for the quantity/unit cost trade-off, Table 3.4 sets out, by countries and using a comparative perspective, the nature and scope of the rooms for manoeuvre existing for the three main current spending items. The table focuses on countries with a low or average completion rate (PCR smaller than 75%) whose unit cost is relatively high (greater than 10% of the GDP per capita). These are countries for which decreasing unit cost is not optional, but compulsory if UPE is to remain a credible target. The rooms for manoeuvre available to cut unit cost vary from one country to another. These are identified in the table by the shaded areas.

Among the 20 countries considered⁶²:

- **Pupil-teacher ratio (PTR) room for manoeuvre:** 6 countries have a PTR lower than what is observed on average in Africa (41.3) whereby demonstrating a potential room for manoeuvre for reducing unit cost by increasing the number of pupils per teacher-these are Morocco (PTR: 28.2), Gambia (37.9), Ghana (31.3), Comoros (26.8), Swaziland (31.1) and Sudan (28.8). The reference value of the Fast Track Indicative framework i.e. 40 pupils per teacher, may be-for these countries-a reasonable target value which does not adversely affect quality⁶³.
- **Non-teacher salary expenditure room for manoeuvre:** 8 countries show non-teacher salary expenditure greater than the African average. In this regard, expenses may be saved in those countries (Lesotho, Niger, Burkina Faso, Ghana, Ethiopia, Eritrea, Mali and Benin). However, caution is required in terms of recommendations at this stage

⁶² The sum of the number of countries in each group is not equal to the total because some countries may be included in several groups.

⁶³ For this purpose, it is necessary that teacher deployment in individual schools reflect the actual needs. This will be discussed in Section 3.3.

All countries that must cut their unit cost to attain UPE do not have the same rooms for manoeuvre

because this expenditure includes pedagogical material (whose impact on quality can be significant, see Section 3.3) and administrative spending (salaries of non-teaching staff; goods and services) which can certainly be streamlined. A more fine-tuned diagnosis of this expenditure country by country is required to ensure that the relative reduction of this expenditure allows a quantitative improvement of the system without diminishing its qualitative performance.

- **Teachers' average salary room for manoeuvre:** 10 countries have teachers' average salaries that are greater than the cross-country average (4.1 Units of GDP per capita). These are Ethiopia (6.7 Units of GDP per capita), Lesotho (6.6), Niger (6.1), Burkina Faso (5.7), Côte d'Ivoire (4.8), Mauritania (4.7), Burundi (5.3), Eritrea (7.7), Chad (5.4) and Mozambique (5.2).

Although the remuneration of teachers is an eminently sensitive issue, it would certainly be a mistake not to address this topic. In many of the countries where the average teachers' salaries are higher than the African average, the following is observed (see, inter alia, Mingat, 2004a):

- (1) a budgetary constraint which precludes moving towards UPE by taking on civil servant teachers only;
- (2) dramatic differences in salary according to status that are difficult to accept for people exercising the same function (sometimes by a factor of 1 to 10 between community-based and civil servant teachers);
- (3) a lack of training for teachers in the lower income segment (contract-based and community-based teachers); and
- (4) community-based teachers often deployed in the most challenging areas and whose (low) remuneration is paid for by the poorest families.

Even though cutting the salaries of the presently employed teachers is not an option, it is surely important in these countries, if not already so (1) to document the implications on the school coverage and quality⁶⁴ that such high average remuneration levels (in proportion to the national wealth) may have, (2) to foresee recruitment of new, sufficiently trained teachers of different status, but paid a lower salary (see Inset 3.3), (3) to fund and increase the salaries of the lower paid teachers, especially community-based teachers and (4) to train untrained teachers.

⁶⁴ The issue of the impact of the teacher's status and his/her salary on quality will be described in Section 3.3.

Table 3.4: Room for manoeuvre to reduce the unit cost in countries with low completion rate and high unit cost

Countries	PCR	Unit cost (as % of GDP per capita)	Teachers' average salary (as units of GDP per capita)	Current non-teachers' salary expenditure as % of total current expenditure	Pupil-teacher ratio ⁶⁵	Teachers' average salary room for manoeuvre (ratio between country value and average)	Non-teachers' salary expenditure room for manoeuvre (ratio between country value and average)	Pupil-teacher ratio room for manoeuvre (ratio between average and country value)
Average / African countries	60.9	12.4	4.1	24.8	41.3	1	1	1
Chad	35.0	11.6	5.4	20.1	66.0	1.31	0.81	0.63
Burundi	31.8	12.5	5.3	22.1	49.9	1.28	0.89	0.83
Mozambique	45.7	10.2	5.2	20.9	67.2	1.26	0.84	0.61
Côte d'Ivoire	51.1	17.5	4.8	23.0	42.4	1.17	0.93	0.98
Mauritania	46.1	13.4	4.7	19.4	41.1	1.14	0.78	1.01
Lesotho	67.1	23.8	6.6	30.8	47.0	1.60	1.24	0.88
Niger	27.0	20.0	6.1	35.9	41.7	1.47	1.45	0.99
Burkina Faso	29.0	19.2	5.7	30.6	52	1.39	1.23	0.79
Ethiopia	36.2	12.7	6.7	30.7	65.1	1.62	1.24	0.63
Eritrea	38.4	11.8	7.7	29.6	46.7	1.87	1.19	0.88
Mali	35.0	10.8	4.3	45.5	57.3	1.05	1.84	0.72
Benin	53.0	10.8	3.6	42.1	52.0	0.86	1.70	0.79
Ghana	67.9	17.6	4.0	26.4	31.3	0.97	1.06	1.32
Morocco	68.9	20.6	3.4	10.5	28.2	0.83	0.42	1.47
Gambia	69.0	18.3	3.7	22	37.9	0.90	0.89	1.09
Comoros	48.0	12.2	NA	NA	36.8	NA	NA	1.12
Swaziland	66.0	11.2	NA	NA	31.1	NA	NA	1.33
Sudan	49.2	10.3	2.2	22.5	28.8	0.53	0.91	1.44
Tanzania	55.6	16.3	3.6	13.1	53.0	0.87	0.53	0.78
Senegal	51.0	12.5	4.2	16.8	48.9	1.01	0.68	0.85

Note: Countries with unavailable or insufficiently consistent data: Angola, Cameroon, Congo, Djibouti, Gabon, Guinea, Guinea-Bissau, Equatorial Guinea, Kenya, Liberia, Libya, Madagascar, Malawi, Central African Republic, Democratic Republic of the Congo, Rwanda, Sao Tome and Principe, Sierra Leone, Somalia, Uganda, Zambia, year 2002/03 or close. Source: see specific source in appended Table 4.

65 It is more accurate to present the pupil-teacher ratio calculated only on the public system (see Inset 3.4), but on account of unavailable data, the figure presented is the average value for the entire system (including private).

■ Inset 3.4: Quantitative impact of recruitment of non-civil servant teachers

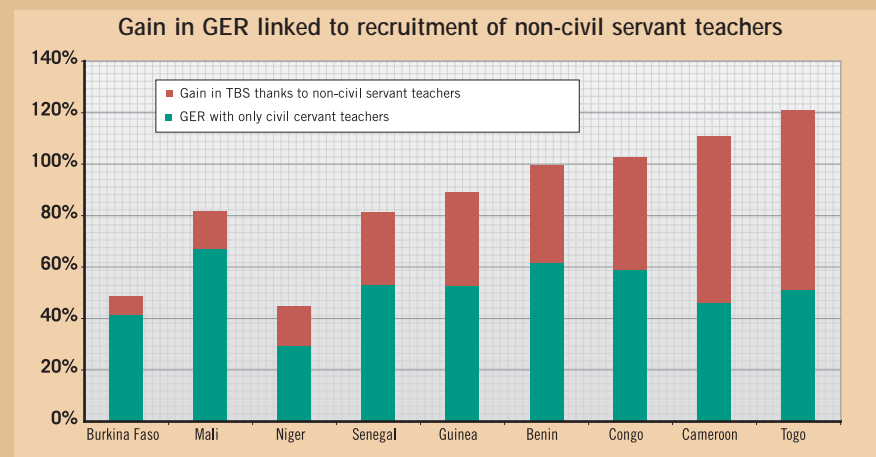
African education systems have long operated with a single body of civil servant teachers. For some years, two new teacher categories have emerged:

1. Owing to the budgetary constraint and in order to recruit enough teachers to raise the school coverage, certain States (for example Niger, Mali, Senegal) have created a new category of teachers. Often named «**contract-based teachers**», these teachers are paid at lower salary levels than those of civil servant teachers.
2. Faced with the government's incapacity to provide a school, the parents, often in the most under-privileged areas, organize themselves, create a school, recruit locally and pay the teachers themselves; these teachers are often called «**community-based teachers**» or «**parent-teachers**». This situation exists, for example in Chad, in Benin and in Cameroon.

The two categories can merge when the State begins to support all or part of these teachers' salaries (as is the case in Benin and in Chad).

Details of the salaries of the 'new' teachers and civil servant teachers still in service allows to estimate the gain, in terms of school enrolment (and therefore GER), associated with the recruitment of non-civil servant teachers as compared with a situation where only civil servant teachers would have been recruited. The results of these simulations are shown in the graph below.

The recruitment of non-civil servant teachers leads to a rise in GER which varies from +7 to +70 percentage points depending on the country considered. On average in the 9 countries shown on the graph, the effect is equivalent to a 36-point rise in GER. In the case of Togo (+70), of Cameroon (+65), of Congo (+44) and of Benin (+38) the presence of non-civil servant teachers contributes significantly to the rise in average school coverage. It is useful, as a complement to the study of the quantitative impact, to document the impact of non-civil servant teacher recruitment on quality, see section 3.3.



3.2.4 Managing the student flow to prevent the system from adjusting itself to a sum of individual interest different from the common good

It is interesting to distinguish, in this part, between in-cycle and cross-cycle student flow management. The first sub-heading deals with the in-cycle management by analysing the impact of repetition, including the impact on pupil drop-out rates, which remain the main obstacle to attaining UPE. The second sub-heading deals with cross-cycle flow regulation policies

Better student flow management must be encouraged

3.2.4.1 In-cycle student flow management: impact of the repetition rate and survival rate

The debate on the repetition issue is not new. Supporters claim the sequential nature of learning, the need for classes to be homogenous, the pupil's loss of motivation due to his position in the class, the motivating effect of sanctions; whilst the opponents of repetition point out the cost of an extra school year, the pupil's loss of motivation (first step towards dropping out), or the subjective aspects in the decision to apply this sanction. Knowledge, on the basis of solid empirical studies, has progressed, particularly in the context of African countries and **the main results show the negative effects of too high a level of repetition** (repetition which can be summed up as follows:

a) The decision to oblige a pupil to repeat a year is not always fair

The pupil's knowledge and skills are not the only explanation for a decision to repeat a year. Decisions often depend on «subjective» factors such as the pupil's relative position in the class, the environment, the schooling conditions and the teacher's qualifications (PASEC, 1999). In the Côte d'Ivoire, for example, more than 30% of repeaters are not in the lower third of pupils at national level as measured by the standard PASEC assessment test.

b) Impact on learning achievement is not empirically proven

Macro analyses show that the argument aimed at justifying pupils' repetition for reasons linked to the quality of the education cannot be empirically verified (Mingat and Sosale, 2000). **Good education systems (high level of student learning) can have high or low repetition rate: there is no significant relationship between the pupils' learning achievement and the frequency of repetitions.** The same is shown in the studies at school level (for instance in Benin, Chad and Cameroon) which conclude that, with equal resources and environment, the schools where the pupils have repeated grades the most do not have better results at the end of the cycle (Brossard, 2003a; CSR Chad; CSR Cameroon). Finally, the analyses at an individual level show that the pupils (except for those who are especially weak) who are made to repeat a year do not progress better by repeating than if they had moved up to the next grade (PASEC, 1999; PASEC 2004b).

c) A significant negative effect on pupils dropping out

Studies at country, school and individual levels also coincide on this point.

- At **macro level**, Mingat and Sosale (2000) and Pôle de Dakar (2002) studies show that the practise of repetition increases the drop-out rates during the cycle, and this remains the main disincentive for reaching Universal Primary Enrolment (see section 2). Families feel that the fact their child is obliged to repeat a year means that he is unsuccessful and that he does not benefit from being at school. As the opportunity costs always constitute an argument against school attendance, the sanction encourages parents to take their child out of school. Mingat and Sosale estimate that one more percentage point of repeaters results in a 0.8 percentage point increase in the drop-out rate. They also show that these negative impacts are even more distinct amongst the population groups where the demand for schooling is lower (girls, children from an underprivileged economic environ-

Too high repetition rate is an obstacle to UPE

ment). For the girls, the effect of one more percentage point is estimated at 1.1 point increase in the drop-out rate.

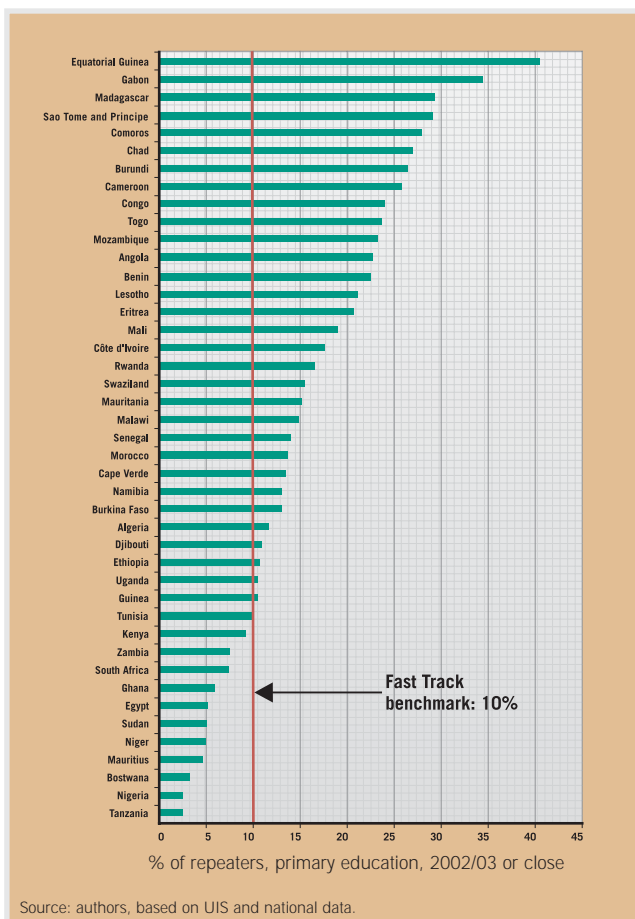
- The results of analyses **at school level** take the same direction. In Chad, for example, one more percentage point of repetition is related, all other factors being equal, to 0.53 less percentage point of survival rate (CSR Chad).
- **At individual level**, the studies confirm this trend; in Senegal, at a given pupil level, the decision to make a grade 2 pupil repeat a year increases the risk of this pupil dropping out at the end of the year by 11% (PASEC, 2004b).

d) An impact on costs

Repetition costs the system two years of study while only one year is validated. In other words, for a given budget constraint, repeating pupils occupy places which overload the classes and/or prevent other children from going to school.

The link between repetition rate and pupil-teacher ratio is shown empirically (Mingat and Sosale, 2000 and Pôle de Dakar, 2002).

Graph 3.9: The large variety of repetition rate



Bruns et al. (2003) observed that among the highest performing African countries during the decade from 1990-2000 (in terms of UPE), the average proportion of repeaters was 10%, which is lower than the current African average (16%). Consequently, this benchmark of 10% has been established as a reference value within the Indicative framework of the Fast Track initiative. Graph 3.9 provides an overview of the situation in 2002/03; the practises (because it is really a case of practises and habits rather than an objective system of remedial action designed to improve student learning) in terms of repetition vary greatly. The percentage of repeaters ranges from under 3% to 40%. 31 of the 43 countries for which data is available have repeaters of over 10%. In all, the analysis does not suggest generalized automatic promotion to the next grade (which poses other problems), but leads us to conclude that a figure of 10% of repeaters is both desirable and possible.

Aware of this need for a reduction in repetition rates, a number of African countries have chosen to: (1) set in place three sub-cycles, each lasting two years, within the primary cycle, corresponding to well-defined units of skills, (2) no longer allow repetitions within these two-year sub-cycles and (3) limit the frequency of repetitions between consecutive sub-cycles⁶⁶.

This strategy has proven its efficiency: Niger has reduced repetition in primary education from 18% in 1992/93 to 7% in 2002/03, and in Guinea repetition has decreased even more rapidly (from 21% in 2001/02 to 11% in 2003/04).

In conclusion, **efficient in-cycle flow management necessitates:**

1. an improvement in the «survival rate» during the cycle

The elimination of drop-outs during the primary cycle is obligatory in order to attain UPE. In the other cycles, in view of the fact that the learning programs are put together according to the homogenous units per education cycle, the drop-outs during a cycle represent a waste of resources: the system invests for years of studies which do not yield the expected results (completion of a cycle).

2. the reduction of repetitions in the countries where these are high

Although the requirements of teachers making pupils repeat a year when they have not acquired all the knowledge expected in the syllabus is understandable, education systems can not realistically allow repetition rate over 10% to be accepted. This represents an additional cost for which the pedagogical efficiency is not proven. Then, it seriously reduces the chances of achieving full Universal Primary Enrolment.

3.2.4.2 Cross-cycle student flow management: the need to back up education system management by public policies to reshape the education pyramid

Section 1 showed that in several countries there was a discrepancy between the distribution of trained individuals and the requirements of the employment sector. This finding leads us to study the possibility of reshaping the education pyramid (the distribution of outgoing pupils from each education cycle) to reduce loss production (unemployment, overqualification, etc.) of one part of the system. Section 2 showed (1) that despite the commitment to give priority to the primary cycle, the number of pupils in the post-primary cycles has grown more than for those of the primary cycle, (2) that there is no student flow regulation in several countries (the cross-cycle transition rates are often higher than the in-cycle survival rate), and (3) that lower secondary universal enrolment in countries with a low Primary Completion Rate (PCR) was logistically impossible by 2015. The beginning of section 3 has shown that primary education resources are often out of step with requirements, and that to take charge of the whole system again by making the necessary trade-offs was not an option but a necessity in order to retain a good chance of attaining UPE by 2015.

An unregulated student flow across levels has negative effects on equity and quality

Capitalising these results, the risks connected to non-management of pupil flow between cycles must be detailed here by recourse to empirical observations. What are the negative consequences when there are no cross-cycle student flow regulation policies? How does the system adjust itself without being regulated?

a) The risks connected to absence of student flow management

• **Financial displacement away from primary education**

The first danger arising from a lack of regulation is found in the intra-sector trade-off process. Heading 3.2.2 has shown that there is a substantial interconnection between primary and secondary resources (a strong negative relation between the «primary» and «secondary» share of education budget). If the number of post-primary pupils rises faster than primary pupils, this creates pressure to increase the financial resources of post-primary levels more sizeably than those allocated to the primary level; this is not desirable in countries that are far from attaining UPE, as shown at the beginning of section 3.2.1.

• **Drop in the unit cost at post-primary levels**

If the intra-sector trade-off does not shift towards post-primary levels, an increase of pupils, without the financial envelope rising at the same rate, means a fall in unit cost is a direct result. This has been observed for the last few years in Benin, in Guinea and in Mali for example (see graph 3.11) in higher education. For example, in Guinea, the increase between 1995/96 and

⁶⁶ In order to be effective this policy must be accompanied by (1) a consciousness-raising strategy to help teachers to become aware of the negative effects of excessive number of repeaters and (2) an assessment policy for detecting the shortcomings of pupils during the sub-cycle.

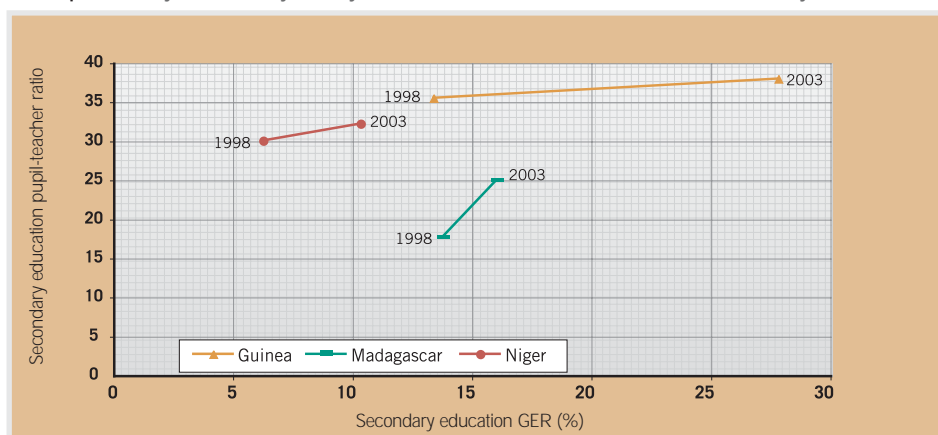
20002/03 from 118 students per 100,000 inhabitants to 196 without the same increase in resources is expressed by a reduction of unit cost by half (from 4.2 to 2.3 units of GDP per capita).

As we saw in the preceding section, three major factors make up unit cost: teachers' salaries, pupil-teacher ratio and other expenditures (in particular, pedagogical material). Because teachers' salaries are often structurally stable, the drop in the unit cost tends to have effects for the two other expenditure items, that is the pupil-teacher ratios and expenditure on pedagogical material.

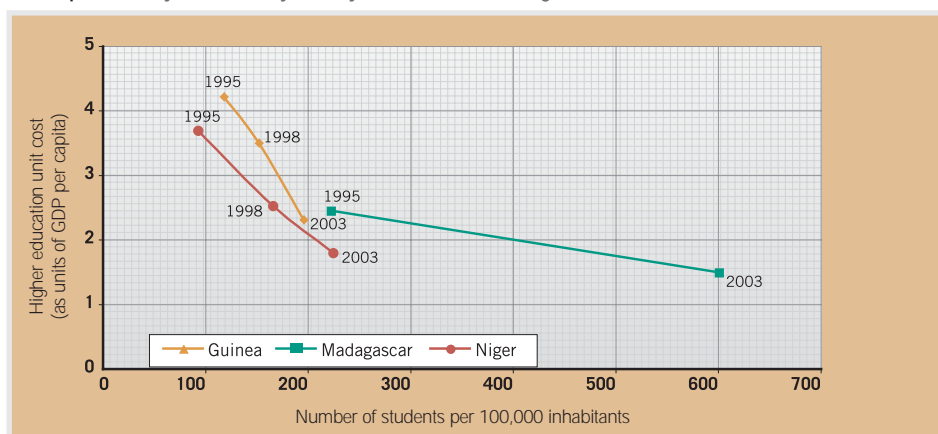
For example, graph 3.10 shows that, with the unregulated increase in pupils at secondary education and the relative stability of salaries and other expenditure in Congo, in Guinea, in Madagascar and in Niger, the system adjusted itself and resulted in a deterioration of pupil-teacher ratios. In Madagascar, the pupil-teacher ratio passed from 18 pupils per teacher in 1997/98 to 25 in 2002/03.

In Guinea the ratio which was already high in 1997/98 rose again to 38 pupils per teacher in 2002/03 (that is, an average class size of 64 pupils!! in view of the variance between the number of teachers' service hours and the number of pupils' learning hours).

■ Graph 3.10: Adjustment of system by a deterioration of education conditions, secondary level



■ Graph 3.11: Adjustment of system by a fall in unit cost, higher education



Systems tend to adjust themselves if there is no student flow management

Source: authors, based on UIS data.

- **Increase in family contributions, growth in inequalities and social discontent**

At lower secondary level community-based teachers appear in some countries. These teachers are paid, as those of primary education, by the parents in the poorest areas and often have little or no training. In Chad, for example, the proportion of these teachers in lower secondary education reaches 48%.

The entry flow for higher education is not regulated and together with an insufficient increase in public funding this often forces the government to (1) drastically increase the family contribution (inscription fee) and (2) reduce the level of grants (including those given to the poorest on the grounds of merit).

For example, in Benin the annual inscription fees for university increased from CFA F5,000 to CFA F25,000 at the start of the school year 2004/05, only leaving the affluent with a chance to enter higher education. Furthermore, these measures often arouse student discontent; causing them to go on strike and bring the system to a standstill. These examples show the danger of an absence of student flow regulation, leaving the system to adjust itself, often to the detriment of the poorest and/or of quality.

b) Options for cross-cycle student flow management policy: influencing the transition rates in accordance with the dynamics of the educational pyramid

Effective cross-cycle student flow management dictates **the setting up of genuine regulation policy for the whole system**, obviously to be adapted from one country to another according to the current education pyramid (and particularly the level of progress towards UPE), **accompanied by a root and branch review of post-primary development**.

>>> The primary→lower secondary transition: regulation, perspectives for primary school-completers and gains for the education system

It is legitimate to wonder what would happen, if UPE is attained in 2015, to the large number of children completing the primary cycle (on the whole 1.5 times more than in 2002/03 for Africa, and 3 to 4 times more for the less-developed countries, cf. the simulations represented in the country profiles at the end of the report). As the saying goes in Algeria *«even if the snake runs, he does not go quicker than his head»*: if some countries which have already reached or nearly reached UPE must consider a universalization of lower secondary, for all the others, it is essential to be realistic, this goal is not feasible (financially as well as logistically) by 2015 (Mingat, 2004d).

Some countries can consider increasing transition rate or maintaining it at their present level by trying to improve the efficiency of lower secondary (reducing unit cost without penalising quality).

For example, an increase in the duration of primary cycle can be considered. It allows the progressive integration of pupils of lower secondary to a school functioning at a **primary education unit cost (on average twice as low as the unit cost of lower secondary)**; some English-speaking African countries have chosen that way of doing. The use of a greater number of polyvalent teachers (cf. Bernard and Robert, 2004) and/or a larger financial contribution from families in privileged urban areas are also possible ways.

The primary→lower secondary and lower→upper secondary transitions are very important policy levers for building an adequate educational pyramid

However, **most countries will not be able to increase transition rate to lower secondary nor maintain them at the current level and must even consider reducing it in order to preserve quality** (effect on the unit cost previously described). There will therefore be **primary school-completers who will not move up to general secondary level**. Some of them could enter a vocational secondary training (more targeted on the more employment sector demanded fields of study), but this channel remains an option for only a minority. Consequently, in 2015, a proportion of primary school completers (according to the lower secondary physical and financial capacity to accept students without cutting back on quality) will end their studies at that level. This is obviously not an ideal situation, but **it is vital to understand that the student flow regulation between primary and lower secondary -if UPE is indeed achieved - will not be expressed by a deterioration of the systems. On the contrary, there will be an outstanding development of the education systems** for three main reasons:

- a. Currently, only 59% of African children complete the primary cycle, either because they never go to school (approx. 9%), or because they leave the system during the cycle (approximately 32%). Achieving UPE therefore means a gain for the system, and also for pupils completing their studies at the end of the primary cycle; instead of never going to school or dropping out during the cycle, these children (1) will have a good chance to acquire long-lasting literacy, and (2) could gain access to a traditional work sector (which will remain the main sector of employment in several countries in 2015) and be more productive (and therefore contribute more to the economic growth of the nation).
- b. **Bolstering access to the secondary cycle on the basis of merit.** Currently in the countries that have not completed UPE and where the transition rate is high, the selection process comes into play before the end of the primary cycle (either on admission to the grade 1 of primary, or by dropping out during the cycle). This selection process is therefore very dependent on socio-economic factors (as shown in section 2.1.1.2, the more underprivileged [poor, rural and female] have less access to school and drop out more often). The regulation between primary and lower secondary on a competitive entrance examination basis allows the best pupil to be selected amongst those completing the primary cycle, which, if UPE is achieved, concerns all children.
- c. The stagnation or the reduction of transition rates does not mean the stagnation or the reduction of the number of secondary pupils; on the contrary. Demographic growth combined with UPE will mean **a very substantial increase lower secondary pupils**, even in the event of transition rate reductions. For example, in Benin, the ten-year plan education sector plan aims at doubling the number of lower secondary education pupils between 2004 and 2015 (more than 500,000 pupils in 2015 compared with 260,000 in 2004) despite a transition rate reduction from 72% to 50%. In comparison, the number of primary education pupils will only increase by a factor of 1.6.

Student flow regulation policies between primary and lower secondary education must be accompanied by policies which stimulate demand for primary education because flow regulation at the entry to lower secondary can constitute a disincentive on demand for primary education.

»» **The lower→upper secondary and upper secondary→higher education transitions: regulation and action to improve quality**

The question of the lower→upper secondary and upper secondary→higher education transitions are different because (1) the unit costs of upper secondary and higher education are much higher (on average twice as high as those of lower secondary for upper secondary and eight times higher for higher education- cf. CSR Guinea, 2004), (2) the economic returns from these levels are more of a private issue (better income for individuals) than a social issue (cf. section 1), (3) certain countries «over-produce» at these levels in relation to economic needs (the modern employment sector) and (4) these two stages are better perceived as final stages of education.

These findings encourage favouring quality rather than quantity in these education levels. Although it is true that the two are connected (cf. section 3.2.2), (1) economic needs for trained human resources must be nationally identified, (2) private financing must be encouraged (section 1 showed that high level public financing of the system was not always optimal) and (3) flow must be regulated during the two transitions⁶⁷ to match the quantity factors with the requirements of the national economy and to avoid reducing unit cost, a quality factor.

Once again, implementing a regulation policy does not mean cutting pupil numbers in upper secondary, technical, and higher education, which will continue to increase.

3.3 An efficient management of education systems for the successful implementation of quality education

As well as sufficient mobilization of resources and efficient policies, a third condition is needed to achieve ambitious goals; this regards system management. The questions of management are even more important because the systems, if they move nearer to UPE, will have high growth rates; management difficulties of systems with few pupils are even more problematic when the number of pupils increases. This report does not claim to be exhaustive concerning these questions although it seems worthwhile to **(1) deal with this subject from an empirical point of view and to compare the countries by mobilizing the available data, and (2) pave the way to really implementing (and not only talking about) result-based management.**

In order for pupils to learn well, (1) the schools must receive the sufficient resources (human and material) for classes to operate correctly, which involves, in the event of scarcity of resources, equitable distribution of resources between the schools and (2) these resources must effectively be turned into results (that the pupils do not drop out of the school and learn enough). This section concentrates on primary education (cycle for which the issue is more important and for which more data is available) even if most of the conclusions presented and the strategies proposed for improvement are valid for the other levels.

3.3.1 The search for equity when allocating school resources

3.3.1.1 First lever: matching resources with needs

Logically, schools enrolling the most pupils and those located in the worst environments should be those which receive the most resources. Is this really the case? The first step in replying to this question is to compare the difference between the real situation (as observed in the school data collected by the ministries of education) and a situation where schools which have the same number of pupils have the same resources. This difference can be measured by what is known as the degree of randomness in resources' allocation to individual schools (see inset 3.5). Table 3.5 presents the situation in 22 countries for primary education, regarding consistency in teacher deployment (teachers represent the most important item of resources required).

Resources and efficient policies are not enough, the system management must fairly allocate resources to individual schools and schools should better turn resources into results

⁶⁷ In some countries, the examination at the end of upper secondary (the Baccalaureate) is the only requirement for admission to university. It limits the regulation possibilities between upper secondary and tertiary and encourages the student flow regulation beforehand (between lower and upper secondary levels).

■ Inset 3.5: Degree of randomness in teachers' allocation to individual primary schools in 22 African countries, year 2002/03 or close

Countries	Degree of randomness [1- R ²] in %	Countries	Degree of randomness [1- R ²] in %
Sao Tome and Principe	3	Gabon	26
Guinea	7	Burkina Faso	28
Mozambique	15	Madagascar	28
Namibia	15	Ethiopia	29
Niger	15	Côte-d'Ivoire	33
Guinea Bissau	16	Malawi	34
Chad	18	Uganda	34
Senegal	19	Benin	39
Mauritania	20	Togo	39
Zambia	20	Mali	42
Rwanda	21	Cameroon	45
Average of 22 countries: 24.8			

Source: Mingat (2003b).

■ Inset 3.5: Degree of randomness in teachers' allocation to individual schools

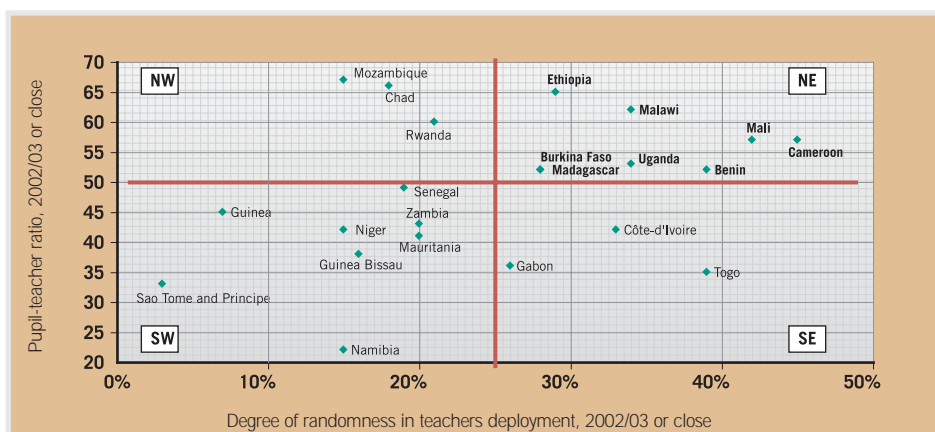
To provide the same teaching conditions (class sizes) for all pupils, a human resources manager from the Ministry of Education must theoretically deploy more teachers to large schools than to small ones. The R² statistical indicator (known as the determination coefficient) between the number of pupils and the number of teachers, calculated on the set of all schools, assesses to what extent the number of teachers in schools is proportional to the one of pupils. This measurement is between 0 and 1 (or 0 and 100%); the nearer it is to 100% the higher the teacher deployment to individual schools depends on the number of pupils. Conversely, the further it is from 100%, the more the deployment is granted based on other criteria, according to a «randomness». The complement at 100% of R² (100% - R²) is therefore a measurement of the degree of this «randomness», that is the ratio of situations where the number of teachers is not accounted for by the number of pupils. The degree of randomness is a measurement of the variation in the size of classes across schools.

The results in terms of teachers deployment consistency vary a great deal from one country to another

The average degree of randomness for the 22 countries is established at 24.8%; in other words, on average in the countries studied (and there is no reason to think that the situation is different in the African countries which are not shown in the sample), **a quarter of teacher deployment is not granted according to the number of pupils in the schools.**

This average figure, however, must not hide the large differences between countries; whereas in certain countries the degree of randomness exceeds 35% (Benin, Mali, Cameroon and Togo), in others it is estimated at 15% or less (Sao Tome and Principe, Guinea, Mozambique, Namibia and Niger), thus showing that situations can improve in the least successful countries⁶⁸. Improvement requirements are even greater in the countries where the average pupil-teacher ratio is higher (North-East quadrant [NE] of graph 3.12, countries represented in bold type). The combination of a high pupil-teacher ratio and a large inconsistency in teachers' deployment results in, for certain children in these countries, class sizes exceeding 100 or even 150 pupils!!!

■ Graph 3.12: Class size average and variance



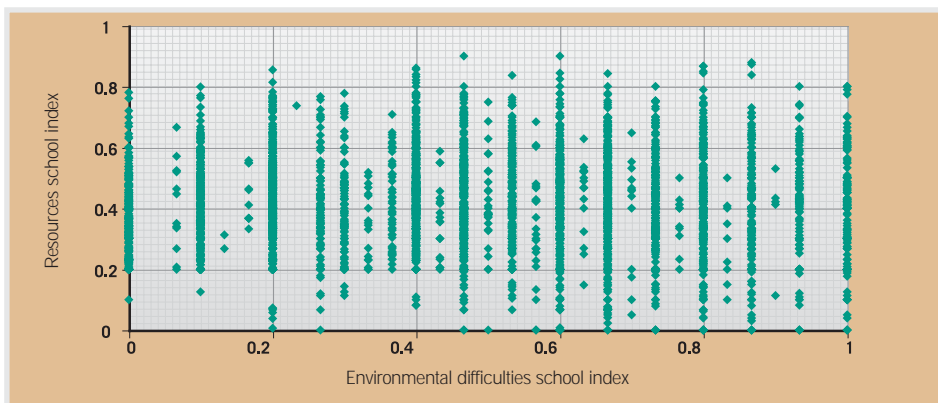
Source: Mingat (2003b) and UIS.

68 On this subject, it will certainly be useful for the countries to share experiences so that the least successful countries, through short missions for example, can be inspired by the current teacher deployment process and practice in the most successful countries.

It is hoped that the resources' allocation to individual schools is not solely related to the number of pupils if we wish to help schools in the most difficult areas. In this case it is relevant to set in place a positive discrimination policy proposing additional allocations for schools in the most disadvantaged environments. For example, Benin has put in place a system whereby the schools are classified into different groups according to the environmental context (obstacles to school access, absence of water, etc.) and a bonus is paid to teachers in schools classified in the most difficult areas. However, these measures, albeit very well targeted, do not explain the considerable differences between schools in the resources received. To highlight this fact, one need only study graph 3.13 which compares the school's environmental difficulty indicators of all public schools in Benin (based on information such as area type-urban/rural-, presence of water, electricity, the accessibility of the school) with an indicator of the resources received by the school (based on the pupil-teacher ratio and the availability of school inputs). The graph shows (1) that the resources received vary considerably from one school to another and (2) these differences in subsidy cannot be explained by the environmental difficulties (there is no link between the environmental difficulty individual school index and resources individual school index).

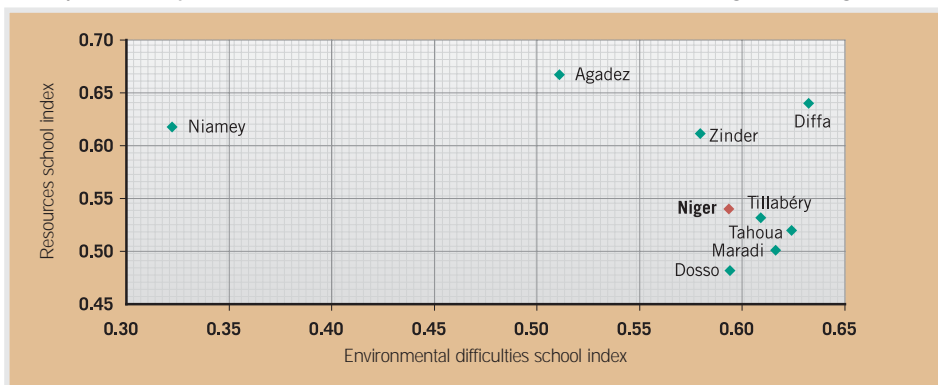
The same analysis can be made at a region level in a country. Graph 3.14 shows the regional situation in Niger. There is no relation between environmental difficulty and resources allocated (for each region the two dimensions are measured by averaging data of all public schools in the region). In other words, the unfavourable geographical and environmental characteristics in a region are not systematically compensated for by a greater allocation of human and material resources. For example, Dosso, Tillabéry, Tahoua and Maradi are exposed to more difficult conditions, yet the resources allocated to their schools are lower than average.

Graph 3.13: Comparison of environmental difficulties and resources allocated, school level, public schools, Benin 2002/03



Source: Brossard (2003b).

Graph 3.14: Comparison of environmental difficulties and resources allocated, region level, Niger 2003/04



Source: Brossard, Duret and Ledoux (2005).

The results in terms of teachers deployment consistency vary a great deal from one country to another

3.3.1.2 Second level: optimising student grouping

a) The harmful effects of an inadequacy between teachers allocated and needs in individual schools

The inadequacy between needs and deployment of teachers in individual schools creates a double problem: (1) it results in inequity in teaching conditions and (2) as a result of the overall lack of teachers, the over-endowment in teachers of some certain schools leads to an under-endowment of others and therefore generally results in the **persistent existence of incomplete schools** (or schools that cannot provide a continuity in schooling for pupils)⁶⁹.

The second point is essential because **discontinuity of schooling offer is responsible for large numbers of pupils dropping out of the school system, and this is the principal cause of non-achievement of universal completion of the primary cycle** (as pointed out in section 2, many countries have achieved or are close to achieving universal access to grade 1 of the cycle, but pupil survival rates during the cycle remain low). For example, 28% of pupils in rural locations in Mauritania are in schools that do not offer a continuity in schooling until the end of the cycle, and consequently many of these pupils are highly likely to drop out of the school system (the survival rate in rural locations is only 22%) if they do not live close to another school which is more complete. On average out of the six countries for which we have collected data (cf. table 3.6), around 15% of children schooled in rural areas find themselves in this situation and this explains, at least partially, the low survival rates⁷⁰ in rural areas (51.6% on average in the same countries). Graphs 3.15 and 3.16 show the examples of Mauritania and Guinea and compare, in respect of the national departments, the % of schooling discontinuity and the survival rate. The relation between the % of pupils faced with schooling discontinuity and the survival rate is statistically significant⁷¹; on average 1 percentage point better as regards schooling continuity is linked to a 1.8 percentage point higher survival rate in Guinea (0.8 points in Mauritania).

69 Schooling discontinuity is said to exist in a school if the pupils cannot progress in the primary cycle due to the fact that the next grade is not offered in the following year.

70 The relationship estimated on the five countries indicates that on average in rural areas, one more percentage point of schooling discontinuity is linked to a reduction of 2 percentage points in the survival rate.

71 Statistically significant at 1%-level in Guinea and 5%-level in Mauritania.

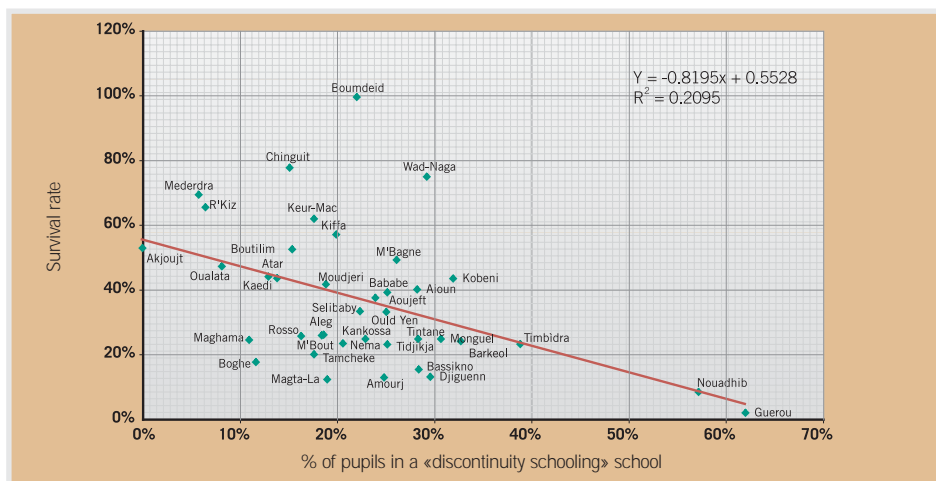
Table 3.6: % of pupils enrolled in schools not offering schooling continuity throughout the cycle and survival rates (rural area only)

	Senegal 2002/03	Niger 2003/04	Guinea 2003/04	Mauritania 2002/03	Chad 2003/04	Mali 2002/03	Average of all countries
% of pupils in a school not offering schooling continuity	5.9	12.8	60.4	27.9	19.4	16.3	14.6
Survival rate (%)	57.9	65.5	11.4	22	na	46.4	51.6

na: not available.
Source: Brossard and Ndem (2005).



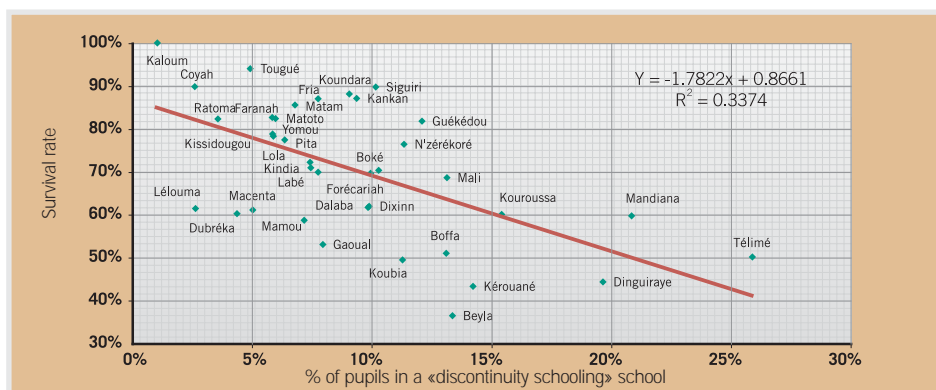
■ Graph 3.15: % of pupils enrolled in schools not providing schooling continuity throughout the cycle and survival rate, Moukhataa (department) level, Mauritania 2002/03



Source: Brossard and Ndém (2005).

The shortage of teachers forces pupils to drop out before the end of the primary cycle

■ Graph 3.16: % of pupils enrolled at the schools not providing schooling continuity throughout the cycle and survival rate, department level, Guinea 2003/04



Source: calculations of the authors based on data from CSR Guinea.

In **rural areas**, in the regions where the population density is low (particularly in remote and/or nomadic areas), the size of the pupil-cohorts (one age group) is very often lower than the average class size noted in the country. **The conventional school organisation pattern of single flow/single shift** (one teacher in a classroom for a group of pupils all at the same grade) **is then extremely costly for the system** (pupil-teacher ratio is very low) and it becomes difficult to recruit enough teachers to cover all the classes. Due to budgetary constraints (the number of teachers that the State can recruit is limited) and to the lack of qualified teachers at a local level, the system very often adapts automatically itself and produces schooling discontinuity, that as we know leads to pupils dropping out.

In **urban areas**, the opposite phenomena often occur: the number of children to be enrolled is excessive and education supply (especially teachers and classrooms) is often below requirements. **The exclusive use of the conventional single flow pattern then leads to outsized classes which are detrimental to quality.**

b) Student grouping: the possible options

To overcome these difficulties, most of the African countries have set up, to different extents, alternative student grouping methods (see table 3.6 for examples of names and exact definitions of the different grouping patterns). **In rural areas, multigrade classes** (with pupils at different grades taught by the same teacher) and **alternate enrolment** (the schools only open a grade 1 class every three years, for example, this class accommodates children from three age groups who will undertake all their schooling together) are used to reduce costs and eradicate schooling discontinuity. **In urban areas, the system of double flow/double shift**, (two groups of pupils share the same classroom and/or teacher and come into the classroom one after the other) makes it possible to reduce the class sizes when there are not enough classrooms or teachers.

As highlighted in table 3.7, the use of these alternative methods varies greatly from one country to another. In the sample of 7 countries studied, the proportion of pupils in a multigrade class varies from 7% in Guinea to 55% in Chad. The alternate enrolment method varies from 15% of pupils in Mali to 43% in Niger and the double flow/double shift method can not be employed at all (Mauritania and Chad) or concern 20% or more of the pupils (Mali, Guinea and Senegal).

■ **Table 3.7: Distribution of the pupils according to student grouping method or school enrolment system (%)**

	Senegal 2002/03	Niger 2003/04	Guinea 2003/04	Mali 2002/03	Burkina Faso 2002/03	Mauritania 2002/03	Chad 2003/04	Average for 7 countries
Single flow	69	83	72	64	74	60	46	67
Multigrade	9	14	7	16	19	40	55	23
Double flow/double shift	22	3	21	20	6	0	-	12
Total	100	100	100	100	100	100	100	100
Alternate enrolment schools	16	43	20	15	23	31	34	26

Source: Brossard and Ndém (2005).

■ **Inset 3.6: Definition of student grouping methods in different countries**

Country	Double shift («double vacation» in french)	Double flow («double flux» in french)	Multigrade
Burkina Faso	/	2 teachers, 1 room and 2 groups of pupils successively	1 teacher, 1 room, 2 levels simultaneously
Cameroon	One school group occupies the classrooms in the morning and the other in afternoon alternately		Same definition
Congo	1 teacher, 1 room, 1 level and 2 groups of pupils successively	/	1 teacher, 1 room, several levels simultaneously
Côte d'Ivoire	/	1 teacher, 1 room, 1 level and 2 groups of pupils successively	1 teacher, 1 room, several levels simultaneously
Guinea	1 teacher, 1 room, 1 level and 2 groups of pupils successively	/	1 teacher, 1 room, 2 levels simultaneously
Madagascar	/	/	1 teacher, 1 room, 2 levels simultaneously
Mali	- 1 teacher, 1 room, 2 groups of pupils of the same level or of two different levels successively - 2 teachers, 1 room, two groups of pupils of the same level or of different levels	/	Or double division , 1 teacher, 1 room, 2 levels simultaneously
Niger	2 teachers, 2 classrooms and 3 groups of pupils	1 teacher, 1 room, 1 level and 2 groups of pupils successively	Or twinned , 1 teacher, 1 room, 2 to 3 levels simultaneously
Senegal	/	Same definition as in Niger	1 teacher, 1 room, 2 levels simultaneously
Togo	1 teacher, 1 room, 1 level and 2 groups of pupils successively	/	Or twinned , 1 teacher, 1 room, 2 levels simultaneously

Note:
Some student grouping methods are specific to certain countries:

Senegal: double utilisation 2 teachers, 1 civil servant and 1 contract-based, 1 room, 1 level in 2 groups simultaneously

Madagascar: staggered classes 1 teacher, 1 class, 5 levels, 2 groups of pupils successively.
Grades 1, 2 and 3 for 2 hours 30 mins then Grades 4 and 5 for 2 hours 30 mins.
This type of organisation is being gradually replaced by the multigrade method.

Source:
Working document of the PASEC/CONFEMEN international workshop, Bamako (Mali), 2001.

c) The impact of the student grouping on the redeployment of the teachers and on GER

The use of these alternative methods of student grouping serves to save teachers who can then teach to more students. It is possible to simulate the number of teachers in a school as if it were operating solely with the single flow method, and to compare it with the number of teachers actually present (taking account of the pupil grouping pattern currently in use)⁷². The difference between these two amounts represents the number of teachers «saved» who can teach to additional pupils in another school. It is thus possible to simulate, country by country, the gain in gross enrolment ratio made possible by the different grouping methods.

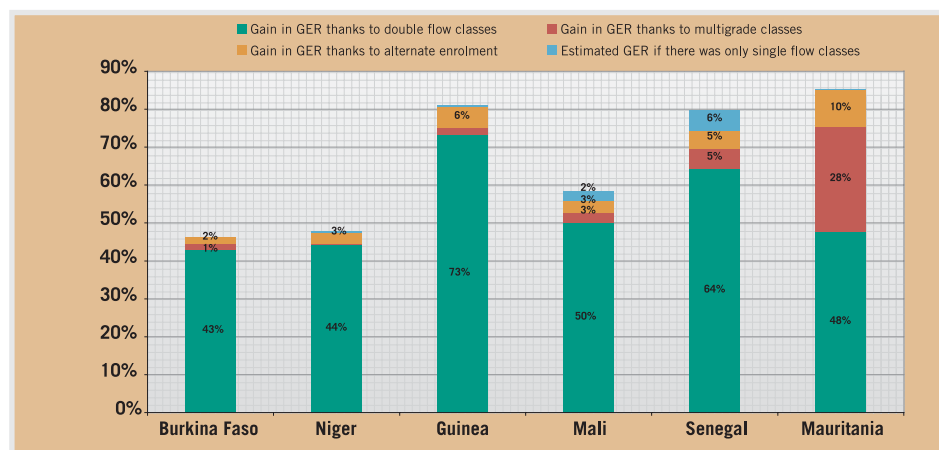
The results, set out in graph 3.17 speak for themselves: the combined use of the multigrade method and alternate enrolment has enabled Mauritania to increase its GER by 38 percentage points (if the system used only the single flow method the GER would have been only 48% whilst it is currently 86%). In Senegal, the use of alternative methods also enables considerable gains to be made in GER (16 percentage points by combining the effects of the multigrade, alternate enrolment and double flow methods). The results are more moderate (but nevertheless exist) in the four other countries considered, either because the alternative methods are less prevalent or because their use is not optimised (management problems).

Some countries rationalise teachers deployment by using alternative methods of pupil grouping and hence accommodate more children

These examples of student grouping management should certainly be reproduced, and adapted to suit the national context, in a large number of countries to facilitate progress towards universal schooling, particularly in the context of relative scarcity of resources.

Finally, it should be noted that the analyses made regarding the impact of the pupil grouping methods on quality (learning efficiency) does not provide tough results⁷³. The quantitative gains (obtained by an optimization of student grouping) are not offset by any negative qualitative effects.

Graph 3.17: Simulations of the gains in GER linked to optimisation of student grouping



Note: the countries are ranked by increasing order of gain in GER. Gains of less than 1 percentage point do not figure on the graph. Source: Brossard and Ndém (2005).

72 The simulation consists in using an econometric model explaining the number of teachers in a school by the student grouping method variables and the number of pupils at the school.

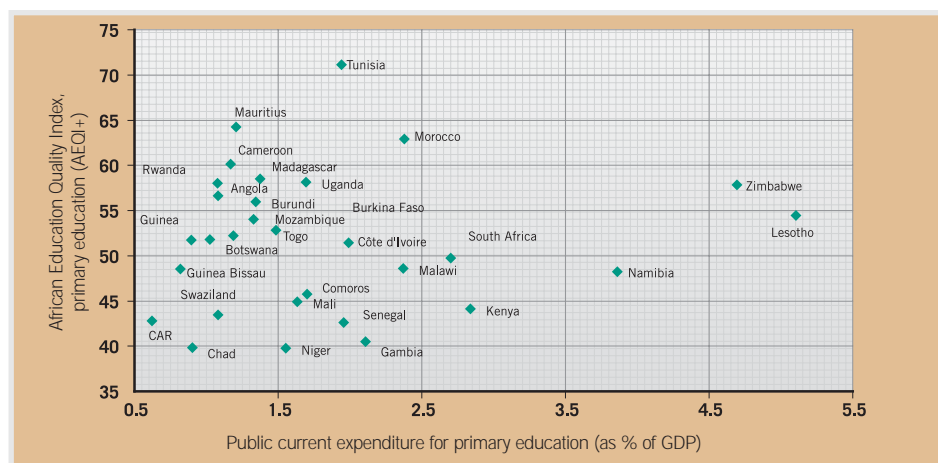
73 See particularly Mingat and Suchaut (2000). Certain studies show positive effects, others negative effects and others no effects.

The link between resources and results is weak, hardly existent.

3.3.2 The search for a better transformation of resources into results

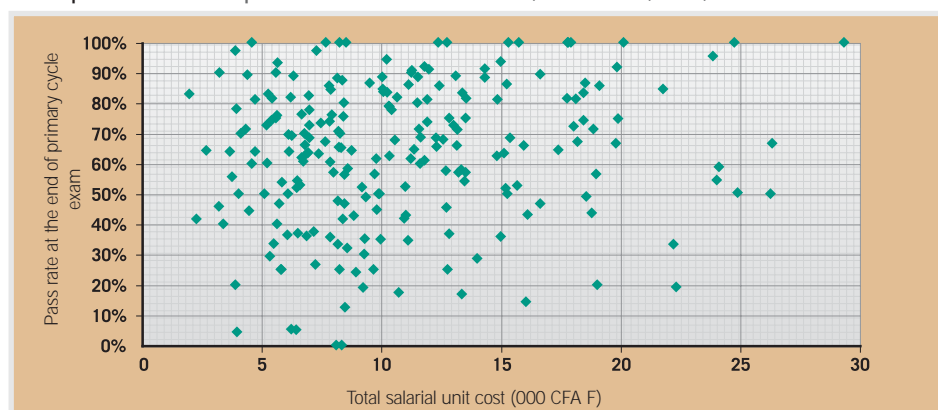
It is not enough for each school to receive equitably resources, it is also necessary for these resources to be effectively transformed into results, that is, for the primary cycle, for the children to stay in school until the end of the cycle and to attain the basic standards of knowledge. As shown in graphs 3.18 and 3.19, whether the analysis is made at country level or at school level in a country, the link between investment of resources and results is weak, and even non-existent.

Graph 3.18: Relationship between resources and results, country level



Source: authors' calculations.

Graph 3.19: Relationship between resources and results, school level, Chad, 2001/02



Source: CSR Chad.

There are three main potential reasons for the absence of a link between resources and results:

- (1) the socio-economic characteristics of the individuals and the local environment have a significant influence on student learning, that the resources made available to the schools cannot compensate,
- (2) the combination of the school inputs (teaching material, classroom equipment, teachers' characteristics, etc.) is not the most cost effective, and
- (3) the practices and pedagogical methods employed by the teacher in the class (difficult to measure and quantify in financial terms) have an important impact on the student learning process in schools.

The following parts explore each of these three points and propose action strategies.

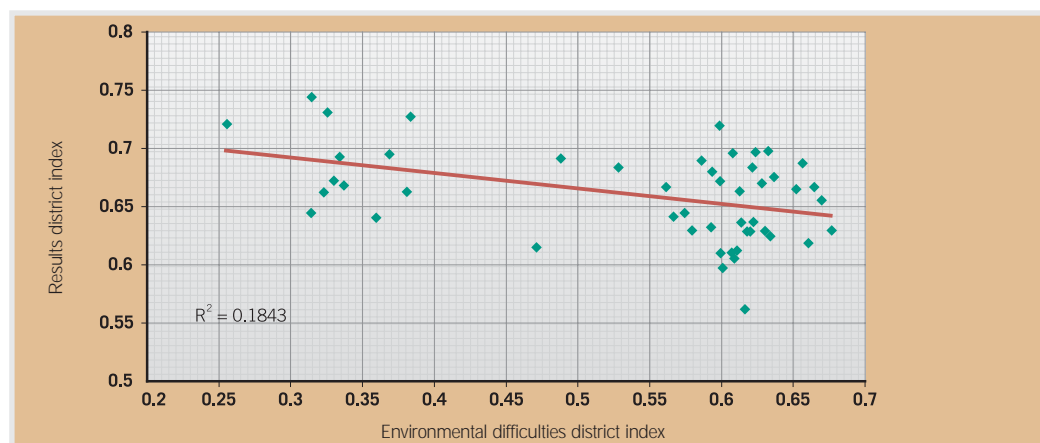
3.3.2.1 The influence of the socio-economic factors and of the local context on results: reducing the initial situational disparities

The socio-economic factors and the local context have an empirically proven influence on education results. For example, in Niger (cf. graph 3.20), the differences in the local environmental context (urban-rural location, accessibility of the school, presence of water, etc.) explains 18% of the differences observed between districts in the results (survival, exam success, % of repeaters). As regards the socio-economic characteristics of the pupils⁷⁴, the results of the PASEC assessments⁷⁵, are also very clear (cf. table 3.8). Even though the impact varies from one country to another, the individual social factors have an influence on student learning, an influence which increases as the level of teaching rises through the school. On average in the 4 countries described, the share of the socio-economic factors in the student learning progress explained by all the different variables (socio-economic and school inputs factors) is estimated at 26% in grade 2 and 38% in grade 5. **This data supports the idea set out in part 3.3.1.1, that it is worthwhile encouraging, in the allocation of resources and in the monitoring, priority allocation in schools located in difficult areas, in order to balance the negative effects of a disadvantaged local context.**

The socio-economic factors and the local context have an influence on the results achieved in schools

While the effects of the local socio-economic context are well-established, they do not explain the whole picture. Another interpretation of the graph and the preceding table shows up the following: (1) 82% of the differences in results between districts in Niger are not explained by the environmental context but by other factors, and (2) school inputs⁷⁶ have two to three times more impact on student learning than socio-economic factors.

Graph 3.20: Index of environmental difficulties and index of results in primary schools, district level, Niger 2003/04



Source: Brossard, Duret and Ledoux (2005).

Table 3.8: Distribution of progress explanation (socio-economic factors and school inputs variables)

	Socio-economic factors	Schooling variables
Burkina Faso Grade 2	18%	82%
Burkina Faso Grade 5	34%	66%
Cameroon Grade 2	27%	73%
Cameroon Grade 5	39%	61%
Côte d'Ivoire Grade 2	30%	70%
Côte d'Ivoire Grade 5	39%	61%
Senegal Grade 2	28%	72%
Senegal Grade 5	39%	61%
Average Grade 2	26%	74%
Average Grade 5	38%	62%

Source: PASEC (1999).

⁷⁴ Age of the pupil, standard of living, nutrition, help with homework, French spoken in the home, sex and social environment (urban-rural).

⁷⁵ The PASEC assessments have the advantage of testing the pupils at the beginning and end of the school year and of collecting the information regarding the pupils and the school inputs available in the class. Thus they measure the impact of numerous factors on the progress of the pupils during the school year.

⁷⁶ Possession of textbooks, characteristics of the teachers (seniority, sex, academic level, initial and continuing professional training), student grouping pattern, class sizes.

All school inputs are not equally cost effective. The search for the best combination can allow improvements in results

3.3.2.2 The influence of school inputs factors on results: identifying the winning combination

The second strategy envisaged to improve quality is based on the combination of school inputs allocated to the classes. It is important to carry out a meticulous analysis of the benefits in terms of student learning of each school organisation or inputs and compare them with their costs. This cost-efficiency analysis must be performed at national level, either based on data concerning national examinations, or on the data from the standardised assessments of learning achievement (of the PASEC type), or by combining the two (as for example the data for Guinea, in table 3.9).

Table 3.9: The impact of schooling factors on results at primary education compared with costs (Guinea 2003)

	Impact			Cost	Policy
	Pass rate in end of primary cycle exam	PASEC	Global		
Better classroom quality	0		0	+++	Limited construction projects
Better classroom equipment			++	+	Positive
Existence of toilets	+++		+++	+	Very positive
Existence of a library	++		++	+	Very positive
Textbooks	+				
Reading			++	+	Positive
Arithmetic			0	+	0
Reduction in % of repeaters	+++	+	++	--	Very positive
Reduction of class sizes	+	+	+	+++	0
Teaching in multigrade	+		+	--	Positive
Teaching in double shift		--	--	--	Negative
Teachers					
Female teachers	++	--	-	0	
Academic level		BEPC OK	BEPC OK		BEPC
FIMG / traditional training	+	-	0	-	Positive
Contract-based / civil servant	0	-	-	-- but	Positive but

Note: the impact shown by means of + or - signs which means that the variable, as described in the 1st column, has a favourable or unfavourable impact on the result; the number of signs is a qualitative measure of the impact recorded. BEPC stands for the end of lower secondary exam.

Source: CSR Guinea (2004).

Assessments of the impact of the main schooling policy options concerning the different school organisation differ from one country and from one study to another, showing that there is no miracle solution that can be implemented across the board. A review of the literature⁷⁷ (cf. table 3.10) shows that apart from school textbooks, canteens (for which the studies concord upon a strongly positive effect) and the type of building (generally no effect), the effects of the other school inputs as observed in the surveys do not highlight any sharp results.

77 Sources: Mingat and Suchaut (2000), PASEC (1999), Hanushek (2003), UNESCO (2004), Pôle de Dakar (2002).

■ **Table 3.10:** Effects of the school organisation and measured school inputs on learning achievement as described in the literature, primary education, African countries

School organisation and school inputs	Effect on learning achievement recorded in the different studies
SCHOOL ORGANISATION	
Class size	Variable (negative effect above 70 pupils per class)
Student grouping method	Variable (rather positive effect for multigrade, rather negative effect for double flow)
Teachers' characteristics	
Academic level /contractual status	Variable
Initial and continuing training	Variable
Salary	Variable
Seniority	Negative effect
INTRANTS SCOLAIRES	
Textbooks	Very positive effect
Tables-benches	Positive effect
OTHERS	
Type of classroom building	No effect
Support with school dinners	Very positive effect

Note: Another important assessment factor: all these variables generally explain (depending on which year and which country is considered) only 5 to 10% of the differences in student learning (PASEC, 1999).
Sources: Mingat and Suchaut (2000), PASEC (1999), Hanushek (2003), UNESCO (2004), Pôle de Dakar (2002).

3.3.2.3 The fundamental role of the teacher: deciphering class teaching practises

These results incite to explore the third strategy described in the introduction; if the socio-economic conditions (individual and in the local environment) and the logistic school organisation and inputs, as measured in the surveys, only explain a small part of the differences observed between student learning, this means, by default, that the **unmeasured practises (since they are difficult to observe) actually employed in the classroom, are certainly factors which influence the most learning achievement.**

Classroom teachers practices are certainly the factors which affect the most learning achievement

■ **Table 3.11:** Global «teacher» effect and effect of the teachers' measured characteristics on learning achievement (% of variance explained, average of grade 2 and 5, primary education)

	Burkina Faso	Cameroon	Côte d'Ivoire	Madagascar	Senegal	Guinea	Mali	Niger	Togo	Average 9 countries	Developed countries
Global «teacher» effect	18.5	28.9	17.6	37.9	12.8	38.1	42.5	31.2	19.1	27.4	between 5 and 15
Effect of the teachers' measured characteristics	2.6	4.8	2.2	4.3	1.4	4.7	3	5	2.5	3.4	
Effect of other characteristics of the teachers to be ascertained	15.9	24.1	15.4	33.6	11.4	33.4	39.5	26.2	16.6	24	

Source: Bernard et alii (2004).

Empirical
results
encourage
progress
towards
result-based
management

Bernard et alii. have recently explored this channel and have achieved particularly interesting results on the basis of the PASEC assessments carried out in nine countries. The approach consists in estimating for each country «*what difference it makes whether a pupil is in one class rather than another, in terms of explaining the pupils' learning achievements. We consider that, in view of all the individual and environmental variables⁷⁸, the most important variable in terms of effect on the class is the teacher. This measurement is called the teacher effect*». The effect of the teachers' measured characteristics (contractual basis, training, academic level, seniority, etc), which is part of the global teacher effect, is also estimated for the same countries. The results (cf. table 3.11) are extremely revealing:

- The global teacher effect is very important in Africa: It is estimated at 27.4% on average in the nine countries and rises to around 40% for some of them (Madagascar, Guinea and Mali). A useful comparison can be made: the same estimations made in the developed countries produce figures of between 5 and 15%. **The teacher is the cornerstone underpinning the quality of teaching in Africa.**
- **The effect of teachers' measured characteristics does exist, but is very slight:** it is calculated in the nine countries at 3.4% on average (from 1.4 to 5% according to the country considered). The status (contractual/civil servant/community-based), the academic level, the training received, the seniority (and thus the salary level, which is the resultant of all these factors) only amounts to 12% of the global teacher effect on student learning. **This result, which is reliable (it is observed in all the countries assessed), contradicts the commonly held view that an improvement in quality can only be achieved by recruiting teachers with civil servant status, a high academic level and having received long professional training.** 88% of the global teacher effect is not due to the measured characteristics (varying from 83% in Cameroon to 93% in Mali).
- **The effect of non-observable characteristics of the teachers is very strong. The teacher's motivation⁷⁹, the effective teaching time** (which are related due to the fact that low motivation causes teachers' absenteeism) and the **teaching methods** certainly make up a large part of these unmeasured characteristics which have a strong impact on student learning. There is a good case for working towards the setting in place of management systems, the purpose of which would be to enhance these factors. The most promising strategies reside in (1) reinforcing the structures and mechanisms of incentives and monitoring aimed at improving motivation and reducing absenteeism and (2) adapting the school calendar to the social environment (adjusting it according to local life: harvest season, market day, etc.) in order to increase the effective teaching time.

Conclusion:

- (1) the local socio-economic conditions affect learning achievement,
- (2) the resources and logistic methods have an impact, but this is not as significant as is commonly believed (particularly for the teachers' observable characteristics) and
- (3) the factors which have the greatest influence on learning achievement are the «hidden» factors (or factors which are difficult to measure) relating to actual practises in the classroom (teaching time, teacher motivation, teaching methods) that the public authorities have never considered it necessary to monitor or assess (the normal focus is the management of systems on a resources-based way).

This situation leads us to advocate progress in the direction of a clearly **results-based management** (this is by the way also the conclusion of the work of Bernard et alii.).

⁷⁸ Including the teaching material and classroom equipment available to the class.

⁷⁹ As regards teacher motivation, Michaleowa (2001) showed that motivation decreased in relation to the academic level of the teacher: teachers with the baccalaureate and higher are less professionally satisfactory than are teachers with a BEPC level by a statistically significant amount. The zero effect (or even negative effect in some countries) of the academic level of the teacher may be considered as the consequence of the positive effect of a higher standard of the most qualified teachers and the negative effect of lower motivation.

3.3.3 Results-based management: a necessity

How can we convert results-based management from a theoretical concept into a practical reality? This is a real challenge, since it amounts to a change in culture and practices of the system's stakeholders. This change in culture demands the introduction of an assessment culture and of increased «accountability» (the requirement to account for one's actions) of the stakeholders. The current results (set out above) show that the education systems do not always know how to deal with the problems of inefficiency (poor results despite a high level of resources) recorded in some schools. There are three pre-requisites for this change of culture⁸⁰ to come about:

Result-based management involves a change in culture: more assessment, more accountability and transparency and a more prominent role for local communities

1. Regular data collection concerning the schools (environment, resources and results)

To manage through results, it must first be possible to collect the results, as often as possible. The idea therefore is to compare results with resources and contexts at school level. This comparative data between schools must be distributed as widely as possible in order to motivate the least efficient schools. For example, Niger began distributing school report cards at the start of 2005 (one page data sheet per school detailing the context, the available resources and the school results compared with other schools) to individual schools.

2. Setting in place efficient management systems and practises

- improving equity in the distribution of resources

Equity in teaching conditions necessitates an improvement in adequacy between needs and resources allocated to schools. This is especially true in respect of the allocation of teachers, so as to reduce the number of over-sized classes. Positive discrimination policies could also be advantageously set in place in order to balance the environmental difficulties in certain areas through the allocation of additional resources.

- allowing schools to actually receive the resources

Frequently, central government resources do not actually reach the schools. To remedy this situation, the practise of direct allocation of supplies from the supplier to the schools has proven successful in some countries, particularly as regards school textbooks for which the in-transit loss rate is often high. The practice of circulating information to schools relating to the resources to be allocated is also to be encouraged. One example of this is set out in the World Development Report (World Bank, 2004, pages 62-63), and taken from Uganda. In 1996, a public expenditure tracking survey highlighted the fact that only 13% of the unit allocations (per pupil) actually reached the schools. To deal with this problem, the Ugandan government decided to publish the amounts transferred to each district on a monthly basis and to also broadcast it via local radio stations. The results speak for themselves: the rate of delivery is now assessed at around 80%⁸¹.

- providing incentives for efficient practises by the stakeholders

As was underlined by Bernard *et alii* «*although differences in motivation between individual teachers are inevitable, education systems cannot accept they bring about considerable differences in student learning. This brings us back to the question of the efficiency of the existing monitoring and incentive measures*». Real results-based management necessitates:

- a clarification of the «rules of the game» for all the stakeholders in the system (cf. table 3.12 for example): Who does what? Who account for to whom? How? Which remedial mechanisms apply in the event of discrepancies observed regarding set responsibilities?

⁸⁰ The IEMAC (Improvement of Education Management in African Countries) initiative, supervised by the World Bank, with technical support from the Pôle de Dakar and with the participation of five countries (Burkina Faso, Mauritania, Madagascar, Mozambique and Niger) adheres to the strategy aimed at changing the culture and helping countries to build up the technical and institutional instruments required for this change.

⁸¹ In the same way Burkina Faso has experimented with the decentralisation of «school funds» and the first assessment is very positive.

- the setting in place or strengthening of teachers' bonus and promotion schemes, no longer just related to seniority, but also according to student learning results.
- the rationalisation of the school inspection system. In many countries the number of inspectors and the resources available to them are inadequate to inspect all schools regularly. Prioritizing inspections of inefficient schools (low results in comparison to resources) would make it possible to optimise the inspection system. Inspections could also serve to check the accuracy of the data declared by schools especially in view of the fact that results-based management may lead some to make false declarations (for example if declaring greater requirements allows them to obtain greater resources).
- the capitalisation of efficient practises. Visits to the most efficient schools (good results in comparison to the resources allocated) would make it possible to observe the most effective practices with a view to replicating these methods in the least efficient schools.

■ **Table 3.12:** Example of global structure of responsibilities for education system management

	Direction action	Monitoring action
Teacher	[A] Practises: presence (timetable), syllabus, preparation, assessment, remedial action, behaviour	
	[B] Results: Common assessment at the end of the year, exams	
Parents/community	Make an undertaking regarding the regular presence of the children during school time defined in collaboration with the educational authorities	Supervise presence/behaviour of the teachers and [C], [D] [E], [F], [G] and [I]
School Headmaster	[C] Determine the weekly teaching timetable	[H] Supervise [A]
	[D] Provide pedagogical support to teachers	
	[E] Organise the upkeep of the infrastructures	
	[F] Organise relations with the community	
Inspector	[G] Collect school data	
	[I] Allocate resources and staff to schools	[M] Supervise [B], [C], [D], [E], [F], [G] and [H]
	[J] Regroup, check and circulate data from schools	
	[K] Prepare the common end-of-year examinations	
Regional director	[L] Takes steps to improve inefficient schools	
	[N] Allocate resources and staff to districts	[Q] Supervise [I], [J], [K], [L] and [M]
	[O] Produce regional statistics and distribute to districts	
Central directorate	[P] Take steps to improve the performance of inefficient inspectors	
	[R] Allocate resources and teachers to the regions	[V] Supervise [N], [O], [P] and [Q]
	[S] Produce and distribute national education statistics	
	[T] Establish the rules, criteria and instruments	
National Council	[U] Take steps to improve the performance of inefficient regional directors	
		Supervise the whole system

Source: Mingat (2004c).

3. Bolster the role of the local communities

As advocated by the World Development Report (World Bank, 2004), it would be advisable to shorten the accountability path between suppliers of education services (essentially the State and in a less concentrated manner the teaching agents paid by the State) and the recipients of the service (the pupils). **Because those who have most interest in ensuring student lear-**

ning are the parents, it is pertinent to reinforce their role in order to monitor and check what actually takes place in the classroom. If the teachers and school headmasters are required to report to the village community, this will encourage better practises. Some countries (Niger and Benin for example) have embarked upon this policy by setting up school management committees (made up of the school headmaster, teachers, parents, union representatives, the head of the village and sometimes even pupils). The main purpose of these school management committees is to ensure that the school is well run, notably by supervising the arrival of resources and monitoring the presence and practises of teachers in the classroom.

3.4 Conclusion: education systems can change their scale of operation in Africa

The diversity of situations within the African continent underlines the existence of room for manoeuvre in relation to the key parameters of education policy that must be continually researched in order to ascertain the best courses of action to set in motion. The matrix in table 3.13 proposes a summary of Section 3 which provides an overview of all the options open to the education authorities on the African continent and enables them to make real headway in developing education systems for the future.

Table 3.13: Matrix of policy levers

Policy levers: level/parameters	The principles of education policy	The possible options depending on the situation in the country
ROOM FOR MANOEUVRE in the KEY TRADE-OFFS of EDUCATION POLICY		
Inter-sector trade-off Parameters (i) the share of overall current education expenditure in the domestic government revenues	Mobilise national resources for education as agreed during international conferences (Education for all and the Millennium Development Goals)	<ul style="list-style-type: none"> - For countries that do not reach the threshold of 20%: increase the share of the budget allocated to education - For countries that exceed the threshold of 20%: maintain the share of the budget according to the aims of the education policies, and particularly for the post-primary sector
Intra-sector trade-off Parameters (i) the share of the overall current public education expenditure allocated to primary education (ii) the share of the overall current public education expenditure allocated to secondary education (iii) the share of the overall current public education expenditure allocated to higher education (iv) etc...	Protect the primary cycle until Universal Primary Education is attained in order to establish a sound minimum educational level throughout the nation	For countries furthest from UPE and with low budgetary priority for primary education <ul style="list-style-type: none"> - Option 1: increase the budget share for primary education by reducing the share for secondary education when this is greater than the mid-point observed in the African countries - Option 2: increase the budget share for primary education by reducing the share for higher education when this is greater than the mid-point observed in the African countries - Option 3: option 1 + option 2 when the shares of secondary and higher education are higher than the mid-points observed in the African countries
Quantity-unit cost trade-off (for the primary cycle) Paramètres (i) the overall public current expenditure for primary education as % of GDP (ii) the current expenditure per pupil (unit cost)	Allow quantitative development without reducing the quality	For countries furthest from the Universal Primary Education <ul style="list-style-type: none"> - Option 1: increase the volume of resources for the primary cycle in the countries where the % of GDP allocated to overall expenditure in the primary cycle is less than the mid-point in the African countries - Option 2: reduce the unit cost in the countries where the unit cost of primary education is higher than the mid-point in the African countries - Option 3: option 1 + option 2
Trade-offs within unit cost Parameters (i) the number of teachers regarded with the pupil-teacher ratio (ii) the average teacher salary in units of GDP per capita (iii) the current expenditure excluding teachers' expenditure in % of total current expenditure	Allow quantitative development of primary education without reducing the quality	For countries furthest from the Universal Primary Education with a high unit cost <ul style="list-style-type: none"> - Option 1: increase the average size of the classes if this is lower than the average value observed in Africa - Option 2: reduce the average salary of the teachers by recruiting lower paid teachers if the average salary is higher than the average value observed in Africa - Option 3: reduce the % allocated to current expenditure excluding teachers' salaries to the average value observed in Africa - Option 4: option 1 + option 2 ; Option 5: option 1 + option 3 - Option 6: option 2 + option 3 ; - Option 7: option 1 + option 2 + option 3

Policy levers: level/parameters	The principles of education policy	The possible options depending on the situation in the country
ROOM FOR MANOEUVRE in STUDENT FLOW MANAGEMENT		
In-cycle flow management Parameters - the % of repeaters within the primary cycle - the % of repeaters within the lower secondary cycle , etc.	Take steps to prevent pupils repeating years and to reduce dropping out	Option: reduce the % of repeaters in countries where it is over 10%, for example by setting up sub-cycles accompanied by a communication strategy explaining the negative effects of too high a repetition rate
Cross-cycle flow management Parameters - the primary → lower secondary transition rate	Maximum enlargement of lower secondary education and regulation of the transition on the basis of physical and financial feasibility of expansion	<ul style="list-style-type: none"> - Option 1: increase in transition rate (rare) - Option 2: maintaining the transition rate at current level (rare) - Option 3: reduction of the transition rate (option for the majority of the African countries far from universal primary education) and reflection on the measures for the support of those leaving the system
Parameters - the lower → upper secondary transition rate - the upper → higher education transition rate	From lower to upper secondary: increase enrolment taking into account the planned development of higher education. From upper to higher education: development of enrolment linked to the demands of the economy.	<ul style="list-style-type: none"> - Option 1: increase in the transition rate between lower and upper secondary (rare) - Option 2: maintain the transition rate between lower and upper secondary - Option 3: reduction of the transition rate, reinforcement of the quality of the post-primary cycles and reflection on the support measures for those leaving the system <p>Note: if enrolment in upper secondary education is set according to the «desirable» number of higher education students, the transition rate between upper secondary and higher education is no longer an «active» parameter of education policy</p>

ROOM FOR MANOEUVRE in PEDAGOGICAL and ADMINISTRATIVE MANAGEMENT		
Allocation of resources to individual schools Parameters - the environmental factors - the socio-economic factors - deployment of the teachers - allocation of material resources	Reduce the disparities in allocations Compensate for inequalities (difficult environments)	Wide diversity of options, in particular: <ul style="list-style-type: none"> - Allocate additional resources to schools in the most difficult environments - Optimise student groupings so as to save teachers in order to redeploy them in under-resourced areas or assign them to different classes
Transformation of resources into results Parameters the schooling factors (i) the school organisation (ii) the school inputs (iii) the role of the teacher	Give priority to school organisation which have a positively discriminative impact on quality Ascertain the most efficient combination of school inputs Ascertain the teaching practises which are decisive in pupils' learning achievement process	Wide diversity of options, in particular: <ul style="list-style-type: none"> - A firmly results-based management system - Enhance the role of the local communities - Improve accountability of the players in the system



