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**Developing secondary education in Africa:
Challenges, constraints and room for manoeuvre**

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Executive summary

Africa is still the global region that is the least advanced in terms of secondary school enrolment. In 2003, in general education the gross enrolment rate (GER) only reached 48% in lower secondary and 22% in upper secondary education, i.e., values below those observed elsewhere (in Asia/Oceania, for example, the averages were 70% and 40%, respectively). In Africa there are on average 310 students in technical and vocational training per 100,000 inhabitants, i.e., half the level of Asia/Oceania (648).

There are, however, grounds for optimism: Africa is also **the continent that has witnessed the highest progression in enrolment coverage for all levels and types of secondary education over the last few years.** As an example, the GER for lower general secondary education gained 13 percentage points between 1999 and 2003, compared to only 7 points in Asia/Oceania and 6 points in America/the Caribbean. This is all the more noteworthy in that this accelerated growth has taken place in a demographic context that is on the whole more difficult than elsewhere: indeed, young people aged between 12 and 18 represent 16% of the population in Africa compared to less than 14% in Asia/Oceania and America/the Caribbean.

There are two main nuances with regard to this significant progress:

1) **There are substantial disparities between countries and within each country.** The GER varies on the continent from 10% to 100% for lower secondary and from 2% to 35% for upper secondary education. Within each country, disparities between different population groups are even higher. On average in Africa, **for 100 boys enrolled in secondary education there are only 80 girls**, while the other regions of the world have reached (or are about to reach) parity. Disparities according to the level of household wealth are even more marked: **in lower secondary education for 100 children coming from the wealthiest quintile there are only 13 children from the poorest (and only 5 in upper secondary education).**

2) **The strong quantitative expansion has taken place in part to the detriment of the pupil-teacher ratio.** Africa is the only continent to have experienced a deterioration in the pupil-teacher ratio in secondary education over the past years; there were 26 pupils per teacher on average in 2003 and 24 in 1999 (in comparison, the average rate remained stable in Asia/Oceania at 20 pupils per teacher).

The added value of secondary education in terms of externalities for human development can be demonstrated empirically. Thus, although completion of primary education constitutes the minimum observed for the assimilation of basic knowledge, analysis shows that secondary education provides a better guarantee of permanent literacy. Similarly, secondary education encourages those who have benefited from this additional schooling to adopt low-risk behaviour in terms of maternal and child health and reproductive health, as well as to enrol their children (boys and girls) in school. **The added value for human development of attending a given school level (in comparison to the previous level) is very significant for lower secondary education and somewhat less so for upper secondary education.**

Efficiency in terms of economic development is more ambiguous. In this respect, a distinction can be made between the private return (what the fact of having attended one level of education rather than the previous level produces in private economic benefits, compared with the costs incurred) and the social return (the effects on the country's economic growth, again compared with the costs incurred). Figure 5.1 roughly illustrates **changes in returns in relation to the level of education for low-income African countries.**

- Social return decreases with the level of education: costs for the system increase more than the benefits for economic productivity.

- Private return, which is high for an individual in primary education compared to an individual with no formal education, drops in lower secondary education and then rises again with upper secondary education. This indicates that lower secondary education is relatively unattractive in itself at a private level but that it has a significant option value insofar as it is a prerequisite for attaining the most attractive levels of education, i.e., upper secondary and higher education.

In other words, in low-income countries there seems to be a **structural incentive for educational continuity.** Moreover, this continuity can be seen in today's education systems: pupils drop out of school all along the system, and just as much between different levels as within levels (cf. Figure 5.2).

Figure 5.1: Comparative changes in social and private return in relation to the level of education

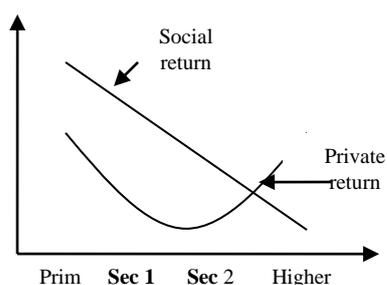
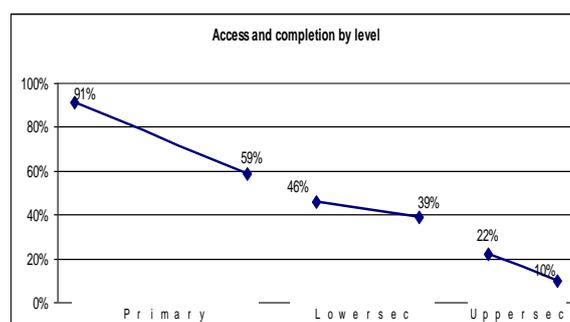


Figure 5.2: Access and completion by level (educational continuity)



At the same time, the economies of low-income African countries are very much characterised by discontinuity insofar as there is a low-production traditional/informal sector employing the vast majority of individuals that exists alongside a modern sector that is very productive but employs only a very small proportion of individuals.

The dichotomy between the economic structure and the educational structure creates an imbalance on the job market. Broadly speaking, there is a **lack of literate individuals** (who have received basic education) to increase the productivity of the traditional sector and there is a **surplus of individuals coming out of the higher levels of the system** (in comparison with the absorptive capacity of the modern sector) who cannot find jobs or who occupy under-qualified jobs compared to the training received. **Unemployment and under-employment rates rise along with the level of study.**

The question raised then is **what can government-run educational policy (particularly in secondary education) do to compensate for this situation, which is economically inefficient and often socially inequitable** (the vast majority of those who benefit the most from public resources, who continue their studies longest, are from the country's wealthiest families).

The answers are not easy, and it is very difficult to take a generic approach to recommendations, as contexts differ so much from one country to another. However, the observation of "best practices" certainly constitutes an interesting approach to identifying potential leeway for improving education systems in the least developed countries within a sector framework that is well balanced financially and socially.

Firstly, in many countries it is impossible to avoid **regulating pupil flows at the beginning of each level. At the start of lower secondary education, this appears necessary in the medium term (as long as universal primary enrolment is not achieved), in order to reverse the current trend towards the deterioration of teaching conditions** (and thus of quality) in lower secondary education. It also seems necessary in many countries to regulate pupil flows **at entry to upper secondary 1) due to this same need to protect quality and 2) in order to rationalise entry flows into higher education with regard to the modern sector of the economy. However, the regulation of pupil flows in secondary education should not be understood to mean a reduction in pupil enrolments. On the contrary, in many countries, the pressure on secondary education from the achievement of universal primary enrolment will be such that greater selectivity for access to secondary education is compatible with very significant quantitative growth in pupil enrolment.**

Naturally, **to secure social acceptance for the policy of regulating pupil flows, this must be accompanied by measures for job integration for all primary school leavers** (or the largest possible number) who do not continue on into general secondary education or who will leave school at the end of lower secondary education. The biggest challenge in the coming decade for technical and vocational education is therefore to develop short-term training formulas for job integration for these "victims" of flow regulation; this challenge is daunting, as very few such "compensatory" courses exist at the present time. The two other challenges that will undoubtedly face technical/vocational education are 1) training for the three million new primary teachers (public and private) necessary to equip primary education with a view to achieving universal enrolment, and 2) the rationalisation of typical technical

training courses (more costly than those in general education) with the aim of improved compatibility with the job market and economic growth (expanding sectors).

In order to achieve **the largest possible quantitative development of lower secondary education** (the goal certainly being universal enrolment, even if its timing has yet to be defined for each country) **without any deterioration in quality**, the observation of education policy decisions in the most successful countries should guide discussion in the countries that are furthest behind. **The main challenge to be met is the decrease in the unit cost without a deterioration in quality. Indeed, it should be noted that the most successful countries quantitatively, compared to other countries, show 1) considerably lower unit costs, and 2) similar pupil-teacher ratios.**

From this perspective, the idea of linking secondary education to primary education (to form a single block of basic education) with greater multi-functionalism (“polyvalence”) on the part of teachers, needs to be seriously followed up. **A decrease in repetition rates** in countries where the phenomenon represents a high cost for the system, penalizing class size and survival rate within the level, can also be envisaged¹. Finally, encouraging **private education** (which can be implemented through a public subsidy granted proportionally to the number of pupils and conditioned on state control) could also help to meet this challenge².

Finally, it is important to insist upon the importance of the right **balance** to be found when programming development policies (quantitative and qualitative). This balance must certainly be sought within each national context on two levels: 1) balance in the overall sector policy between **ambitions (system goals)**, **social realism** (reforms to improve system efficiency must be progressive and clearly explained to avoid their implementation being jeopardized by the parties concerned) and **financial realism** (external resources can certainly help to relax budget constraints, but they are unlikely to provide the bulk of financing for recurrent expenditure), and 2) balance within the sector between the different education sub-sectors in terms of flow management and intra-sector trade-offs in order to improve efficiency and equity.

To this end, carrying out a consistent **sector diagnosis** and using a **simulation model of sector financing** are critical for defining the best balance - or the most realistic one, taking into account technical and socio-political constraints - and for obtaining 1) the **necessary credibility with financial partners (internal and external)** to mobilise greater resources, and 2) a **consensus** with all system stakeholders to ensure successful implementation.

Finally, implementing a well-balanced programme so as to meet the challenge of strongly expanding secondary education enrolment in good conditions certainly requires a shift towards more **results-oriented management**, both at the macro level (on the main indicators) and at the school level (in particular through **good quality control**).

¹ The results achieved in this area by certain countries (Guinea and Niger, for example) in primary education can be considered as exemplary in many respects.

² In upper secondary education, privatising the educational offer (and the financing of users) is certainly all the more relevant in that 1) economic returns are much more private than social, and 2) access to this level and to higher education currently is essentially the privilege of the country’s wealthiest.

Introduction

The past decade has been the scene of multiple international initiatives towards education, which everyone recognises today as an essential element of economic and human development, both for individuals and the community at large. The goal of quality universal primary completion (UPC) by 2015, as set out at the World Education Forum in Dakar in April 2000, was included as one of the eight Millennium Development Goals (MDG) and also as the key objective of the multi-partner Fast Track initiative now benefiting around fifteen countries worldwide. Following these initiatives, **support to technical and financial partners has been readjusted over the last few years to benefit primary education, to the detriment of other sub-sectors and types of education.** This shift has been expressed in two ways: 1) by distinct financial preferences (in the traditional form of project support or more innovative programme support) for basic education (for example, the percentage of bilateral aid granted to basic education rose from 1% in 1998 to almost 2% in 2003³) and 2) by the implementation of conditions/recommendations for national budget trade-offs between different sectors (case of the HIPC initiative where social sectors must be privileged and the indicative framework for the Fast Track initiative, which recommends that 50% of recurrent expenditure on education be secured for primary education).

The absolute necessity of achieving universal primary education for economic and human development must not overshadow **the enormous pressure on post-primary education** brought about by the progress towards (and, hopefully, the achievement of) the Dakar goal. This pressure is the result of combined micro and macro effects. At micro level, there is a real and legitimate **individual desire** on the part of children (and their families) to pursue their studies as long as possible after completing primary education. At macro level, the temptation is also very strong for countries to develop secondary education quantitatively as much as, or more than, primary education. For example, it is not unusual for **national development plans** to include **objectives for increasing transition rates**⁴ from primary to secondary education, resulting in volume increases for secondary education that are significantly higher than those observed and/or scheduled for primary education. Some countries in particular recommend the expansion of the goal of universal education to nine years schooling and an increase in the transition rates from lower to upper secondary education.

Secondary education represents the major part of post-primary education overall. It is **multiform**, very often made up of **two sequential levels of general education** as well as

³ DAC data, used in the EFA global monitoring report on 2006 (UNESCO, 2005)

⁴ The transition rate between two education levels is equal to the proportion of pupils completing the lower level who enter the higher level.

vocational/technical training in a variety of formats (particularly in terms of duration and organisational arrangements that are more or less job-oriented⁵).

Secondary education is at the centre of the education system, at the junction between primary education (from where it receives a part of its pupils) and higher education (to which it passes on its best elements and for which reference to the job market is crucial). It is thus at the heart of the overall sector and, like the other education levels, seeks an increase in resources to enrol more children and young people and to improve the quality of education provided. Even if some countries do have some leeway for increasing global resources (domestic and external) for education, these are not unlimited; and, in contexts where resources are frequently lower than needs, secondary education is subject to the **rationale of trade-offs in the distribution of resources allocated to the sector as a whole**.

Insofar as the different levels of education inevitably compete with each other for the distribution of resources, advocacy for secondary education (and each of its levels) needs to be supported by an analysis of the economic and social returns that compares these with the other levels of education. While there is a consensus on the necessity of expanding all levels of education (including secondary education), **the question still remains as to the pace of expansion that is most relevant to human and economic development**. While primary school results are internal to the system (proportion of pupils completing primary schooling with adequate education), post-primary results are more complex in that an external result is aimed at in addition to the internal results. **The success of the final levels of the education system** (particularly technical/vocational education and to a point upper secondary education) **can be measured, at least in part, by their external efficiency**: do leavers/graduates find a job and does the job correspond to their level of qualifications? Are they going to change their behaviour in terms of health, their children's education, citizenship and protection of the environment, etc.? Does this benefit the economic and human development of the country?

Just as for other levels of education, in secondary education the African continent is lagging behind the other world regions. However, there are significant differences in enrolment coverage rates in secondary education on the continent, with better results in some countries. Results differ from country to country not only due to the varied contexts (economic and demographic) but also because education sector policies may differ considerably from one country to another. What lessons can be drawn from comparing contexts, resources and results between countries? Does it allow us to identify the most promising educational policies in specific contexts and thus to measure the existing room for manoeuvre?

Once these questions have been answered to the extent possible, discussion should then be situated within the overall sector policy framework. If for most low-income African countries, in the medium term the general interest and financial constraints support an intermediary form of the educational pyramid, universal at the base (for primary education and as far as possible for lower secondary education) and narrow at the top, what are the implications of this in terms of regulating pupil flow? What further pre-employment training should be provided for those school graduates coming out of primary education and lower secondary education who do not wish to (or who are unable to) join the job market immediately?

⁵ As there is not just one across-the-board definition of secondary education (duration and entrance age may vary considerably from one country to another for the different levels), in order to make comparisons between countries, the authors have 1) used the international standard classification of education (ISCED97) and 2) recalibrated financial data according to the structure of education levels most generally observed in African countries (4 years for lower and 3 years for upper secondary education).

There are four parts to this document. The first part analyses the **current situation and trends observed in coverage rates and teaching conditions** that characterise secondary education, by adopting a comparative inter-country and intra-country approach. The second part studies **external efficiency** (in terms of both human and economic development and the compatibility of the different types of education with the job market), with an in-depth look at secondary education and distinguishing between the three types of secondary education whenever possible (lower and upper secondary education and technical/vocational education). The third part situates **secondary education in a global sector-wide perspective**, notably by dealing with the issue of **managing pupil flows**, and an example is given of sector policy programming in an African country that has made progress in dealing with these issues (Chad). Finally, the fourth part sets out to **explain the differences in results from one country to another in terms of secondary education coverage**. It attempts to **identify “best practices” in education policy** and, based on the observation of the most successful countries, proposes indicative (not normative) benchmarks for helping the expansion of lower secondary education⁶.

The bulk of the data used comes from three complementary sources:

- 1- The most recent data from the UNESCO Institute for Statistics, which collects the main education data from all countries worldwide through its annual survey.
- 2- Data collected by the technical teams of the World Bank and the Pôle de Dakar (UNESCO-BREDA) during support missions in around fifteen countries. They are often called upon to produce national sector analysis (Country status report-CSR).
- 3- Data from household surveys carried out in Africa, particularly the Multiple Indicators Cluster Surveys (MICS) carried out by national teams with the support of UNICEF.

The analysis and conclusions of this report are those of the authors and do not constitute a particular position adopted by UNESCO.

⁶ This paper uses an analytical, comparative and technical approach. It takes only slightly into account the specific socio-political contexts of each country facing decision-makers at the time of trade-offs and the implementation of proposed reforms.

1. Current situations and trends

1.1. An average African situation...

1.1.1. On the whole coverage rates are lagging behind other continents are growing more rapidly

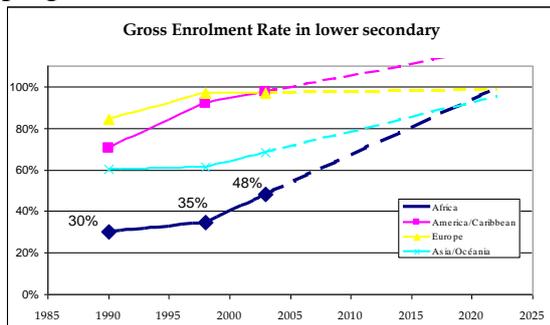
An analysis of changes in average African gross enrolment rates (GER)⁷ (lower and upper general secondary education) and comparison with those of other continents (cf. Figures 1.1 and 1.2) shows that:

1. As for primary education, **secondary school coverage in Africa is lagging behind the other continents**. In lower secondary education, the average GER⁸ was only 48% in Africa in 2003 compared to almost 70% in Asia/Oceania and practically 100% in America/the Caribbean and Europe. The average GER for upper secondary education in Africa was estimated at 22% in 2003, whereas it reached nearly 40% in Asia/Oceania and 50% in America/the Caribbean and Europe.
2. There is, however, reason to be optimistic insofar as **the African continent has witnessed the highest progression in secondary school coverage over the last few years**. The average GER for lower secondary education gained 13 percentage points between 1998 and 2003 in Africa whilst progressing by only 7 points in Asia/Oceania and 6 in America/the Caribbean, with no progression in Europe (mainly because there is almost universal completion of lower secondary education). The average GER in upper secondary education gained 7 points in Africa and only 4 points in Asia and America/the Caribbean and 2 in Europe.
The higher rate of progress in Africa compared to other regions is all the more significant in that it **has taken place in a more difficult demographic context** (young people between 12 and 18 years of age make up 16% of the total population in Africa but less than 14% in America and Asia, cf. Part 4.2.1).
3. **If trends from previous years continue, then Africa could achieve similar enrolment rates to other parts of the developing world by 2020 for lower secondary education** and by 2030 for upper secondary education.

⁷ The gross enrolment rate for a given education level is calculated as the ratio of the number of pupils actually enrolled at that level to the total population that should be enrolled at that level based on their age.

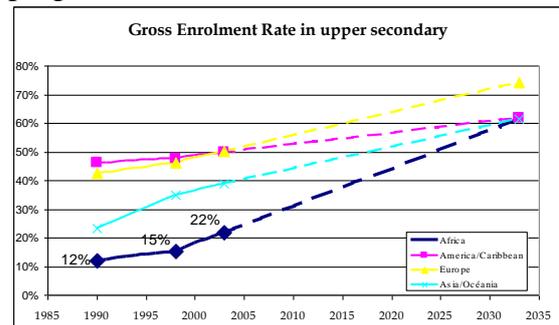
⁸ Unless indicated otherwise, the following figures are inter-country arithmetical averages (not weighted by the population).

Figure 1.1: Gross enrolment rate in lower secondary education per region, progression 1990-2003 & trend



Source: Authors' calculation based on UIS data

Figure 1.2: Gross enrolment rate in upper secondary education per region, progression 1990-2003 & trend

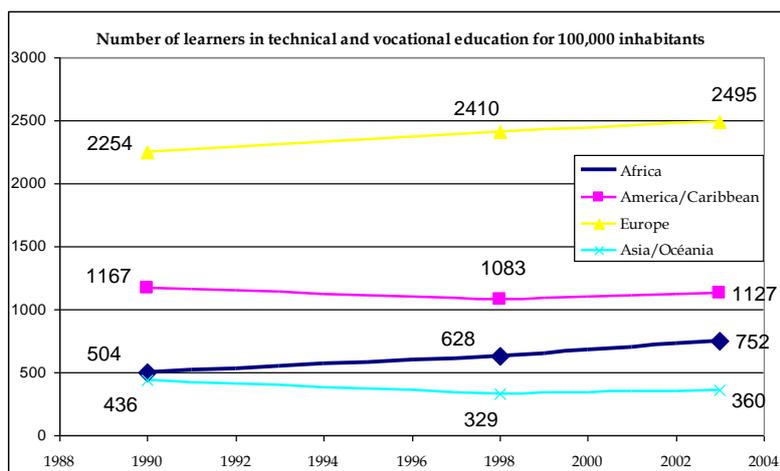


The observations are similar for **technical/vocational education** (cf. Figure 1.3).

1) There are on average in an African country 310 pupils per 100,000 inhabitants⁹, which is **the lowest regional rate** (there are 650 for a typical country in Asia/Oceania, 1300 in America/the Caribbean and 2400 in Europe). Technical/vocational enrolment accounts for 7% of overall secondary education enrolment in an average African country, i.e. a proportion close to that of an average country in Asia/Oceania (8%) but lower than the America/Caribbean region (14%) and Europe (24%).

2) **It is in Africa that coverage has, relatively speaking, progressed the most in recent years.**

Figure 1.3: Number of learners in technical and vocational education for 100,000 inhabitants per region, 1990-2003



Source: Authors' calculation based on UIS data

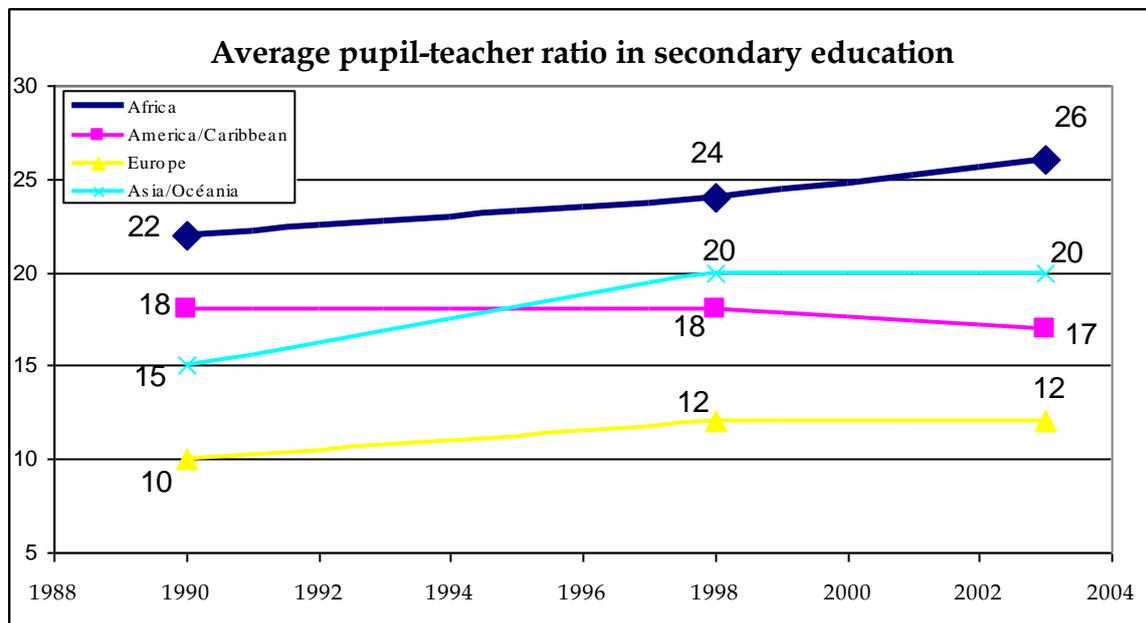
⁹ This indicator is used for this type of education where the GER calculation is inappropriate: technical and vocational education differs in all countries, with different duration and entrance age criteria; this means it is not possible to use a single reference age group for this type of education.

1.1.2. Teaching conditions more difficult than elsewhere and deteriorating...

On average, in 2003 in Africa, there were **26 pupils per teacher**¹⁰ (which means an average class size of over 30 pupils, since the number of hours taught to pupils is lower than the number of teacher working hours) compared to only 20 pupils per teacher in Asia/Oceania, 17 in America/the Caribbean and 12 in Europe. **The African continent is the only one where there has been a deterioration in the pupil-teacher ratio** in the last five years.

Overall, it has not been possible to accompany the very positive progression in pupil enrolments in secondary education in Africa with a similar pace of recruitment of new teachers, resulting in a deterioration in the average pupil-teacher ratio, which in the 1990s was already much poorer than on other continents. Implicitly, **faced with the quantity-quality trade-off that confronts every country, Africa has made (or suffered) the choice of quantity**. This overall result can be illustrated by the examples of two countries that are representative of this evolution, i.e. Mali and Guinea (cf. Figures 1.5 and 1.6). In Mali, the GER in secondary education increased from 9% to 23% between 1990 and 2004, and at the same time the pupil-teacher ratio deteriorated from 13 to 38. The situation is similar in Guinea: the GER rose (from 9% in 1990 to 28% in 2004) but at the cost of a deterioration in the pupil-teacher ratio (13 in 1990 and 43 in 2004). In both cases, the GER has increased more than two-fold (and even three-fold in Guinea) but the pupil-teacher ratio (PTR) has also been multiplied by three (or even more in Guinea).

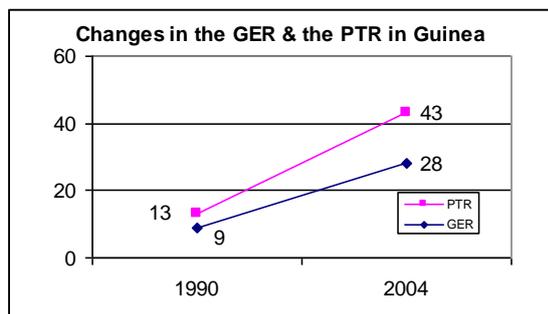
Figure 1.4: Average pupil-teacher ratio per world region, 1990-2003



Source: Authors' calculation based on UIS data

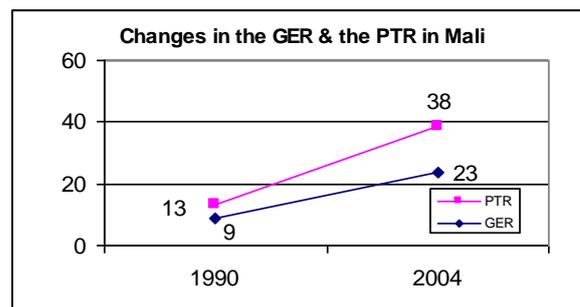
¹⁰ Part 1.2.2 will show that this average figure is the combination of concrete situations that differ markedly both between countries and between schools within a country.

Figure 1.5: Comparative changes in the GER & the PTR in secondary education between 1990 and 2004 **in Guinea**



Source: County Status Report (CSR) Guinea (National team, World Bank, Pôle de Dakar, 2005)

Figure 1.6: Comparative evolution of the GER & the PTR in secondary education between 1990 and 2004 **in Mali**



Source: County Status Report (CSR) Mali (National team, World Bank, Pôle de Dakar, 2005)

1.2. ...which must not conceal the disparities

The averages given in the previous part should not conceal the large disparities that exist in Africa, both with regard to access and teaching conditions. These **disparities** are visible both **between the different African countries and within each country between social groups and between schools.**

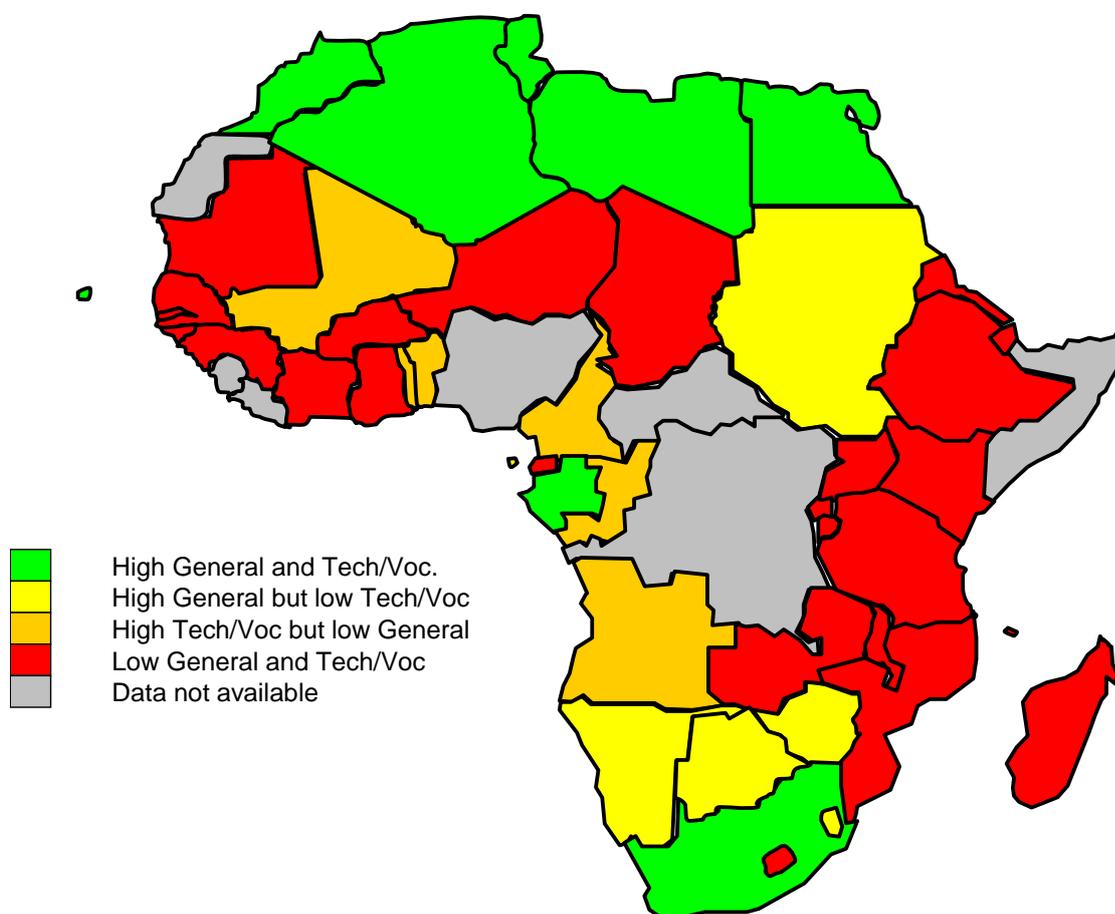
1.2.1. Considerable disparities between countries

Secondary education coverage

Differences between countries can be seen both in terms of current enrolment levels and in terms of trends. Concerning current levels of enrolment (year 2003 or nearest), **the GER in lower secondary education varied from 10 (Niger) to more than 100% (Cape-Verde, Libya and South Africa)**, that of upper general secondary education from 2 to 71% (South Africa), and the number of students in technical/vocational training from 8 to 3664 for 100,000 inhabitants.

Map 1.1 divides the countries up into four categories. Category 1 (in green on the map) includes those countries with coverage rates above the African average both for general education (lower and upper secondary) and technical education and vocational training (technical/vocational). Countries in category 2 (in yellow on the map) are those that overall have higher than average access to secondary education for Africa, but with more limited technical/vocational training (lower than average). Group 3 (countries in orange on the map) have, on the contrary, secondary enrolment rates that are generally below average but give special emphasis to technical/vocational education (higher than average rates). Finally, the countries in group 4 (in red on the map) have secondary education access rates that are lower than the African average both in general and in technical/vocational education.

Map 1.1: Coverage levels in general secondary education and in technical and vocational training (2003 or nearest, in reference to the African average)



An inter-country analysis based not on current levels of coverage rates but on their change since 1990 points to the following lessons:

1. **Countries differ greatly in terms of the pace of expansion.** For lower secondary education, the average annual change varies on the continent from – 1.8 points of enrolment (i.e. a drop in coverage) to + 5.7 points. For upper secondary education, the result is similar, with the change from 1990 to 2003 varying from -0.4 to 3.3.
2. Cross-analysis of changes in enrolment in lower and upper secondary education shows that **countries which have made the most progress on one level have done likewise on the other. This means that increases at lower secondary level have globally been passed on to upper secondary, and therefore that pupil flow has been “managed” more or less in the same way in all countries¹¹.**

¹¹ Conversely, the fact that no countries have made more progress than the African average in lower secondary education while making less progress in upper secondary education reveals the absence of flow management to limit the expansion of growth in upper secondary education so as to bring it into line with the needs of the job market (this question will be handled in Parts 2.2 and 4.1).

3. **There is only a weak link between the level of general secondary education coverage and the recent trend of expansion of enrolment.** As shown in Table 1.1, some countries, already ahead in terms of coverage, have accentuated their lead by offering places on the benches of secondary schools at a pace of growth that is higher than the African average (countries in the North-East box in the table). Other countries have on the contrary fallen further behind compared to the African average (countries where both the coverage rate in 1990 and the pace of expansion from 1990-2003 were below average, in the South-West box). Others have, on the other hand, caught up to some extent with a higher-than-average pace of expansion of coverage, in spite of a lower rate in 1990 (countries in the North-West box). Finally, some are not as far ahead of the others as before (those that had a higher-than-average rate in 1990 but that have progressed less rapidly than the average since 1990, in the South-East box in the table).

Table 1.1: Secondary education GER, ranked according to the level in 1990 and the 1990-2003 change

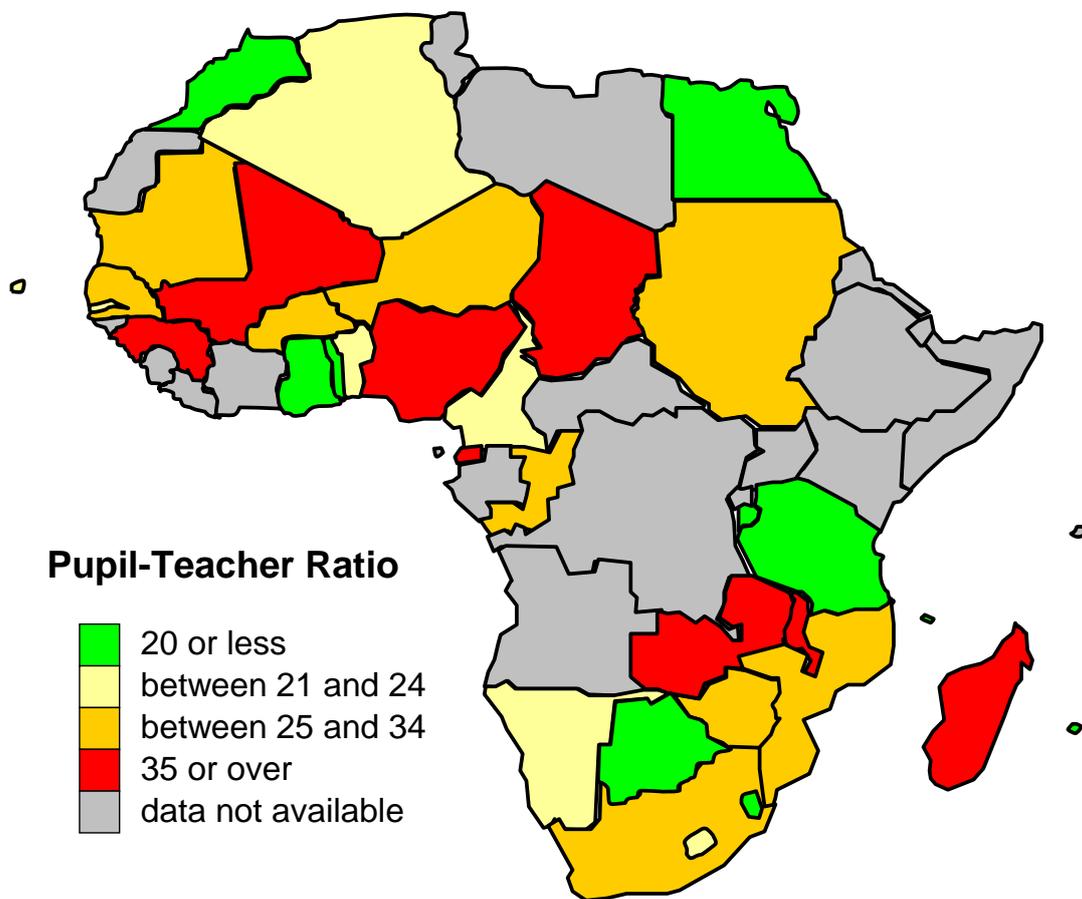
		Level 1990	
		Lower than the African average	Higher than the African average
Change 1990-2003	Higher than the African average	Cape Verde, Comoros, Equatorial Guinea, Eritrea, Gambia, Guinea, Guinea-Bissau, Malawi, Mali, Togo, Sudan, Tanzania	South Africa, Algeria, Botswana, Gabon, Mauritius, Namibia, Tunisia
	Lower than the African average	Angola, Benin, Burkina Faso, Burundi, Chad, Ivory Coast, Djibouti, Ethiopia, Kenya, Madagascar, Mauritania, Mozambique, Niger, Senegal, Uganda, Zambia	Cameroon, Congo, Egypt, Ghana, Lesotho, Morocco, Swaziland, Zimbabwe

Teaching conditions

There are also significant inter-country differences in terms of teaching conditions, represented here schematically by the average national pupil-teacher ratio¹². Calculated on general secondary education as a whole (only limited data broken down per level is available on this aspect), **it varies according to the country from 11 to 54**. As shown on Map 1.2, 11 countries present an average PTR of under 20, 5 countries a PTR of between 21 and 24, 12 countries a PTR of between 25 and 34 and 8 countries a PTR of over 35. **In the latter countries, the average PTR is 40 and the average class size therefore reaches around 60.**

¹² In primary education, the predominance of the classic model of one teacher in a class with a single group of pupils results in the pupil-teacher ratio being an approximate measurement of the size of an average class (one teacher per class is sufficient). On the other hand, in secondary education, the PTR constitutes an under-estimation of the size of an average class insofar as the number of teachers' working hours (often between 16 and 25 per week) is lower than that of pupils' lesson time (often between 25 and 30 hours per week). The average class size in most countries is between 40 and 60% higher than the average PTR.

Map 1.2: Classification of countries according to the PTR in secondary education in 2003 (or nearest year)



1.2.2. ...and significant disparities within each country

Gender disparities

Africa is the continent where gender disparities in access to both lower and upper secondary education are most striking.

- In **lower secondary education** in Africa, the average inter-country gender parity index is estimated at 0.80 (which means that **for every 100 boys enrolled there are around 80 girls**), whilst parity is reached on the whole, or virtually reached, elsewhere in the world.
- In **upper secondary education**, the disparities in access between girls and boys are even more significant: the **average parity index is estimated at 0.76 in Africa**. In America/the Caribbean and in Europe, girls have on the whole better access to this level of education than boys (parity index of 1.14 and 1.07 respectively) and in Asia/Oceania parity is virtually reached (0.96).

- **The degree of disparity between girls and boys varies enormously from one African country to another.** The parity index varies from 0.35 to 1.32 in lower secondary education and from 0.25 to 1.37 in upper secondary education. Out of the 48 countries for which data is available for lower secondary education, 11 countries have achieved parity (or even show better coverage for girls), 23 countries have an index of between 0.7 and 0.95, and 14 countries a parity index of under 0.7. In upper secondary education, 12 countries have achieved parity or show a disparity in favour of girls, 17 countries have an index of between 0.7 and 0.95, and 19 countries an index of below 0.7 (the values for all countries are in Appendix 6).

Table 1.2: Gender parity index calculated on the GER (including technical/vocational education)

	Lower secondary		Upper secondary	
	1999	2003	1999	2003
Africa	0.79	0.80	0.70	0.76
America & Caribbean	1.03	1.02	1.02	1.14
Asia/Oceania	0.91	0.95	0.95	0.96
Europe	1.00	1.00	1.00	1.07

Note: The parity index is calculated by relating the enrolment rate of girls to that of boys. An index equal to 1 corresponds to equal access between boys and girls, and a value of under 1 indicates a lower enrolment of girls compared to boys.

Source: Authors' calculations based on UIS data

Wealth-related disparities

Wealth-related disparities are even more marked than those related to gender. Table 1.3 presents the relationship between access rates to the different levels of education between the richest 20% and the poorest 20% for certain countries. For example, in Malawi, access rates to primary education are equivalent for children from the richest and the poorest families, however access rates to lower secondary education are 1.6 times higher for the richest, rising to 5.6 times higher for access to upper secondary education. This result can be generalised, to different degrees, to all the countries for which data is available.

Wealth-related disparities increase with the level of education, substantially in some countries (in Chad, the chances of access to lower secondary education are 14 times higher for the richest and 40 times higher to upper secondary education). On average, out of the countries presented, **the ratios of the chance of access between the richest and the poorest are estimated at 1.6 for access to primary education, 7.5 for access to lower secondary and 20.1 for access to upper secondary education.**

Correlatively, there are substantial inequalities in the appropriation of public resources in education: in 2002/03 **the most educated 10% accounted for 45% of expenditure on education in French-speaking Africa (30% in English-speaking Africa)**¹³, compared to 31% (figure for 2000) in poor countries outside Africa. Insofar as the pupils who remain longest in the education system are disproportionately from the wealthiest families and as unit costs increase with the level of education (cf. Part 4.2.2), the greater part of public expenditure on education benefits children from the wealthiest families. Considering this budget expenditure as a transfer of income benefiting households whose children are in the

¹³ Source: Dakar +5, EFA in Africa, Paving the way for action, Pôle de Dakar, 2005

school system, it can be noted that in Africa the poorest households receive only limited public transfers by way of education policy. In Niger for example, families belonging to the group of the poorest 20% appropriate 7.1 times less public resources for their children's education than families from the richest quintile (CSR Niger, 2004).

These results strongly encourage **the implementation (or reinforcement) of pro-poor policies for access to secondary education, as it is at lower secondary level that the school system loses the greatest number of pupils from the countries' poorest families.** This raises the question of the legitimacy of providing grants only to students in higher education when in many countries the access rates for poorer individuals to this level of education are virtually nil; the current grant system does not fulfil its function for improving equity as it comes in too late in schooling¹⁴.

Table 1.3: Ratio between access rates for the richest 20% and the poorest 20%, per education level.

	Primary	Lower secondary	Upper Secondary
Angola	1.4	-	-
Cameroon	0.9	8.3	38.2
Ethiopia	1.5	1.9	2.8
Gambia	1.6	6.9	47.5
Guinea	1.2	2.4	4.6
Kenya	-		4.3
Lesotho	1.0		6.5
Madagascar	1.5	-	-
Malawi	1.0	1.6	5.6
Niger	3.7	17.2	34.8
DRC	1.3	-	-
Rwanda	1.3	12.0	17.0
Sierra Leone	2.3	-	-
Chad	2.2	14.0	40.0
Togo	1.6	-	-
Average	1.6	7.5	20.1

Source: - Country status reports (CSR) carried out by the national teams with outside support: Cameroon (World Bank and Pôle de Dakar, 2004), Ethiopia (World Bank, 2004), Guinea (World Bank and Pôle de Dakar, 2005), Madagascar (World Bank, 2000), Malawi (World Bank, 2005), Niger (World Bank, 2004), DRC (World Bank, 2003), Rwanda (World Bank, 2004), Chad (World Bank and Pôle de Dakar, 2005), Togo (World Bank, 2000)
 - Analysis and data from MICS surveys 2000: Angola (World Bank), Gambia (Pôle de Dakar), Kenya (Pôle de Dakar), Lesotho (Pôle de Dakar), Sierra Leone (World Bank)

Disparities between schools

There are also disparities between schools, both in the resources allocated (and thus in the teaching conditions for pupils) and in the results achieved. Figures 1.7 and 1.8 illustrate this kind of disparity based on the examples of Malawi and Chad.

Figure 1.7 highlights, for all secondary schools in Malawi, the number of pupils enrolled and the number of teachers. While there is a general, logical trend for there to be a larger number

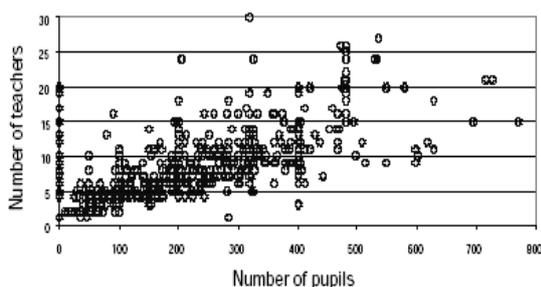
¹⁴ The second principal function of social aid, that of incentive, is more successfully addressed in that the demand for this level of education is in most countries equal to or even above what is necessary for the needs of the economy in terms of jobs in the modern sector.

of teachers in schools with the most pupils, it can also be noted that there is significant variation around this general trend. **Taking schools with the same number of pupils, substantial differences can be seen in the number of teachers, synonymous with large differences in teaching conditions (class size).** For example, in lower secondary education, amongst schools with 400 pupils, some benefit from 20 teachers (i.e. an average ratio of 1 teacher to 20 pupils) whilst others can only count on 5 teachers, i.e. an average of 80 pupils per teacher!

Figure 1.8 (presenting the Chad data) also shows differences in the conditions of education at lower secondary level between schools. A horizontal reading of the graph shows that the annual resources (human, material and financial) received vary with the school from under 30,000 FCFA to over 150,000 FCFA per pupil, i.e. over five times more.

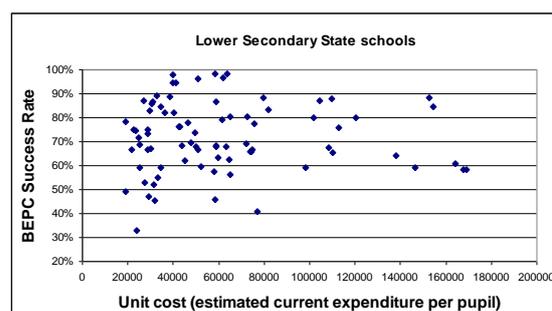
The second result shown by the figure is **there is only a very limited relationship between the resources allocated to schools and their results** (measured here by the success rate at the BEPC, the exam sat at the end of lower secondary school). With similar resources per pupil, results vary widely. For example, for schools with around 60,000 FCFA per pupil, the BEPC success rate ranges from under 50% to 100%.

Figure 1.7: Disparities in teacher allocation, lower secondary schools, Malawi 2001



Source : CSR Malawi

Figure 1.8: Disparities in resources and in results, lower secondary state schools, Chad 2003



Source : CSR Chad

These results, which are valid at all levels to varying degrees depending on the country, are a sign that improvement is possible in terms of management in two main fields:

1) The obvious differences in state schools in education conditions for pupils show the need for progress in **the management and distribution of resources, in particular as far as teacher allocation is concerned.**

2) The large differences between schools in terms of results show the need **to improve teaching management, in order to improve the schools' capacities for converting the resources it receives into results.** This will certainly imply a more result-oriented management system combining better transparency and the dissemination of comparative information on schools (contexts, resources and results), effective remedy/sanction/incentive mechanisms for those schools identified as the least successful, and a strengthening of the role of local communities around the school in order to improve social monitoring and hold all those closely involved with the school more accountable¹⁵.

¹⁵ See the World Development Report, 2004.

2. External efficiency of the different levels of education

Once the general situation and recent trends have been studied, it is important to **analyse what secondary education contributes to the human and economic development of nations.**

The external efficiency of education, at both the human and social development level and the economic level, has been empirically confirmed by numerous studies¹⁶. The positive effects of education are multiple, whether at individual or societal level. Generally, the more years of education/training an individual receives, the greater are his/her chances of escaping poverty, adopting low-risk behaviour in the field of health (including towards HIV/Aids), becoming literate in the long-term, enrolling his/her children in school, and contributing to the economic development of his/her country through increased productivity.

Having said this, it is appropriate to refine this result by **analysing the differentiated impacts for each level of education**, compared to the previous level, **with a focus on secondary education** and distinguishing as far as possible between the different types of secondary education. This information is particularly interesting in view of the competition between the different levels for the resources allocated to education (cf. Part 4).

This Part strives, on the basis of empirical data (mainly from household surveys carried out in the countries), to analyse the external efficiency of the different levels of education 1) in terms of **human development**, 2) in terms of the compatibility of individuals with **the job market** and 3) in terms of **economic returns**.

2.1 Comparing the effect of the different education levels on human development

While not claiming to be exhaustive, using household survey data does give a glimpse of the differentiated effects of education levels on the human development of individuals (and so of society). Methodologically reliable information is available on the effects of different levels of education on 1) long-term literacy (goal 6 of the EFA and MDG), 2) the use of medical assistance for births (exemplary behaviour in terms of maternal and child health), 3) fertility rates (number of children per mother, an important factor for reducing the demographic burden on Africa, cf. Part 2.1.3) and 4) school attendance by children (inter-generational effect of education). It should be noted that even if the results presented are gross results (the difference in results in terms of human behaviour in relation to the level of education received), they are beyond dispute in that the net effects (calculated by deducting the “parasite” effects of factors connected to the explained or explicative variable from the gross effects) point to the same conclusions. The reader is invited to refer to the specified source documents for further details.

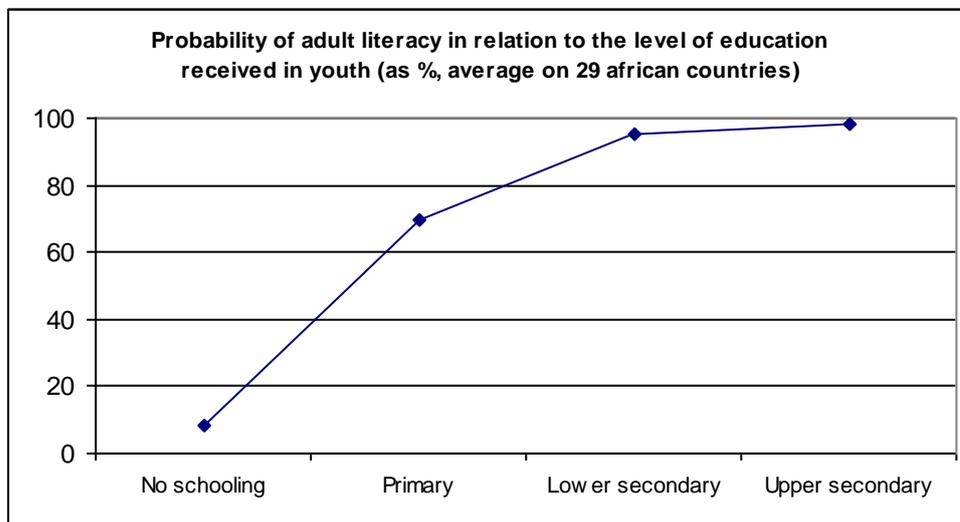
¹⁶ See for example Education for all in Africa, Dakar +5, Paving the way for action, UNESCO-BREDA, 2005.

2.1.1 Effect on long-term literacy

Figure 2.1, construed from data from surveys carried out in around thirty African countries, is fairly eloquent:

1. The more an individual continues his studies, the higher his/her chances of being permanently literate.
2. On average in Africa, the likelihood of long-term literacy is lower than 10% for individuals who have not been to school, whereas it reaches 70% for those who have completed primary education.
3. It is only completion of lower secondary education that virtually ensures a 100% likelihood of long-term literacy for individuals. Upper secondary does not add anything more in this respect.

Figure 2.1: Probability of adult literacy (22-44 years) in relation to the level of education received in youth



Source: Authors' calculation based on Household Surveys (MICS & DHS) in 29 countries

The results presented have the disadvantage of being averages and therefore conceal disparities. However, it is quite clear that in many of the countries studied **lower secondary education is necessary in order to consolidate basic primary achievements with a view to making permanent literacy universal.**

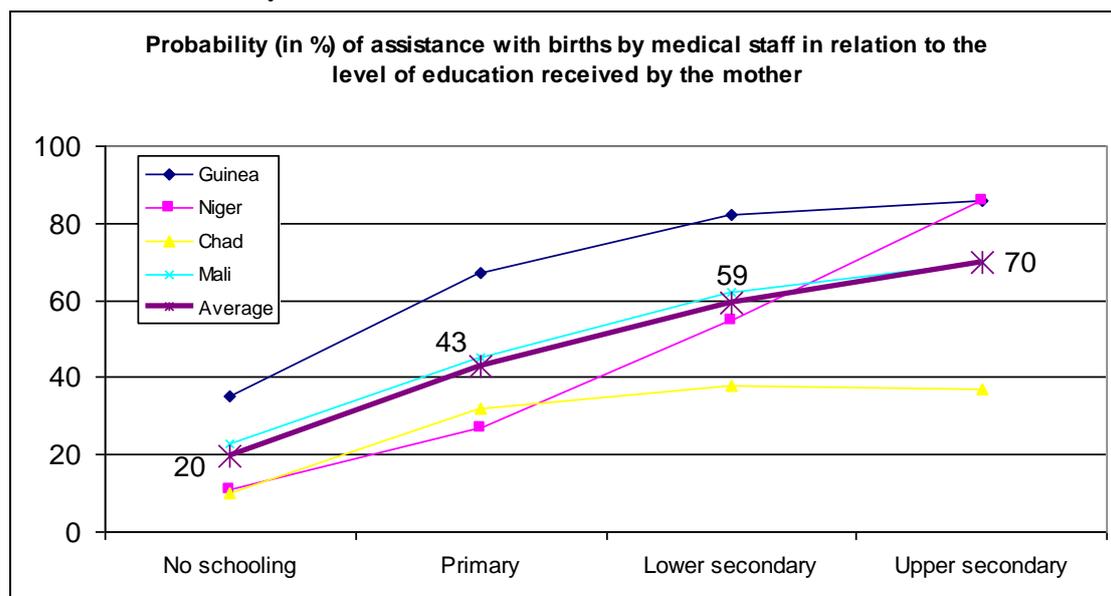
2.1.2. Effect on individual health behaviour

Turning to medical assistance with birth constitutes model behavior in terms of maternal and child health. It is known that the extra assistance provided by medical staff leads to a reduction in infant mortality rates, which is one of the Millennium Development Goals (Mehrotra and Jolly, 2000). Data from four countries (Guinea, Mali, Niger and Chad) has been used to compare the behaviour of mothers in this respect with the level of education received. As with literacy, results improve with the level of education and returns decrease.

On average in the four countries, **primary enrolment can more than double the chances of recourse to medical assistance for births** (43% of births for women who

have benefited from primary schooling versus only 20% for those with no schooling). **Lower secondary education further increases the probability of medical-assisted births** (+16 percentage points, i.e. 59% of births). Finally, access to upper secondary education is also accompanied by an increase in the probability of medical assistance, even if this is less significant compared to the previous level (+ 11 percentage points, i.e. 70% of births).

Figure 2.2: Probability of assistance with births by medical staff in relation to the level of education received by the mother



Source: Country CSRs (National teams, World Bank, Pôle de Dakar)

2.1.3. Effect on reproductive health behaviour

Due to its economic impact, the lack of birth control and the consequent demographic pressure contribute to impeding poverty alleviation in many African countries. It is therefore appropriate to measure the impact of the education of mothers on changes in their reproductive health behaviour, which can be assessed more specifically by the fall in the number of births. Data from four countries (Ethiopia, Guinea, Mali and Chad) is used to illustrate the differentiated effect of different levels of education on this behaviour.

As for other human development factors, the impact rises with the level of education received. While there are **around 5 children per woman for uneducated women, women who have been to primary school have an average of only 4.3 children.**

The added value of lower secondary education is even more significant: women who have completed lower secondary will have on average only 3.4 children (i.e. almost one child fewer than those who have only been to primary school).

Finally, access to upper secondary education also enables a reduction in births (3.2 children on average) but the additional effect compared to lower secondary education is not significant.

Table 2.1: Women’s fertility rates (average number of children) in relation to the level of education received

	No education	Primary	Lower Secondary	Upper Secondary
Guinea	4.4	4.1	3.8	3.9
Chad	4.8	4.6	4.0	3.5
Mali	4.0	3.5	2.8	2.3
Ethiopia	6.2	5.1	3.1	3.1
Average 4countries	4.9	4.3	3.4	3.2

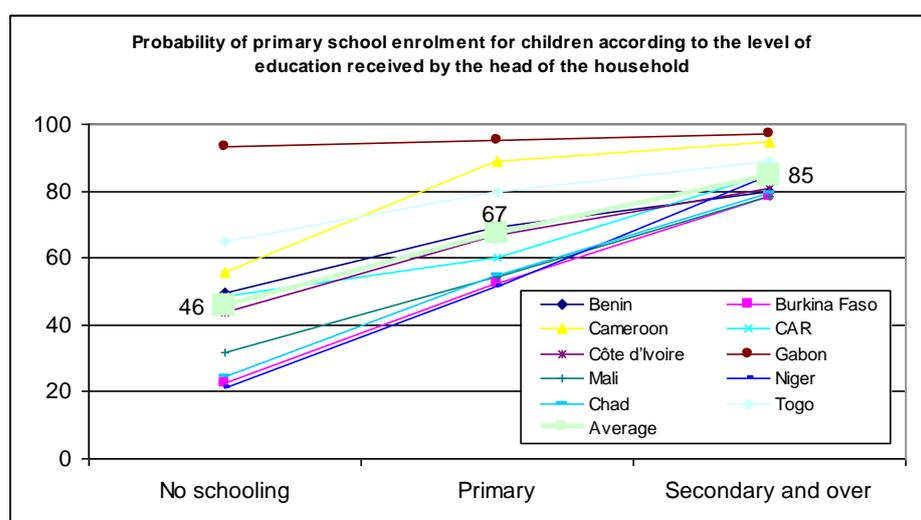
Source: Country CSRs (National teams, World Bank, Pôle de Dakar)

2.1.4. Effect on school enrolment

One final interesting aspect from the point of view of human development concerns the inter-generational effect of education. Information collected in around ten countries was used to analyse the impact of parents’ school enrolment on that of their children. Unfortunately, for this analysis, the data covers post-primary education as a whole and cannot therefore provide information about the comparative effects for different levels of secondary education separately. Even if the quantitative results vary from one country to another (in particular due to different overall level of education), they are still instructive. Once again, the impact increases with the level of education.

On average over the ten countries, only 46% of children attend school when the head of the household is uneducated, while this figure rises to 67% (i.e. 21 percentage points more) when the head of the household has completed primary education and to 85% when the head of the household has continued through to at least secondary education.

Figure 2.3: Probability of primary school enrolment for children according to the level of education received by the head of the household



Source : « L’apport des enquêtes auprès des ménages dans l’étude des déterminants de la scolarisation des enfants en Afrique subsaharienne », UIS, FASAF (2005)

In conclusion, it is clear that:

1) Each level of education provides, compared with the previous level, additional chances of both lasting literacy for individuals and social behaviour that is more favourable to human development (increased use of medical assistance for births, lower fertility rates and better school attendance by children).

2) The added value produced by attending a given school level (in comparison with the level below) is very significant for primary education and lower secondary education, and less so for upper secondary education.

2.2. Comparative efficiency in terms of compatibility with the job market

An additional analytical approach to evaluating the efficiency of the different levels of education is to study integration into the job market. An attempt is made to evaluate the proportion of school leavers from each level of education who find a job, and determine the extent to which the level of qualifications for the job corresponds to their level of training. This constitutes the first step in evaluating the economic returns of the different sub-sectors of education.

Household survey data from a dozen countries or African capitals¹⁷ are used to calculate, in relation to the final level of education, 1) unemployment rates, 2) the percentage of workers in an under-qualified job compared to the training received (we shall then speak of “over-educated” individuals¹⁸) and 3) the proportion of workers in an over-qualified job compared to the training received (individuals said to be “under-educated”). Indicators are calculated for individuals in the 25-34 age group¹⁹, which is “sufficiently old” to take into consideration only individuals who have finished their studies and “sufficiently young” to be situated with respect to the dynamics of the job market as most recently observed.

Insofar as this data is taken from country surveys which 1) may slightly differ both in terms of coverage (in some cases only individuals in the capital have been questioned) and in terms of methodology (in particular for the definition of unemployment, under-employment and over-employment) and 2) provide information as declared by the individuals (which may slightly differ from true factual information), it is appropriate to

¹⁷ Country surveys: Cameroon, Ethiopia, Madagascar, Mali, Mauritania, Rwanda, Senegal, Chad. Capital surveys: Abidjan, Bamako, Cotonou, Dakar, Niamey, Ouagadougou.

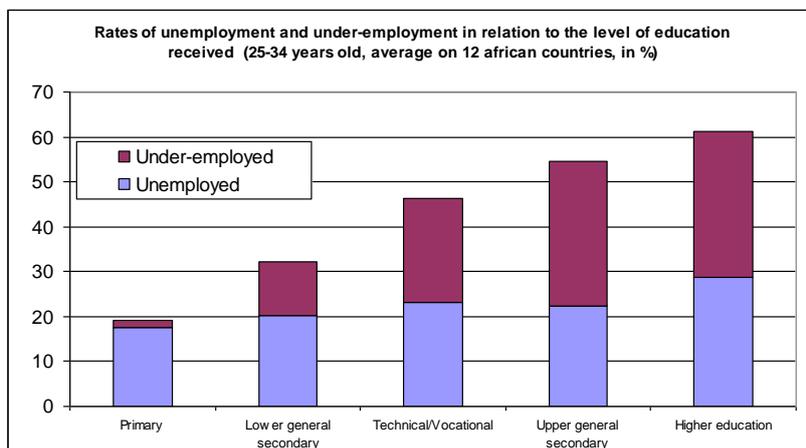
¹⁸ An employee is said to be “sufficiently educated” when the number of years of study completed falls more or less within a standard deviation around the average number of years of study for employees with the same type of job as him/her; he/she fills an under-qualified job (he/she is said to be “over-educated”) when the number of years of study is higher than the average by at least a standard deviation; he/she fills an over-qualified job (is “under-educated”) when the number of years of study is less than the average by at least a standard deviation. Ideally, it is necessary to have data showing the exact number of years of study completed. This is the method that was used when data was available per year of study. When data was available only per level of education, estimations have been made on the basis of the duration of each level of education.

¹⁹ For Ethiopia, Madagascar and Rwanda, as data is not available for the 25-34 age group, the data used concerns the 25-29 age group.

analyse the results with care, especially absolute values. However, this data provides reasonable estimates and is not affected by methodological problems when looked at in terms of comparisons between different levels of education²⁰. The following lessons can then be drawn (cf. Figures 2.4 and 2.5):

1. **Unemployment rates rise with the level of education.** On average, over the twelve countries, 18% of individuals are “jobless” amongst primary school leavers, 20% amongst lower secondary school leavers, 22% amongst upper secondary school leavers, 23% amongst technical and vocational school leavers and 29% amongst those who have gone on to higher education.
2. **Rates of “under-qualification” of jobs filled (in reference to the studies completed) also rise with the final level of education of individuals.** 2% of primary school leavers, 12% of those from lower general secondary education, 23% of those from technical/vocational training, 32% of those from upper general secondary and 35% from higher education are victims of the phenomenon of “downgrading”: they occupy an under-qualified job compared to the training received.
3. **Rates of “over-qualification” for jobs filled drop with the level of education.** 40% of individuals who have been to school but have not completed primary education are in jobs for which more education would be necessary. This is also the case for 12% of those who have completed primary education, for 12% of those who have followed lower general secondary education, and for 5% of those from technical/vocational education. For those who have continued their studies longer (upper general secondary and higher education), there are no (or virtually no) over-qualified filled jobs compared to the training received.

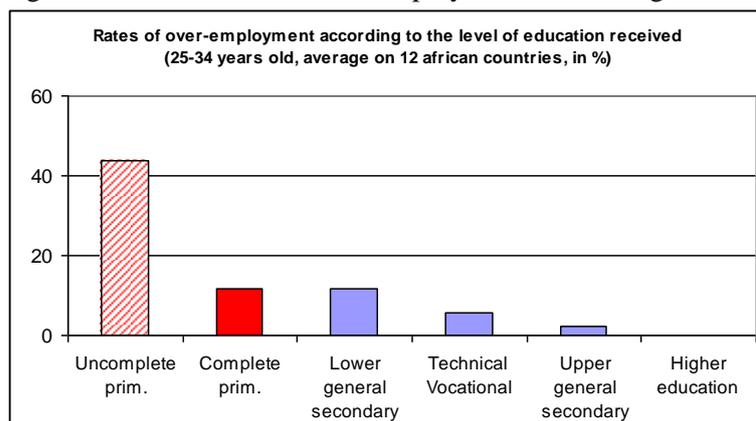
Figure 2.4: Rates of unemployment and under-employment in relation to the level of education received



Source: Authors' calculation based on Country CSRs (National teams, World Bank, Pôle de Dakar) and on E.Duret, M.Kuepie et alii « La dimension économique de l'efficacité externe de l'éducation en Afrique de l'Ouest », 2005

²⁰ There is no reason for the effects of methodological pitfalls referred to above to diverge from one level of education to another. For example, the definition of unemployment used in a survey is uniform whatever the individuals' final level of education.

Figure 2.5: Rates of over-employment according to the level of education received



Source: Authors' calculation based on Country CSRs (National teams, World Bank, Pôle de Dakar) and on E.Duret, M.Kuepie et alii « La dimension économique de l'efficacité externe de l'éducation en Afrique de l'Ouest », 2005

Naturally, it is too early to draw conclusions at this stage, as to the adequate pace of expansion for each level of education from an economic point of view, as 1) the analysis is based on the job market as it exists today, and it is difficult to know how it will change over the medium and long term, and 2) productivity increases along with the level of education; those leaving the highest levels of the system have better-paid jobs and contribute more significantly to the economic growth of the country, even when they fill an under-qualified job compared to the training received²¹. The analysis of the rates of economic return (comparing costs and benefits) conducted in Part 2.3 will be useful in completing the analysis of this point.

However, it is clear that in reference to the current absorption capacities of the job market, there is:

1) **A deficit in secondary education (at least for lower secondary) for 12% of those who have completed primary education (in red in Figure 2.5) and most probably for a part of the “under-educated” who have had no formal education (74%) and of those who have not completed their primary education (44%).**

2) **An overall quantitative “overproduction” of training at higher, technical/vocational levels and in upper general secondary education.** Even though it is difficult to forecast the future dynamics of the job market, most African economies are characterised by a very marked dualism and discontinuity – which will not radically change in the short and medium term. There is a low-productivity farming and informal sector that occupies the majority of the working population, on the one hand, and a modern sector, which should theoretically employ those coming out of the highest levels of the education system, on the other. The transition of countries towards the modern economy, which should theoretically employ those coming out of the highest levels of the education system, is always quite slow. **In countries that are the least advanced economically, even a record-breaking development of the modern economy in the coming decade (for example, an increase from 5 to 15% of the share of jobs in this sector, i.e. a tripling) will leave a large proportion of those coming out of the higher realms of education jobless or “under-employed”, if the dynamics at the top of the educational pyramid (which are very constant) expand at the same rate.**

²¹ There is no reason for the effects of methodological pitfalls referred to above to diverge from one level of education to another. For example, the definition of unemployment used in a survey is uniform whatever the individuals' final level of education.

2.3. Comparative efficiency in terms of economic returns

It is important to compare the efficiency of the different levels of education in terms of economic returns. A method widely used by economists is to calculate the rates of return: the private rate for the individual and the social rate for society. The rate of return is a measure of the results of educational investment (estimated for the individual in the form of salary and for society in the form of economic productivity) in comparison to its cost (cf. Appendix 7)²². Even if the calculation of these rates has its limits, their interpretation provides interesting information: (1) the private rate of return is considered to be an indicator of the attractiveness of education for individuals (and calculated for each level of education, it makes it possible to identify the individual's incentive to continue his/her schooling at the following level) and (2) the rate of social return, calculated for each level of education, helps to clarify the degree of public financing for each level in such a way as to satisfy equity and collective interests.

An analysis of the rates of private (cf. Table 2.2) and social (cf. Table 2.3) return for secondary education in Africa shows the following:

1) On the rate of private return:

The level of attractiveness of secondary education is higher in Africa than in other world regions, but is lower than that observed for primary and higher education. In other words, individuals attending secondary school in Africa have a strong incentive to continue their studies in higher education, since access to higher education makes the rate of private return rise further. Pressure to continue their studies is therefore high for secondary students. The secondary level has what economists call an “option value”, in that part of its value lies in the option (the possibility) it offers those who gain access of continuing to higher education (only those who have been enrolled in secondary education can be admitted to higher education). The recent empirical study conducted by Schultz (2003) in the four sub-Saharan countries (South Africa, Ivory Coast, Ghana and Kenya) calculated the rates of private return²³ per sub-sector and showed that the private return from upper secondary education is higher than that from lower secondary education.

Table 2.2: Rates of private return per level of education and per world region

World regions	Private return rates (%)			
	Average rate	Primary	Secondary	Higher
Africa¹	11.7	37.6	24.6	27.8
Latin America	12.0	26.6	17.0	19.5
Asia	9.9	20.0	15.8	18.2
Europe, MENA ²	7.1	13.8	13.6	18.8
World	9.7	26.6	17.0	19.0

Notes: 1) Sub-Saharan Africa; 2) Middle East North Africa
Source: Psacharopoulos and Patrinos (2002)

²² For the private rate: private direct costs and opportunity costs corresponding to income implicitly abandoned due to time spent on studies (salary that a job would have provided the individual with if he/she had quit their studies earlier), for the social rate: private costs + public costs to provide education services and finance social aid (grants).

²³ The method used is known as “Mincer equations”, which estimate individuals' income according to the levels of education received.

2) On the rate of social return:

The economic return from secondary education is higher in middle-income countries than in low-income countries (the group that most African countries belong to).

- The economic return from secondary education in Africa is (taking into account the predominance of low-income countries) lower than that from primary education, but higher than that from higher education (for which public investments are often very sizeable in comparison to the gains in productivity obtained for economic growth).
- The absence of data differentiated by secondary education sub-sector hinders analysis, but the decline in collective economic returns with the level of education for low-income countries leads us to think that the economic returns from lower secondary education are higher than from upper secondary education.

Table 2.3: “Complete” social return rates per level of education and level of economic development

	Primary	Secondary	Higher
Low-income countries	47	8	<0
Middle-income countries	39	52	<0
High-income countries	-	<0	20

Note: Low-income countries: countries with a GDP/inhabitant 20% lower than the USA (including 32 African countries)

Middle-income countries: countries with a GDP/inhabitant of between 20 and 40% that of the USA (inc. 8 African countries)

High-income countries: those with a GDP/inhabitant higher than 40% of that of the USA (inc. 13 African countries)

Source: Mingat and Tan, “The full social returns to education: estimates based on countries economic growth performance”, World Bank and IREDU (1996)

2.4. Conclusion

At the conclusion of this comparative analysis of different levels of education in terms of external effectiveness on human and economic development, **it is difficult to come to a generic conclusion insofar as this type of analysis is more relevant at the country level.**

However, the **overall trends** can be summarised as follows:

- **The effectiveness of lower general secondary education on human development is substantial and constitutes an important added value compared to primary education.** If there are additional effects connected with attending upper secondary education, they appear to be comparatively more limited.
- **Results in terms of integration into the job market are also better for lower secondary than for upper secondary education.** Technical/vocational education seems to be at a midpoint of efficiency between lower and upper general secondary education.

- **Private economic returns (i.e. the attractiveness of education) show a contrasted evolution depending upon the level of education:** decreasing at the lowest levels of the education system (lower secondary education seems less attractive than primary education) but rising at the highest levels of the education system (higher education appears to be more attractive than upper secondary education, which is itself more attractive than lower secondary education), which can represent an incentive for those entering lower secondary education to continue their studies through to higher education.
- **Social economic returns (the relationship between benefits and costs for the country) seem to decrease in Africa overall with the level of education** (thus lower secondary education appears less profitable than primary education but more profitable than upper secondary education, which itself seems more profitable socially than higher education).
- The combination of the two latter results raises a double question:
 - i) That of the **relevance of a majority of public financing at the highest levels of the education system** (if the benefits of the “high” levels are more of a private than a public nature, it would certainly be legitimate for a greater share of the costs to be covered by private financing) and, connected to the first question,
 - ii) That of the **management of pupil flows between levels**, particularly from the angle of achieving universal primary enrolment by 2015 and its implications in terms of the pressure of demand on post-primary levels (cf. Part 3).

3. Secondary education in a comprehensive sector-wide approach

Secondary education (and its components) must of necessity be analysed, financed, guided and implemented from a comprehensive, sector-wide perspective for three basic reasons: 1) **the pressure on educational continuity** is such that changes in terms of the numbers of pupils in secondary education are strongly dependent on changes in lower levels and strongly influence higher levels; 2) the achievement of universal, quality primary enrolment by 2015 involves the training of **an increasing number of teachers, who will be trained in one of the branches of secondary education**, and 3) its financing, whether public, private, or assisted by outside donors, is integrated into a logic of both **competing for and sharing resources with other levels of education**, and ideally should lead to the balance that is most effective overall

3.1 The specific place of secondary education in a system designed on continuity

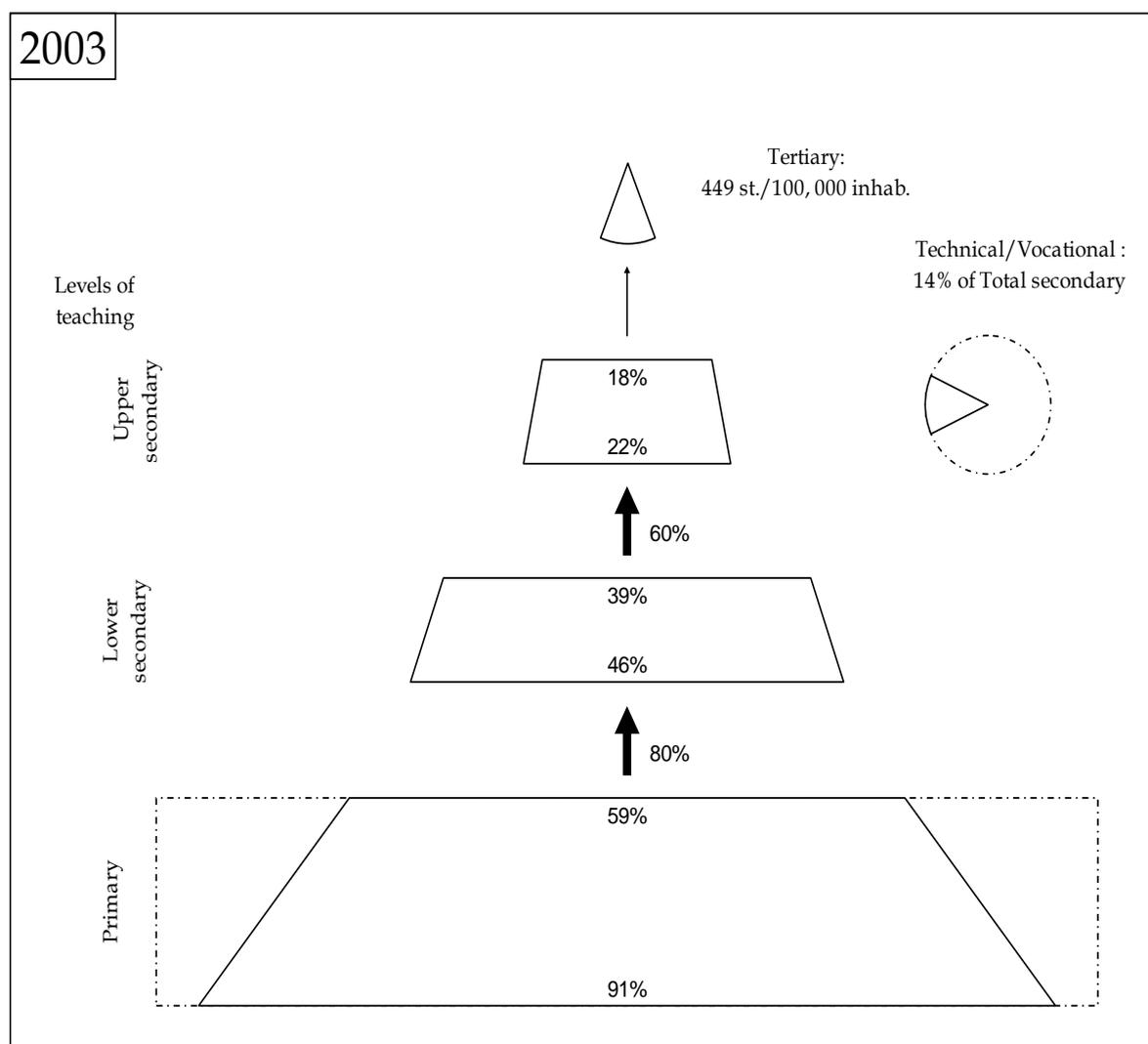
The main reason why it is important to situate secondary education within a comprehensive, sector-wide perspective is related to the nature of learning, which is in the main sequential. The extent of coverage at different educational levels is related to the logic of pupil flows (for example, entrants into secondary education come from the primary cycle).

Due to the legitimate desire of individuals to continue the schooling they have begun as far as possible, educational systems are very often characterised by a strong tendency towards educational continuity, which arises out of the sum of individual desires.

To describe the state of current flows, it is helpful to draw on and comment on two types of indicator: 1) pupil survival within each cycle (the proportion of pupils beginning a cycle who actually complete it), and 2) the transition between cycles (the proportion of pupils completing a cycle who enter the next cycle). The first indicator describes the loss “suffered” by the system (the natural goal being that all those who enter a cycle are able to continue it to completion), whereas the second indicator characterises the loss “chosen” by the system, as the number of places available for entry into the first year of each cycle is decided by the public authorities.

Figure 3.1 describes the average situation in Africa with regard to pupil flows by presenting the continent’s “school pyramid” (UNESCO, 2004, cf. Appendix 12 for an interpretation of this graphic).

Figure 3.1: Average school pyramid in Africa, 2003



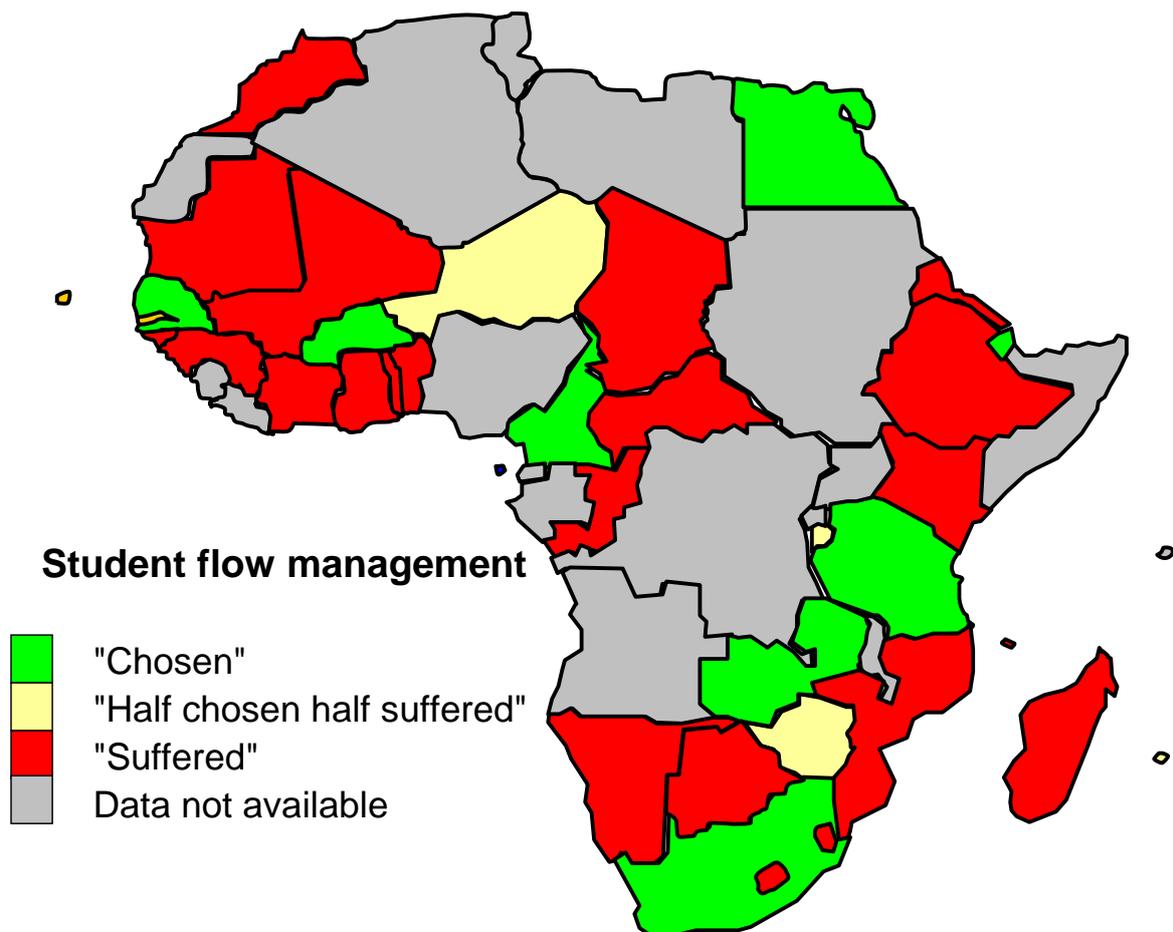
On average, the primary cycle survival rate is lower than the transition rate between primary and secondary education. Only 68% of those entering primary school complete it, while 80% of pupils who complete primary school enter lower secondary education. Ultimately, out of 100 pupils who start the primary cycle, only 46 enter **lower secondary school**; regulation of the flow therefore does take place. However, overall this more closely resembles the **self-regulation of a system**, which takes place as those for whom schooling poses the greatest difficulties (pupils from poor families or rural settings, or, to a lesser extent, girls²⁴) drop out, than it does a deliberate regulatory policy chosen by policy-makers to be applied between the cycles. With regard to access to **upper secondary education, the share of “suffered” regulation is lower than that for “chosen” regulation** (survival during lower secondary is higher than the transition between lower secondary and upper secondary), but it is still high (an average of 24% of pupils drop out during lower secondary).

These average results should not be allowed to conceal inter-country disparities, which are very high for each indicator of the flows. To summarise the differences between countries, Map 3.1 categorises the countries into three groups:

²⁴ See Dakar +5 EFA in Africa: Paving the way for action.

- Group 1 consists of the countries for which the share of “chosen” regulation is greater than the portion of “suffered” regulation for the two cycles of secondary education (survival in primary is higher than the transition between primary and lower secondary, and survival in lower secondary higher than the transition between lower and upper secondary). These are the countries that show the greatest internal efficiency in their education systems.
- The countries in Group 2 are those for which the portion of “chosen” regulation is greater than that of “suffered” regulation for entry into one of the two secondary cycles (lower or upper secondary, depending on the country, but usually upper), but in the opposite situation for entry into the other of the two cycles.
- Finally, the countries in Group 3 are those for which regulation is more “suffered” than “chosen” for entry into both cycles of secondary education.

Map 3.1: Classification of the countries based on the share of “chosen” regulation of flows



3.2 Secondary education trains the teachers that primary school needs to achieve UPE

The second reason for the necessity of a sector-wide approach is that in order to function education cycles need human resources (teachers in particular) who are trained at higher cycles. To **achieve universal completion of the primary cycle by 2015, Africa needs 5.3 million teachers** (compared with only 2.9 million in 2003), which means, given the number of retirements, deaths (in particular due to HIV/AIDS) and departures, that **an estimated 3 million new teachers need to be trained**.

This challenge, which clearly must be treated as a priority, leads to two basic questions that need to be posed to the sub-sector of technical and vocational education²⁵, questions that find their answers within each specific national context:

- Knowing that training can differ enormously in terms of cost (depending on the duration and type of the training), what kind of teacher training is most cost-effective for use on a large scale? It might be useful in this regard 1) to conduct cost-benefit analyses of alternative types of training (in some countries, studies of teacher training call into question the way the traditional training industry functions)²⁶ and 2) to quantify (financially and in terms of the number of teachers trained) the various options under consideration.
- Insofar as in many countries there has been an increase in the number of untrained, so-called “community” teachers who are hired and paid by local families, what kind of training (duration and type) should they be provided? At what cost?

²⁵ The structures for training primary teachers, whether a teacher training institute or some other form, are very often managed by this sub-sector.

²⁶ See, for example, the results of the PASEC (CONFEMEN) on this issue.

3.3 Finding the balance between ambition, the necessary reforms and external dependence

Some kind of balance is inevitable between 1) **the goals that the system sets for each level of education**, 2) the **reforms needed to improve efficiency** (which could be unpopular for educators and users of the system, and thus in contradiction with electoral interests), and 3) **dependence on outside funding** (linked closely with national sovereignty). It is impossible for any low-income country to simultaneously 1) achieve ambitious goals, 2) not carry out the reforms required to improve efficiency, and 3) protect national sovereignty.

Figure 3.2 diagrams this issue and gives theoretical examples of various equilibrium points between these three components, which are intrinsically interconnected.

Figure 3.2: Interdependence between system goals, required reforms and dependence on external aid

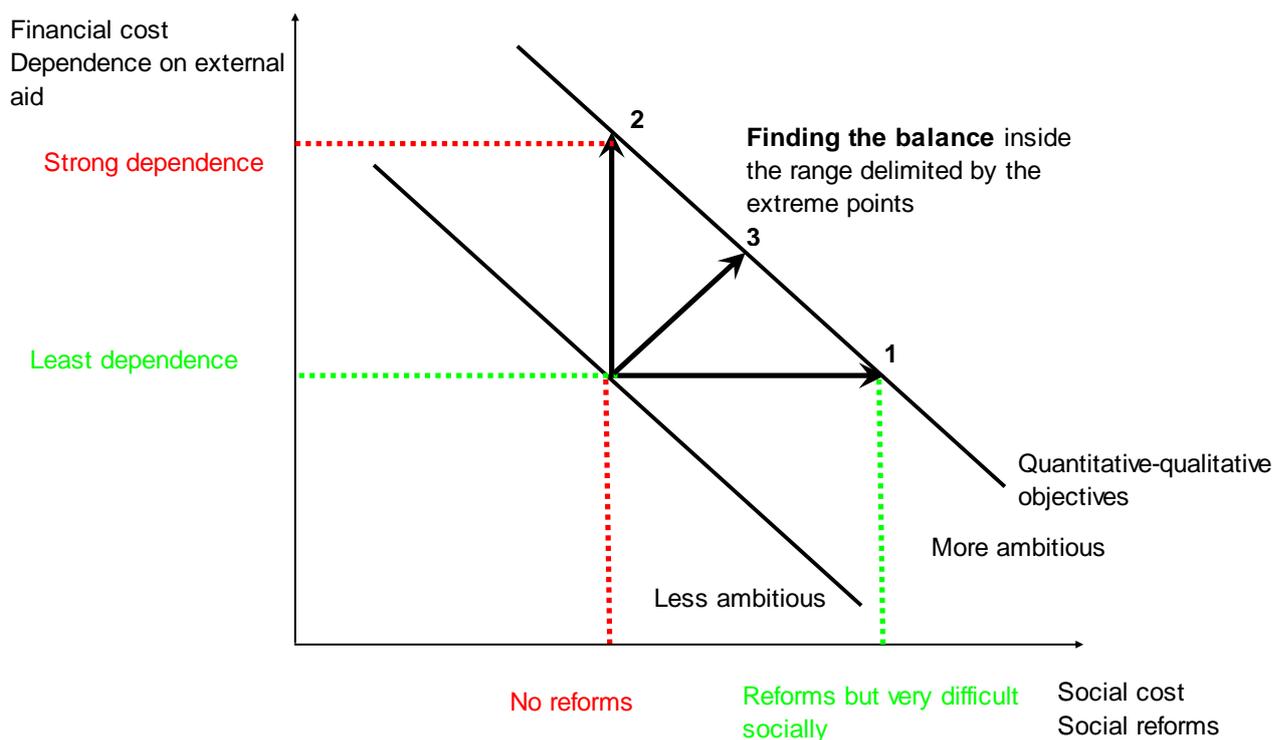


Table 3.1 presents a concrete, data-based example of this interdependence and presents for various scenarios (both with regard to goals and unit costs) levels of dependence on outside aid by 2015 for a dozen countries (as well as the total consolidated values for the countries in question) by adopting as hypotheses the achievement of UPE and the maintenance of current trade-offs for the domestic resources allocated to secondary education. Note that these values

underestimate the overall levels of dependence in that spending on investment (which is in general financed from external resources) is not taken into account.

Table 3.1: Levels of dependence on external aid for recurrent secondary expenditure by 2015, using various hypotheses on transition rates and the unit cost of the two cycles

Countries	Scénario 1 Very ambitious Without reforms	Scénario 2 Ambitious Without reforms	Scénario 3 Ambitious With reforms
Togo	63%	47%	43%
Cameroon	81%	59%	34%
Mozambique	81%	59%	18%
Benin	67%	52%	65%
Senegal	93%	85%	84%
Mauritania	74%	38%	0%
Madagascar	76%	54%	12%
Mali	94%	91%	78%
Niger	86%	77%	0%
Total	82%	66%	42%

	Quantitative goals	Unit cost
Scénario 1:	Universal primary → lower sec transition (100%) Maintenance of lower → upper secondary transition at its current level	Maintenance of the unit costs at their current levels (as % of GDP per capita)
Scénario 2	Maintenance of the two transitions at their current levels	Maintenance of the unit costs at their current levels (as % of GDP per capita)
Scénario 3	Maintenance of the two transitions at their current levels	Lower secondary unit cost = 20% of GDP per capita Upper secondary unit cost = 40% of GDP per capita

Source: Mingat, 2004 and Author's additional calculation

The following results are obtained for the total of nine countries:

Scenario 1:

The **very ambitious goal** of achieving a universal transition between primary school and lower secondary (all children enter secondary by 2015) while maintaining the transition rate between lower and upper secondary at the current level leads, if **unit costs remain at their current level, to a dependency rate of 82% for recurrent expenditure** (only 18% of recurrent expenditure, including salaries, would be financed out of the country's own resources).

Scenario 2:

The **already ambitious goal (though less so than in scenario 1)** of maintaining transition rates at their current level and **maintaining unit costs** (as in scenario 1) **leads to a dependency rate of 66% for recurrent expenditure.**

Scenario 3:

The **implementation of reforms to reduce unit costs to 20% of GDP per capita for lower secondary and 40% for upper secondary** (while maintaining the quantitative objective of scenario 2) leads to **a dependency rate for recurrent expenditure of 42%.**

It is not the purpose of this document to discuss the maximum possible level of dependency on external aid. This depends, in each country, on 1) the financial absorptive capacity of the

education system, 2) financial possibilities and capacities in terms of the predictability²⁷ of donors, and 3) and the willingness of States to allow a larger or smaller share of the financing of expenditure that is often considered its province (civil servant salaries, for example) to be handled by external sources.

Finally, secondary education is in competition for the allocation of resources (domestic and external) within the education sector itself. The credibility needed to mobilise more domestic and external resources depends on the choices made by the public authorities with regard to the multiple trade-offs (intra-sector trade-off in the allocation of funds; trade-off between quantity and quality; etc.). This credibility is also related to the fact that these choices are driven by policy, and not simply imposed by system continuity. This challenge is all the more significant in light of the relative scarcity of internal and external resources in comparison with evident needs.

A credible national policy is a financeable policy, and an education policy is all the more financeable when it is **consistent for the sector as a whole, sets realistic objectives and is efficient with regard to both implementation and results**. This requires 1) a solid, sector-wide analysis, and 2) on the basis of this analysis, the identification for each sub-sector (including the different components of secondary education) of quantitative and qualitative goals that are realistic both socially and financially, the two needing to be compatible (cf. the example of Chad in Part 3.4 and Appendix 11).

3.4 An example of balanced sector-wide programming: The case of Chad

This section will conclude by presenting **an example of sector-wide programming** in a country. Chad, which is in the course of overhauling its education policy, recently conducted **an important analysis and simulation work in order to review the basic outlines of its strategy for the sector**. Even though the case of Chad is not exceptional (other countries have adopted the same approach), the work conducted in this country is exemplary and must certainly be considered to be “best practice”, both with regard to the results of sector-wide programming and with regard to the procedure, which could potentially be re-used (and adopted to the national situation) in other countries.

In July 2005, Chad finalised a robust analysis of the education sector as a whole in a report on the state of the national education system (CSR). Based on this analysis, in November 2005 the Minister of National Education held a workshop to discuss the sector strategy for the coming decade and to develop several development scenarios up to 2015 for all education cycles within a physical and financial framework that is sustainable over the long term (based on a financial simulation model). The workshop was attended by all the heads of the sector (including for all levels of education, from pre-school up to higher education), civil society representatives (teacher trade unions and parent associations), the technical partners who aided the national team to conduct the sector-wide analysis (World Bank and Pôle de Dakar), and the financial backers active in the education sector in Chad (Chad Ministry of Finance, World Bank, France, European Commission, ADB).

In addition to the results, which are described below, the workshop was exemplary from the point of view of procedure. It was a genuine occasion for everyone in the system to work

²⁷ It is always chancy, for example, to schedule teacher remuneration on funds that are not secure in the budget.

from a sector-wide perspective and to deal with all the arguments in order to try to reach a consensus on the trade-offs needed (in terms of distribution of resources between education levels, between quantity and quality at each level, etc.) and to develop a credible sector plan in the near future.

Implementation issues still need to be dealt with, but it is certain that the sector gained enormously in credibility thanks to this effort – credibility that should help secure the resources needed (by increasing the priority of education in the sharing of State resources and by the increased mobilisation of external funding) to make this strategy a reality.

3.4.1 The main elements of the analysis

Chad's education system has made **remarkable quantitative progress in recent years at every level of education**. The primary completion rate rose from 19% in 1990 to 38% in 2004, the GER for lower secondary rose from 9% to 23% and the GER for upper secondary from 3% to 12%.

This sharp increase in enrolment, which is cause for rejoicing, was, nevertheless, achieved without any real management of pupil flows. The regulation of flows was more “suffered” than “chosen” in that the survival rates within the cycles (43% in primary and 50% in lower secondary) were well below the transition rates between the cycles (72% between primary and secondary and 80% between lower and upper secondary).

Also, despite the advent of the oil era, resources did not keep up with the high rate of growth in pupil numbers, which led to 1) **a deterioration in already difficult teaching conditions** (for example, an average of 60 pupils per class in general secondary, one of the worst ratios on the continent), and 2) **sharp growth in the numbers of community and contract teachers** (these two categories represent about 70% of primary teachers and 50% of lower secondary teachers). This ultimately affected the quality of education, with Chad being one of the three African countries with the lowest levels of pupil academic achievement in primary school.

The **joint existence of an economy that is essentially dualistic and discontinuous** (an agropastoral, informal sector that is relatively unproductive but employs most people, on the one hand, while on the other hand a modern, much more productive sector that employs only a tiny portion of the population) **and an education system that is very continuous has created a significant dichotomy**. The productivity of the traditional sector is not growing much, as it lacks people who have completed primary school (and thus have a chance to maintain long-term literacy), while the modern sector succeeds in employing only a small portion of those who have gone through the highest levels of the education system, and whose training costs dearly in comparison with the lower levels (one year of studies at university level costs the same as a year's primary school for 60 pupils).

Finally, access to education is marked by **a significant inequality** between boys and girls (twice the likelihood of entering middle school, for example), and an even greater inequality between urban and rural children (6 times greater the likelihood of entering middle school). Greater still is the inequality **between the wealthiest and poorest families** (children from the wealthiest families are 14 times more likely to enter middle school than children from the poorest families, and 40 times more likely to enter high school).

3.4.2 The main elements in a framework for sector policy – Close-up on secondary education

Guided by this analysis, a physical and financial simulation of education policy up to the year 2015 was performed. A number of scenarios were simulated and then discussed between the heads of the different education cycles, as well as with the technical and financial partners and the representatives of civil society who were present (teacher trade union and parent association representative).

The goal here is to present the main parameters used in the final scenario, the one that won a consensus from all the parties, 1) by zooming in on the three levels of secondary education (upper and lower general secondary and technical/vocational), and 2) by situating secondary education within the overall dynamics.

To guide the financial simulation, preliminary work was conducted to identify the main quantitative and qualitative objectives of each cycle of education (cf. Appendix 11).

The main elements in the final scenario for the year 2015 were as follows:

i) Universal completion of a quality **primary cycle**

The goal of universal completion of primary school was ensured, as it constitutes the top national priority. It goes hand-in-hand with the goal of improving quality, which is expressed specifically in the objective of an average pupil-teacher ratio of 50 pupils per teacher by 2015, compared with 70 today.

ii) Improvement in the quality of **general secondary education**, regulation of the flow of pupils, and stimulation of private schooling

The goal for 2015 is **to expand access to lower secondary education as much as financially and logistically possible** in order to be able to enrol the maximum number of pupils completing primary school, with no loss in quality. The goal adopted is to achieve a rate of access to middle school of 50% by 2015 (versus 26% today). This will mean, in addition, increasing the regulation of flows (the transition rate between primary school and middle school would change from 72% today to 50% by 2015). To promote the goal of quality, plans are to **improve the pupil-teacher ratio significantly** (from 60 pupils per pedagogical division today to 45 by 2015). This will require the increasing use of contract teachers, whose remuneration would be readjusted (although civil service teachers will continue to be hired, their proportion will fall).

To help achieve the desired quantitative expansion, a policy to **stimulate (and control) private schooling** was implemented. This takes the form of the granting of subsidies to private middle schools in proportion to their number of pupils (equal per pupil to 20% of the unit teaching cost of public schools). The amount adopted is sufficiently high to be able 1) to obtain control over instructional content and practices in exchange, and 2) to encourage private enrolment (the goal set is 20% of pupils in the private sector by 2015, versus 17% today). In addition, the subsidy is sufficiently low to optimise the cost-benefit ratio relative to the public system (to take the extreme case, if the public grant per private pupil were equal to the cost per public pupil, there would be no benefit in promoting private education).

As for the **high school** level, the two main goals are: 1) **to improve quality, in particular by reducing the average class size** (from 60 to 40), and 2) **to rationalise access so as to anticipate entry flows to higher education** and bring them into line with the coming needs of the modern sector of the economy (expansion from 10,000 higher education students to 25,000 by 2015). The transition rate between lower and upper secondary needs to change from 80% to 30%. Due to the substantial growth in enrolment at the primary and lower secondary levels, this would nevertheless mean virtually doubling the number of high school students (from 55,000 to 82,000).

Finally, there are plans for a policy to **reduce repetition** in both secondary cycles (the method of implementing this still needs to be defined). The goal is a level of 12% repetition (versus 18% currently) in lower secondary and 15% (versus 25% currently) in upper secondary.

iii) The diversification and optimisation of **technical and vocational education**

The outlook for technical and vocational education is to develop a system that is balanced between three types of education:

a. Initial and continuing teacher training

This educational sector is protected to the extent that it “produces” the teachers required for the expansion of the primary cycle. The numbers of teachers to be trained must thus correspond to the needs identified to achieve universal completion of a quality primary cycle (about 2900 per year throughout the entire period). This also requires continuing training for all community teachers already in the classrooms.

b. Conventional technical teaching

The quantitative goal is to achieve 10,000 learners by 2015 (compared with 3500 in 2004) by increasing the proportion of private establishments (60% of pupils in 2015, compared with 23% today). This goes hand-in-hand with the internal optimisation of this type of education so as to ensure that the training is in line with the economic sectors that are growing.

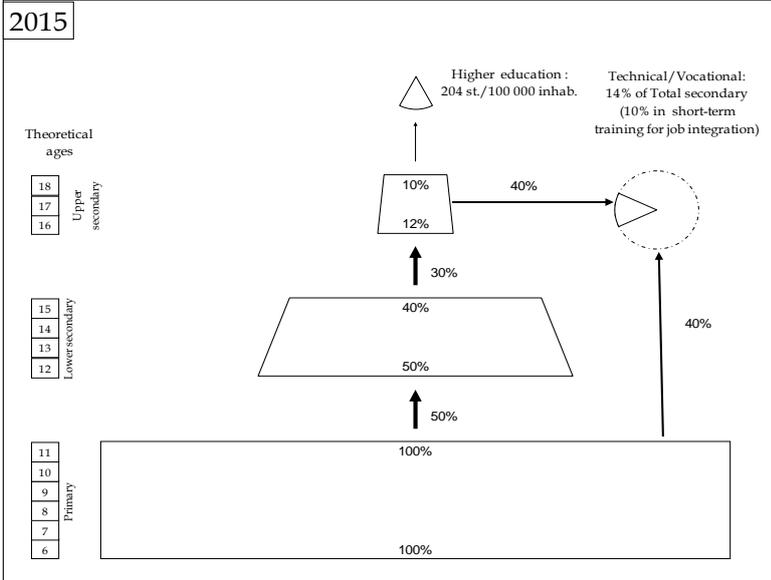
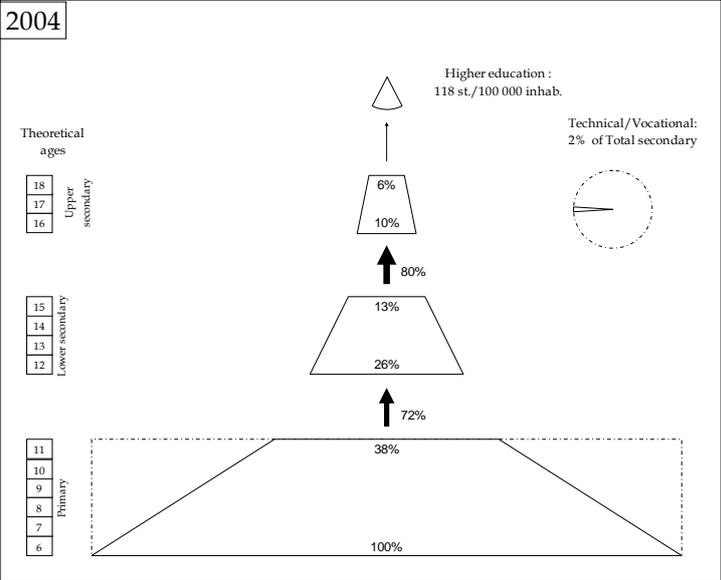
c. Massive expansion of short-term vocational training

The greatest change from the current situation involves the massive development of short-term vocational training, in particular in the agro-pastoral, informal sector, which will still be the main sector in the national economy in 2015. **This training (on-the-job or in other forms that still need to be defined) targets in priority those who complete primary and middle school and then “fall victim” to the regulation of flows in general education. Plans are for this training to accommodate about 56,000 young people by 2015, which represents 40% of those who have finished primary school and 40% of those who have finished middle school.**

In summary, the changes planned in the education system can be diagrammed by comparison with the current educational pyramid and its projection up to the year 2015 (cf. Figure 3.3 and Appendix 12 for its interpretation). The vision for 2015 corresponds to a balanced consensus

that combines strong quantitative and qualitative ambitions, social realism (support measures were developed for the most difficult reforms, in particular with regard to the regulation of pupil flows) and budgetary realism (if the advocacy of an increase in domestic and external funding works, the sector strategy is financially sustainable).

Figure 3.3: School pyramid in Chad, 2004 and 2015



4. The factors for improving schooling coverage in secondary education

Part 1 presented the key differences that exist between countries in terms of secondary school coverage. In this part the point is to try to identify the determinants of these differences. This analysis requires several steps. First, any factors that could contribute to an **explanation of the differences observed in enrolment rates are identified using an accounting relation**. These factors are broken down into two groups: those related to the context, and those related to education policy. Next, the section examines any **differences related to these factors between countries** (and if possible between Africa and other regions). Finally, a reference framework is developed for the main factors (related to both context and policy) by **drawing on the values observed in the countries with the best performance**.

4.1 Calculation of the schooling coverage in secondary education

Work already conducted on the primary cycle can be used to help identify potential explanatory factors (see, for example, Bruns, Mingat et al, 2003). This deals with the breakdown of the accounting relation that underlies schooling supply, available resources and the parameters of education service delivery (cf. Appendix 13). These factors can be grouped in two categories: factors related to the specific national context (in particular, economic and demographic) and factors related to the policies in force in the country.

Potential determinants that are related to the national context include:

- 1) National wealth (measured by GDP per capita, expressed in USD),
- 2) The macro-economic/fiscal situation (measured by State revenue expressed as a % of national GDP),
- 3) The level of progress in terms of primary enrolment, measured by the primary completion rate (PCR).

Potential factors that are related to education policy include:

- 1) The priority the country generally gives to the education budget (represented by the volume of public recurrent expenditure²⁸ on education expressed as a % of State revenue),
- 2) The priority given to secondary education within the overall education budget (expressed as the share of secondary education in public recurrent expenditure on education),
- 3) Spending per pupil (unit cost) in the public system, expressed as a % of GDP per capita,
- 4) The degree to which the system is privatised, measured by the proportion of pupils enrolled in private institutions, and
- 5) The policy on pupil repetition in the country, expressed as the percentage of repeaters.

²⁸ Investment expenditure is not included here insofar as the analysis is conducted from a medium and long-term perspective, and is thus based on a logic of the recurring functioning of systems.

The initial step in analysis thus involves studying the disparities in these factors between countries (and if possible situating the African average relative to other regions).

4.2 Presentation of the stylised facts: Close-up on inter-country differences

4.2.1 The context varies enormously between countries

The economic context

Two elements that are characteristic of the economic situation are considered in this part: 1) **national wealth as expressed in GDP per capita, and 2) the extent to which the State is able to draw on this wealth**, as expressed in State revenue (fiscal and non-fiscal) as a % of GDP.

In 2004, GDP per capita in Africa was on average US\$923²⁹, a level well below that seen in Asia/Oceania (US\$2800), Latin America/the Caribbean (US\$17000) and Europe (US\$19500).

It varies from 93 to 8900 between African countries, that is, by a factor near of 100.

There is enormous variation in the capacity of the State to appropriate the national wealth. While the average State revenue of all the countries can be estimated at 21% of GDP, the figure varies from 8% to 41%.

It is also clear that the first factor influences the second (Chambas, 2004)³⁰: in other words, countries that are less developed economically experience much greater difficulty in obtaining a significant share of the national wealth for the State (in low-income African countries, this is due in particular to the extensive size of the informal sector, which is rarely taxed).

If the two factors are considered together, the differences between countries are even more striking. **State resources on the continent thus vary from \$9 to \$3175 per capita.**

The demographic context

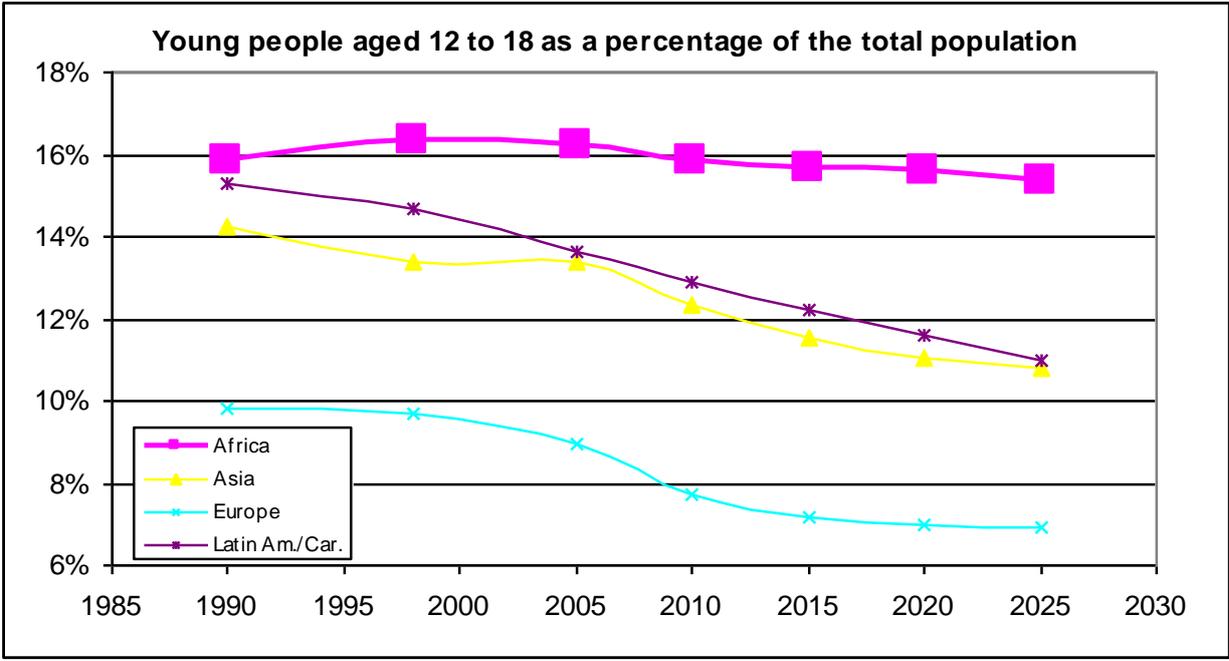
In general, **demographic pressure is one of the factors often invoked to explain why Africa lags behind the other continents in terms of school enrolment.** As can be seen in Figure 4.1, in Africa children aged 12 to 18 (the age generally corresponding to secondary education) represent 16% of the total population, a proportion that has remained stable over

²⁹ It is an average weighed by the population of the different countries

³⁰ “Afrique au Sud du Sahara: Mobiliser des ressources fiscales pour le développement” [Sub-Saharan Africa: Mobilising Fiscal Resources for Development], Study conducted at the request of the French Ministry of Foreign Affairs by the CERDI and a team of customs and tax experts from the French ADETEF and the Ministry of Finance.

time, and is projected to do so into the future.³¹ In comparison, most countries on other continents have already completed the demographic transition³², resulting in a decrease in demographic pressure, a trend that is expected to continue in coming decades. In 2005, children aged 12 to 18 represented less than 14% of the total population in Asia and Latin America and 9% in Europe.

Figure 4.1: Young people aged 12 to 18 as a percentage of the total population, by world region, from 1990 to 2025



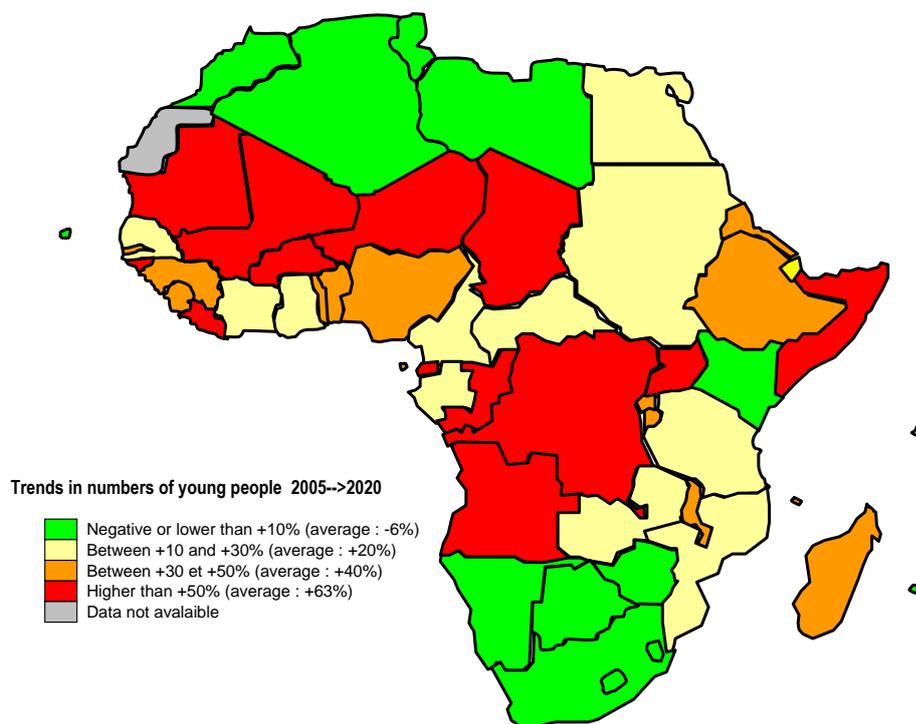
Source: UN Population Division

The stability in the share of 12 to 18-year-olds in Africa, at a 16% level, indicates that this group will continue to grow at the same pace as the population overall, that is, at a high rate. Current projections indicate that **the number of young Africans aged 12 to 18 will rise from 143 million in 2005 to 169 million in 2015 and 184 million by 2020. This means that simply maintaining secondary enrolment at existing levels will require increasing the number of available school places by 18% by 2015 and 29% (almost a third) by 2020.**

There are also great contrasts between the countries in Africa. The share of young people who are of secondary school age varies from 11% to 19%. It will become increasingly difficult to expand secondary school coverage as the number of young people rises. In terms of trends in the numbers of young people, the African countries can be broken down as shown in Map 4.1 (the country data are provided in Appendix 2).

³¹ These projections are made at regular intervals by the United Nations Population Division.
³² A country is said to be in demographic transition when the population continues to grow but at a decreasing rate due to a falling fertility rate.

Map 4.1: Classification of countries based on trends in numbers of young people (aged 12 to 18) between 2005 and 2020



Source: UN Population Division

In 12 countries, the number of children aged 12 to 18 should either fall or increase only very slightly by 2020. In these countries, mainly the wealthier ones, the demographic transition has been completed, which will definitely constitute an advantage for improving secondary school coverage.

In 12 other countries, there will be only a limited increase in the number of young people over the next 15 years (an average of +1.2% per year). In 14 other countries, the number will grow sharply (at an average annual rate of +2.3%), which will present a handicap in increasing the rate of secondary coverage. Finally, in 13 other countries the demographic factor will exert enormous pressure, as the number of young people expands by more than half (and more than three-quarters in Uganda, Niger and Somalia). The average annual increase in these countries will be +3.3% (and about +4% in some countries), which means that available places must grow at the same pace simply to maintain enrolment rates at existing levels.

The context for advancing towards universal primary enrolment (UPE)

The primary completion rate varies in Africa from 27% to 100% (average of 60%). The level of secondary school coverage is of course very clearly related to that for primary education, in that only pupils who have completed primary education can enter secondary school. In other words, it becomes less difficult to increase the coverage rate as progress is made in primary enrolment. Mingat (2004)³³ performed some interesting simulations in this field. Starting from the principle of achieving universal primary enrolment by 2015, the study calculated the

³³ Mingat, 2004, "Issues of financial sustainability concerning the development of secondary education in the countries of sub-Saharan Africa", PSAST, World Bank

factors needed to increase enrolment in lower secondary education between 2001 and 2015, using two hypotheses: 1) that the rate of transition between primary and secondary school would stay at current levels, or 2) that by 2015 all pupils finishing primary school will enter lower secondary school.

The results of the simulations are presented in Table 4.1. The grey boxes in the table reflect rates of expansion that are too high to be realistic (greater than tripling the number of pupils over the period).

The countries that have achieved or almost achieved universal primary enrolment can hope for universal lower secondary enrolment if school enrolments in this cycle are multiplied by about 2.5 by 2015 (2.4 for countries with 90% primary completion and 2.8 for countries with 80% levels), **which still represents a considerable challenge.**

Countries that currently have a completion rate of between 50 and 70% could increase secondary enrolment at the same pace as primary (constant rate of primary-secondary transition) **if enrolment is multiplied by a factor of between 2 and 3 by 2015** (by 2.1 for countries with a 70% primary completion rate and by 2.6 for countries with a 60% rate).

Finally, for **countries with a primary completion rate of 50% or lower, achieving universal primary enrolment (UPE) would very likely involve a reduction in the transition rate between primary and secondary. Maintaining the transition rate at its current level would imply relatively unrealistic rates of secondary expansion** (between 3.3 and 11.3, depending on the current value of the primary completion rate).

Table 4.1: Coefficient of multiplication of enrolment in lower secondary education between 2001 and 2015 according to the current PCR value and two hypotheses on primary-secondary transition rates

Primary Completion Rate - 2001 (%)		20	30	40	50	60	70	80	90
Factor of increased enrolment in lower secondary from 2001 to 2015	Maintenance of 2001 transition rate	11.3	6.7	4.5	3.3	2.6	2.1	1.8	1.5
	Transition rate = 100 % in 2015	18.9	10.8	7.3	5.4	4.2	3.4	2.8	2.4

Source: Mingat (2004)

4.2.2 Great inter-country variation in key education policy parameters

To function well, any education system in general, and secondary education in particular, has certain needs: 1) resources (public or private), and 2) optimal usage of these resources. These elements will be analysed in turn using an inter-country comparative approach, starting from the overall level of resources up to more targeted levels (from total resources for secondary education up to the breakdown of unit spending per education cycle). This will be followed by an analysis of the extent of privatisation (private education itself constitutes a supplementary resource relative to public expenditure) and by an analysis of repetition rates (insofar as the education system pays twice for repeated years, which represents a cost).

a) The budget priority given to secondary education

The budget priority that a country gives to secondary education depends on two basic factors: 1) the budget priority accorded education in general, with regard to inter-sector trade-offs, and 2) the priority given to secondary education within the overall financial budget allotted to education (trade-off in the distribution of resources between education levels within the education sector).

The priority given to education

Depending on the country, recurrent expenditure on education varies from less than 10% of State revenue to more than 30% (average of 18%). Given the differences noted in the capacity of the State to draw on the national wealth (cf. Part 4.1.1), **recurrent expenditure on education varies on the continent from less than 1% to about 10% of GDP** (average of 3.2%). With respect to total public expenditure (including spending on investment), the inter-country average in Africa is 3.9% of GDP, which is higher than the Asia average (3.2%) but below the averages on other continents (4.3% in South America, 5.2% in Europe, 5.6% in Oceania, and 5.7% in North America / the Caribbean).

In the countries where the priority given to education is currently below the African average, there is undoubtedly leeway to increase funding for the education system by negotiating with the Ministry of Finance and other ministries for an increase in the share of the State budget devoted to education.

The priority given to secondary education

As for every other level of education, the budget priority given to secondary education varies greatly from one country to another. The share of secondary education³⁴ (lower and upper and technical/vocational) varies in Africa from 18% of all public recurrent expenditure on education to 52% or higher (average of 32%).

As can be seen in Figure 4.2, there is a **tendency to give more priority to the secondary education budget as a country draws nearer to achieving universal primary enrolment (UPE)**. This is logical, as progress towards UPE implies a mechanical increase in demand for the post-primary cycle, which means a sharp rise in pupil numbers, and thus in the spending needed for their schooling. While in the countries with the lowest primary completion rates the share of secondary education is about 30%, this reaches an average of more than 40% in countries that have achieved or almost achieved UPE.

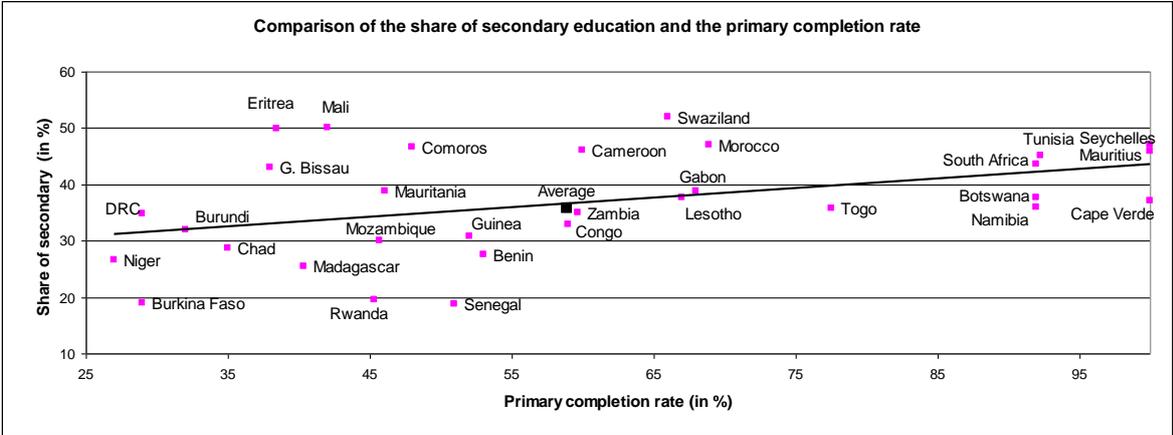
Nevertheless, there are **significant variations between countries around this general trend**. Some countries give less budget priority than others to secondary education despite having a higher level of primary enrolment, and vice-versa. This result is indicative of the existence of potential room for manoeuvre with regard to increasing the expenditure on secondary

³⁴ Due to the lack of financial data on pre-school and literacy/nonformal education, the budget share allocated to these sub-sectors (which is low compared to the main education fields) is not presented here, and the primary-secondary-higher total was made equal to 100% for the purposes of inter-country comparisons. Also, given that the durations of education cycles vary from one country to another, the percentage of expenditure on each cycle could not be compared by merely using raw data. To resolve this, the percentages were recalibrated to correspond to the structure of the most common durations of primary and general secondary education in Africa (6 years for primary and 7 years for general secondary).

education in some of these countries. And conversely, the budget priority that some countries assign to secondary education is higher than expected, given their progress towards UPE (in the figure, these countries lie above the average line).

For these countries, there is *a priori* no leeway to increase the share of secondary education (and for some of them, the other education levels could legitimately propose an increase in their budget share, to the detriment of the share accorded to secondary). Even if a reduction in the share given to secondary does not mean a fall in spending (in particular if the overall budget given to the education sector rises), expanding secondary education in these countries can be achieved only by reducing spending per pupil, or by stimulating the private sector (cf. above in this part).

Figure 4.2: Comparison of the share of secondary education in public recurrent expenditure on education and the level of progress towards universal primary enrolment, in 2003 or thereabouts



Source : Authors' calculation based on UIS data and national data

The priority given to each type of secondary education

It is possible for a sample of countries (those for which the data are available) to refine the analysis by studying the breakdown by type of education (lower general secondary, upper general secondary, and technical/vocational) of the resources allocated to secondary as a whole (cf. Table 4.2). On average for the 13 countries for which data are available, out of all expenditure on secondary education **57% is devoted to lower general secondary³⁵, 29% (i.e., half the expenditure on lower general secondary) is used for upper general secondary and 15% (or one-fourth the lower secondary amount) on technical/vocational education.** These proportions vary substantially from one country to another: on lower general secondary from 46% to 66%, on upper general secondary from 14% to 45%, and on technical/vocational from 4% to 27%. Table 4.2 also shows the ratio between the value of the country and the observed average for each country and for each cycle. This gives an idea of the current priorities of the countries within the field of secondary education. It also helps to give an indication of the existing room for manoeuvre with regard to trade-offs between the various types of education with regard to the use of available resources. The grey cells in the table identify for each country the type(s) of education that are at a financial disadvantage

³⁵ As for the share of expenditure allocated to secondary as a whole, to ensure inter-country comparability, the figures were recalibrated to correspond to expenditure for the durations of the cycles most frequently seen on the continent: 4 years for lower secondary and 3 years for upper secondary.

relative to the observed average, which might therefore potentially be among the first to benefit from new funding.

Table 4.2: Breakdown of expenditure on secondary education by type of education

	Lower general secondary (calibrated on a 4 year-duration)		Upper general secondary (calibrated on a 3 year-duration)		Technical Vocational	
	%	Country value / Average	%	Country value / Average	%	Country value / Average
Benin	49	0.87	37	1.27	14	0.96
Burkina Faso	65	1.14	31	1.06	5	0.32
Cameroon	59	1.04	14	0.50	26	1.81
Chad	64	1.13	28	0.97	8	0.56
Ethiopia	51	0.91	30	1.04	19	1.27
Gambia	49	0.86	45	1.55	6	0.44
Guinea	52	0.92	21	0.73	27	1.85
Madagascar	66	1.16	31	1.08	3	0.24
Mali	46	0.82	32	1.12	21	1.46
Mauritania	53	0.94	33	1.14	14	0.96
Mozambique	66	1.16	21	0.72	14	0.94
Niger	61	1.08	25	0.86	14	0.98
Togo	59	1.04	24	0.82	18	1.20
Average	56.6		28.8		14.6	

Source: Country CSRs

b) Quantity/unit spending trade-off and breakdown of unit spending

The trade-off between quantity and quality

As we have already seen in preceding sections, even if all the countries do not have the same financial budget for the production of secondary education services (large differences in levels of national income and in inter-sector and intra-sector trade-offs between the different countries), they all have to deal (implicitly or explicitly) with budget constraints. Within these budget constraints (composed of the public resources available for education and the allocation for each level of education), there is still a great deal of room for trade-offs between the unit cost and the number of pupils enrolled. This choice between the number of pupils enrolled and the spending allocated to each pupil (unit cost) has often been likened – somewhat hastily – to a choice between quantity and quality. However, fundamentally, and independently of the issue of a link between unit cost and quality, which merits consideration in its own right, it is worth exploring the basic accounting relationship: **for a given budget, the more pupils enrolled the less it is possible to spend per pupil; and, conversely, the higher the unit spending, the fewer the number of pupils that can be enrolled** (cf. Appendix 8).

The following three figures present current policies concerning the trade-off between quantity and unit spending. Three independent figures were drawn up to compare countries with similar levels of public resources for the secondary level. Figure 4.3 groups the countries spending less than 0.8% of GDP for recurrent secondary operations, Figure 4.4 groups those

spending between 0.8 and 1.6% of GDP, and Figure 4.5 groups those spending more than 1.6% of GDP.

On each figure, the relationship between the quantity (represented by the GER) and the unit spending (measured by the cost per pupil expressed as a % of GDP per capita) is verified empirically. For similar resource levels, the countries showing the highest unit costs are those that have the lowest GERs, and vice-versa.

For the continent as a whole, the average **unit cost of secondary education varies from 10% of GDP per capita (or occasionally even less) to more than 60%**. It is of course up to each country to choose the best balance with regard to this trade-off, in the knowledge that an excessively low unit cost will penalise quality (for example, by classroom over-enrolment, as was seen in section 1.1 with the examples of Mali and Guinea) and that an excessively high level will hurt school coverage.

Figure 4.3: Trade-off between quantity and unit cost, countries with low funding for secondary education

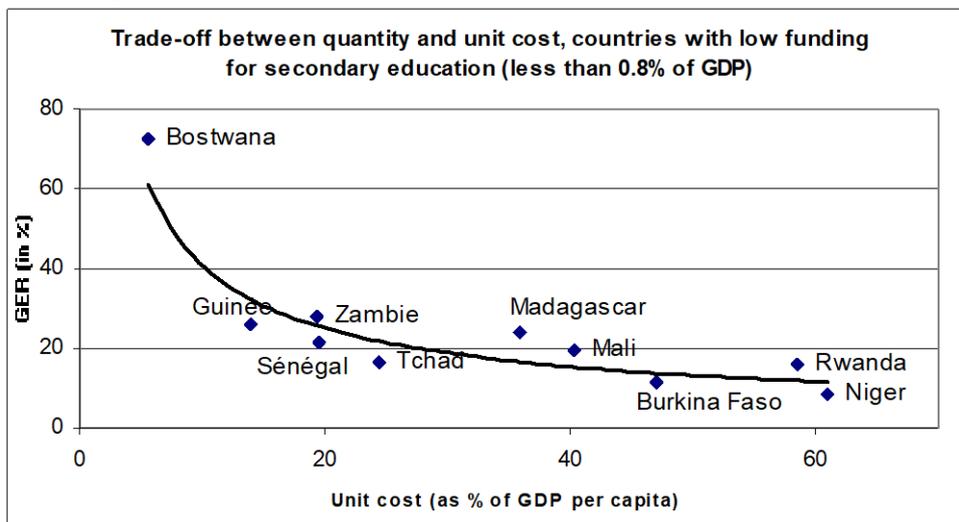


Figure 4.4: Trade-off between quantity and unit cost, countries with average funding for secondary education

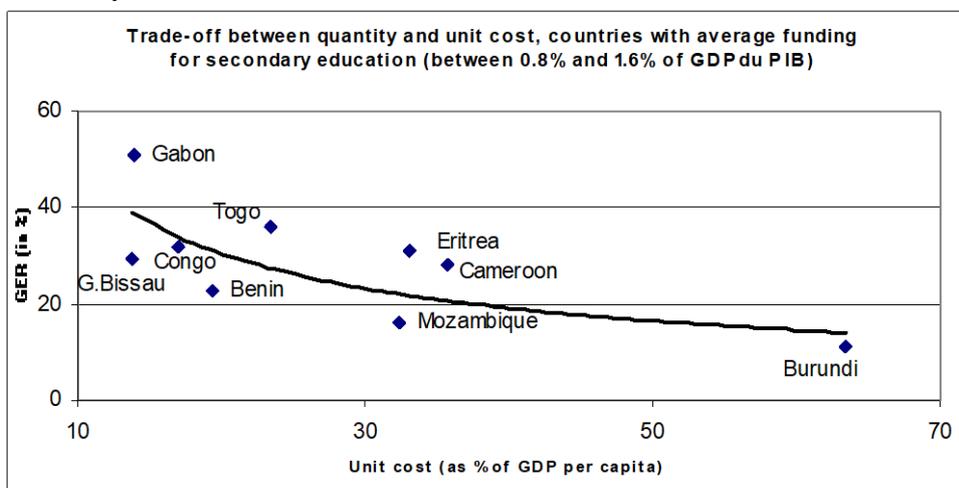
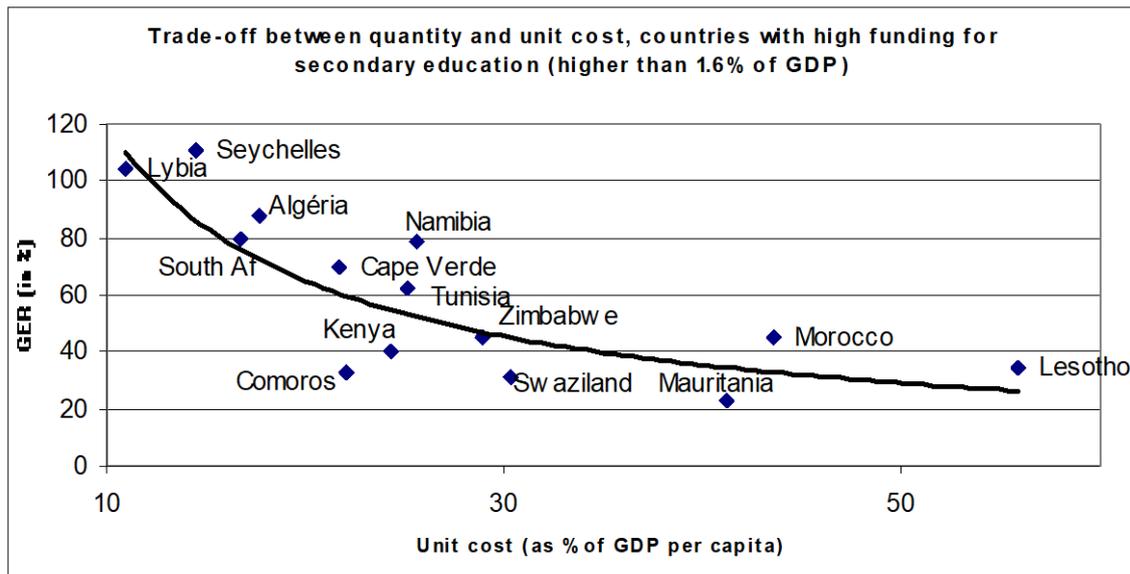


Figure 4.5: Trade-off between quantity and unit cost, countries with high funding for secondary education



Comparison of unit costs by type of education

The unit costs discussed above were calculated for the whole of secondary education. Even though the data are available for only a more limited number of countries, it is worthwhile to carry the analysis further by breaking down unit costs per type of education. Table 4.3 shows the unit costs per type of education for twenty countries. On average, **public recurrent expenditure comes to 30% of GDP per capita per pupil in lower general secondary education (or about triple the expenditure on a primary pupil), to 64% of GDP per capita per pupil in upper general secondary education (or six times the expenditure on a primary pupil) and 134% of GDP per capita per pupil in technical/vocational education (the equivalent of the expenditure on 12 primary pupils)**. By way of illustration, the average unit cost of higher education calculated for these same countries is estimated at 416% of GDP per capita (or the expenditure on 37 pupils in primary school).

Once again, there are large variations between countries: for example, the unit cost of lower general secondary varies from 13% to 64% of GDP per inhabitant.

As already mentioned, the unit costs noted in some countries could prove to be incompatible with the desired quantitative expansion. The grey cells in Table 4.3 identify values that are above the inter-country average. Even if these are only given for illustrative purposes, they correspond to the potential leeway for an increase in the pace of expansion insofar as a reduction in unit costs in these countries would permit an increase in the level of coverage, everything else being equal.

Table 4.3: Unit cost (in % of GDP per inhabitant) per type of secondary education

	Lower general secondary	Country value / Average	Upper general secondary	Country value / Average	Technical and Vocational	Country value / Average
Benin	15.8	0.53	56.2	0.87	78	0.58
Burkina Faso	39	1.31	84	1.30		
Burundi	64	2.15	64	0.99		
Cameroon	31.6	1.06	37.1	0.58	61	0.46
Congo	12.7	0.43	36.8	0.57		
Côte-d'Ivoire	35	1.18	72	1.12	111	0.83
Ethiopia	28.2	0.95	46.8	0.73	284	2.12
Gambia	25.8	0.87	166.4	2.58		
Guinea	13.4	0.45	17.6	0.27	140	1.05
Madagascar	26.7	0.90	64.4	1.00	83	0.62
Mali	26.5	0.89	117.1	1.82	203	1.52
Mauritania	39.6	1.33	33.8	0.52	188	1.40
Mozambique	22.6	0.76	45.5	0.71	55.6	0.42
Niger	49	1.65	157	2.44		
Rwanda	47.4	1.59	64.3	1.00		
Senegal	14.7	0.49	70.3	1.09	95	0.71
Chad	26.6	0.89	35.8	0.56	205	1.53
Togo	22	0.74	34.1	0.53	104	0.78
Zambia	25.3	0.85	21.7	0.34		
Average	30	1	64	1	134	1
Range	[13 – 64]		[18 – 156]		[56 – 284]	

Breakdown of the unit cost

While there is variation in unit costs between education cycles and countries, these arise from the differences observed with regard to the parameters that make up the unit cost. At a given level of spending per pupil, a policy-maker has various options for the way schools are organised, and it is up to them to choose the best option for educational quality (that is, so that the pupils learn).

In practice the unit cost is determined by **three basic factors** (cf. Appendix 9): **teacher salaries** (main expenditure item in all systems), **other recurrent spending** (salaries of non-teaching staff, teaching materials, administration, etc.), and the **pupil-teacher ratio** (the fewer the pupils per teacher, the more each pupil costs). Two systems could spend the same amount per pupil, but in different ways, for example, one by favouring class size, and the other by recruiting more qualified teachers (who are thus better paid).

Table 4.4 presents the average values observed for these three main factors, as well as the range of inter-country variation for the two cycles of general education in a sample of 17 low-income countries in sub-Saharan Africa.

Several results flow from this table:

1) On average, **the costs of each factor constituting the unit expenditure rise with the level of education** (as does the overall unit cost). The average teacher salary is estimated at 6.6 units of GDP/capita in lower secondary and 9.3 units of GDP/capita in upper secondary, that is, respectively, 1.4 and 2 times the average salary recorded at the primary level in the same countries. Other recurrent expenditure (salaries of non-teaching personnel, teaching materials, any school subsidies) also rises with the level of education. While these expenditures represent on average 27% of all recurrent expenditure at the primary level, they are estimated at 37% at the lower secondary level and 40% for upper secondary. Finally, the situation is similar for the pupil-teacher ratio: it improves when moving up the education level (56 at primary, 37 in lower secondary and 26 in upper secondary), meaning that its equivalent in terms of unit cost also rises with the level of education.

2) There are **considerable variations in these three parameters between countries**, at every level of education, for instance, at lower secondary level, from 3.6 to 13.1 units of GDP per capita for the average teacher salary, from 24% to 56% for the share of recurrent expenditure (excluding salaries of non-teaching personnel), and from 23 to 56 for the pupil-teacher ratio; and at upper secondary level, from 3.8 to 19.8 units of GDP per capita for the average teacher salary, from 18% to 53% for the share of recurrent expenditure (excluding salaries of non-teaching personnel), and from 15 to 48 for the pupil-teacher ratio.

Insofar as some countries would undoubtedly choose (even with an increase in resources, and all the more so given constant resources) to shift the balance between quantity and unit cost towards a larger number of pupils, this would mean that an adjustment needs to be found for one or more of these three components in order to reduce unit expenditure. The average values observed could then be used as a benchmark to identify each country's situation with regard to potential room for manoeuvre.

Likewise, **one means of reducing unit costs** (with a view to increasing the number of pupils) that has already been used by some countries is **to integrate the lower secondary level (or part of it) into primary education** in order to form an eight to ten-year bloc of basic education. This approach can be used to foster convergence in the functioning of lower secondary and primary education so as to reduce the unit cost. This could involve, for example, a reduction in teacher specialisation and/or a revision of the curriculum.

Table 4.4: Organisational arrangements and unit costs at different education levels, average and range of variation between 17 low-income countries in Sub-Saharan Africa (1999-2004)

		Pupil-Teacher Ratio	Teachers' salary (as GDP per capita)	Recurrent expenditure other than teachers salary (as % of the total recurrent expenditure)
Primary	Average	55.7	4.6	27.4
	Range	[40-75]	[2.4 – 6.8]	[15-43]
Lower secondary	Average	36.8	6.6	37.4
	Range	[23-56]	[3.6 – 13.1]	[24-56]
Upper secondary	Average	25.6	9.3	39.5
	Range	[15-48]	[3.8 – 19.8]	[18-53]
Secondary	Average	33.2	-	-

Source: Mingat (2004)

c) Privatisation of education

Another possible source of funding for secondary education is private financing. While it is impossible at this point to obtain large-scale data on household spending, the subject can be considered by studying the portion of pupils enrolled in private schools.

As for other aspects of education policy, education systems differ a great deal from one country to another with regard to the weight of the private sector. In lower secondary, on average 19.7% of pupils are enrolled in private schools, but this proportion varies from 0% to 77% depending on the country. In upper secondary, the average is slightly higher (22.4%), and the variation is from 0% to 69%.

The privatisation of the secondary education system raises **three basic issues**: 1) the question of **equity** (private education is not financially accessible to all families), 2) **of legitimacy with respect to the idea that education is a public good**, and 3) **control over education**.

With regard to the first and second issues, Section 1.2.2 showed that in the current situation, basically public systems, the selection of the beneficiaries of secondary education takes place largely based on the level of family wealth (the poorest families proportionally have 7.5 times less access to lower secondary education than the wealthiest families, and 20 times less to upper secondary). In addition, Part 2.3 showed that social benefits decrease with the level of education, but private benefits rise starting from the lower secondary level. **The basis for the legitimacy of majority public financing is more solid for lower secondary education than for upper secondary.**

As for the third issue, some countries have tried to solve this by subsidising the private sector in exchange for controls over it. The fact that the subsidy allotted per pupil is well below the public unit cost has the advantage of stimulating private education (which helps to expand overall coverage, in addition to public system and at lower public cost), while maintaining control on quality. On this last point, studies also conducted in these countries show that the quality of private education is often equal to or better than that in the public system, including when the influence of socio-demographic factors is taken into account (pupils in private schools generally come from wealthier families).

d) Repetition

Any discussion of repetition by educators is always very lively. Nevertheless, research on the issue has made progress and yielded a certain number of solid results.³⁶ It is clear, notably in primary education, that 1) repetition rates are very stable over time, meaning that **repetition is more an acquired habit (often linked to the colonial heritage) than a choice reflecting education policy**; 2) repetition constitutes **a cost for the system** in that two years are paid for only a single year of achievement; 3) repetition has a **negative effect on pupil survival** (lowering school demand due to a depreciation in the value of the school benefit relative to its cost in the eyes of pupils' parents); and 4) its **pedagogical effectiveness has not been established empirically**. Analyses conducted of this issue show that there is neither a positive nor negative relationship between repetition and quality (Bernard et al., 2005; Brossard, 2003; PASEC, 1999; PASEC, 2005; CSR Chad, 2005; CSR Cameroon, 2004). Providing that

³⁶ See, for example, "Dakar +5: EFA in Africa, Paving the way for Action" (UNESCO-BREDA, 2005) for a summary of these studies.

repetition practices across cycles are homogeneous, there is little risk of making a mistake when saying that these results are valid for secondary education³⁷.

In Africa the average proportion of repeaters is estimated at 15.1% in lower secondary and 14.4% in upper secondary. These values are very close to those observed in primary school (15%). There is great variation between the countries around this average: **in lower secondary, the systems range from automatic promotion (0% repeaters) to 42% of repeaters, and in upper secondary from 0% to 34% of repeaters.**

Up to now the analysis has used the GER as an indicator of school coverage. It is more particularly an indicator of the system's capacity for reception or new supply, as the presence of repeaters (counted twice in the GER) inflates the value calculated³⁸. Insofar as the goal is for the pupils entering a cycle to complete it, it would seem prudent to treat the completion rates for the two secondary cycles (the proportion of a cohort that completes the cycle³⁹) as a more precise indicator of the results of the secondary education system. These two indicators are mathematically linked by the % of repeaters and the rate of access to the first year of the cycle.⁴⁰

An econometric analysis⁴¹ that seeks to explain variations in completion rates by the variations observed in GERs (which correspond to the cost of the system represented by school supply) and in the percentage of repeaters enables us then to obtain a gross estimate of the average cost of a larger proportion of repeaters. In other words, for each secondary cycle, we can obtain an approximate idea of what kind of gain in completion rates would be permitted by a one point reduction in repetition. These estimates, which should be viewed with caution, thus indicate that for **an average country with a constant enrolment rate (same GER, so same cost for the system), a fall of one percentage point is associated with an increase of 0.4 point in the completion rate for the first cycle (and 0.2 point for the second cycle).**

4.3 Summary and conclusion: Towards an indicative framework for lower secondary education

This section pointed to significant inter-country differences on a certain number of contextual factors and key parameters in sector policy. Using a research approach based on “best practices”, and drawing on analytical work carried out on primary enrolment in preparation for the Fast Track Initiative,⁴² it seemed worthwhile to **identify the countries with the best performance and to make a comparison between more effective and less effective countries with regard to the factors described above.**

³⁷ A specific analysis on secondary education, that can't be done in this paper, should nevertheless realised to confirm or nuance results observed in primary education

³⁸ For more information see N. Reuge (2004), methodological note 1 of the Pôle de Dakar Unit.

³⁹ Due to the availability of data, we have used the rate of access to the last year of the cycle (non-repeaters in the last year / population of official enrolment age for this year of schooling).

⁴⁰ Ibid.

⁴¹ For more information, see the models in Appendix 10.

⁴² See B. Bruns, A. Mingat, R. Rakotomalala, “A chance for every child” (World Bank, 2003).

Our analysis is limited to lower secondary education insofar as there is no dispute (other than that of quality, given the trade-off described in Part 4.2.2) about the explanation of its pace of expansion. As the goal targeted (as noted in Part 4.1.2.d) is that the maximum number of pupils finish the cycle, the performance criterion is considered to be the rate of completion of lower secondary education. To ensure comparability between countries, and thus a reliable analysis, **we have limited the inquiry to countries with per capita income of less than US\$ 1200.**

Based on observations of completion rates, a group of African countries with the best performance was identified, by targeting those with a value greater than or equal to 30%⁴³. There are nine such countries, including (in decreasing order of the completion rate for the cycle): **Zimbabwe, Sao Tome & Principe, Ghana, Gambia, Zambia, Swaziland, Togo, Congo and Malawi**⁴⁴. The average lower secondary completion rate for these countries is 41%, which is more than twice the average calculated for the other countries with per capita incomes below \$1200 (17%).

Table 4.5 shows the differences in the main contextual and policy factors between the average observed for the most effective countries and that observed in the other countries. For a more precise estimate of the impact of each of these factors, it would be necessary to perform an econometric analysis, insofar as a simple gross comparison between the two groups could be affected by hidden dependency effects between the different variables.

Nevertheless, the factors for which the differences between the two groups are the greatest are most likely the factors that have a greater impact on lower secondary completion rates than the others.

First note that there are no observable differences in the average pupil-teacher ratios between the two groups. **The better performance in quantitative terms of the countries in the first group does not seem to have been obtained at the cost of poorer teaching conditions** (the average pupil-teacher ratio is even slightly better in the group of countries with the better performance).

No significant difference could be neither seen for the following factors: State resources as a percentage of GDP, the share of State resources allocated to education, the share of secondary expenditure allocated to lower secondary⁴⁵, and the percentage of pupils enrolled in private schools.

Nevertheless differences (to different extent) were noted in the following parameters:

- **The primary completion rate:** 66% in the best performing countries versus an average of 48% for the others

⁴³ The value of 30% was chosen, as it identified a number of countries (9) that was sufficiently large to produce sufficiently robust results and small enough so that their specific features stood out clearly.

⁴⁴ Note that among the five African countries used as reference countries in the analytical work for the Fast Track Initiative for primary enrolment (the group of most effective countries, which also contained five non-African countries), three of them are also high-performance countries for lower secondary education: Gambia, Zambia and Zimbabwe.

⁴⁵ The lack of difference between the two groups of countries for this parameter could be because too few countries have data on this parameter.

- **The share of recurrent education expenditure allocated to secondary education:** 38% versus 33%
- **The unit cost:** 23% of GDP/capita versus 34%
- **The % of repeaters:** 11% versus 16%

To develop a genuine reference framework (as was done for primary school in the Fast Track Initiative), the analysis needs to go deeper, by 1) making use of econometric analysis, and 2) improving the availability of data in terms of countries, in particular about the different components of unit cost. Nevertheless, this comparison helped to identify some initial lines of inquiry about the determinants of lower secondary coverage.

Table 4.5: Main indicators on context and education policy for lower secondary education, comparisons between the most effective countries and other countries (countries with revenue of less than \$1200 per inhabitant)

	Best performers countries (Lower secondary completion rate \geq 30%)		Other countries (Lower secondary completion rate < 30%)	
	Average	Range	Average	Range
Lower secondary completion rate	41%	30%-58%	17%	6%-29%
Context				
Primary completion rate	66%	59%-73%	48%	27%-73%
State Revenues as % of GDP	21%	15%-27%	19%	8%-40%
Mobilisation of resources				
Recurrent expenditure on education as % of State revenues	20%	10%-30%	19%	7%-31%
Recurrent expenditure on secondary education as % of total recurrent expenditure on education*	38%	33%-52%	33%	11%-51%
Recurrent expenditure on lower secondary as % of total recurrent expenditure on secondary education*	58%	44%-74%	56%	45%-74%
Education service delivery mode of organisation				
Unit cost (in % of GDP per capita)	23%	17%-29%	34%	8%-63%
Pupil-Teacher Ratio (all secondary)**	27	16-46	28	11-46
% of pupils in private schools	20%	0%-71%	24%	6%-49%
% of repeaters	11%	0%-30%	16%	0%-37%

* In order to take account of the different durations of secondary education between countries, the data were recalibrated and correspond to a duration of 7 years for total secondary, including 4 years for lower secondary (the most common duration in Africa).

** Information on the pupil-teacher ratio is rarely available for lower secondary alone, so the data here correspond to secondary education as a whole.