Household Education Spending

An Analytical and Comparative Perspective for 15 African Countries

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EDUCATION SECTOR ANALYSIS

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Acronyms

CSR	Country Status Report
CWIQ	Core Welfare Indicator Questionnaires
EFA	Education for All
FRAM	Parent-Teacher Association
FTI	EFA Fast-Track Initiative
GDP	Gross Domestic Product
GER	Gross Enrollment Rate
IMF	International Monetary Fund
INS	Institut National de Statistique (du Cameroun)
MRY	Most Recent Year
OECD	Organisation for Economic Cooperation and Development
PTA	Parent-Teacher Association
TVET	Technical and Vocational Training
UIS	UNESCO Institute of Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organisation

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Summary

Given the lack of statistics on household education spending, the review of education expenditure is often limited to public resources. However, the issue of private financing of education is all the more important that the capacity of African states to finance their education systems is questioned. Through survey data, this study offers a transversal reading of the scale and composition of household education spending for fifteen African countries.

School fees are generally the first item of expense, in particular for students enrolled in the higher education levels, those in private institutions and for those from wealthier households.

Household education spending is globally significant (of a magnitude comparable to half public expenditure), but badly targeted. Indeed, households contribute relatively more to the financing of primary education than to that of higher education. This is both inequitable (the representativity of pupils from the most advantaged social strata is highest in higher education, which nevertheless receives the most public education resources) and ineffective (the individual return on schooling is slighter in the earlier education levels).

To conciliate effectiveness and equity, this study suggests that the expansion of education systems should be accompanied on the one hand by mechanisms that incentivize substantial household investment in higher education (as do countries having gradually replaced generous but ill-targeted scholarships with personal loan systems) and on the other hand by more active policies in terms of the redistribution of education resources. This redistribution would favor the access of the poor to basic education, for instance through the availability of support funds fed in part by greater household spending for the later education levels.

The study also underlines a variety of results according to countries' education and economic contexts. This calls for further analytical work to orient, for each one, more equitable and effective co-financing policies.

1. Introduction

Given the lack of statistics on household education spending, the review of education financing is often limited to public resources (central and local government expenditure). This limitation creates considerable bias in the comparative analysis of education spending between countries, that differ both in terms of the importance of the private sector in the supply of education services, and in terms of household contributions to the public education system.

The issue of private education financing assumes increasing importance today, when the capacity of African states to finance the expansion of their education systems is being questioned. Indeed, after the recent successes noted in the development of primary schooling, the projections in enrollment growth show that few African governments will be able to finance the required development of their postprimary cycles with public resources alone (Pôle de Dakar, 2007; Mingat et al., 2010). In numerous cases, growth in the share of private funding will be inevitable, either as a result of the expansion of the private provision of education, or due to greater household contributions to public education.

In this perspective, the review of the scope and nature of household contributions in different national contexts is a pre-requisite for any objective reflection on the potential evolution of private education funding. It will be relevant to establish both the relative weight of education funding in households' budgets according to their income levels, and the scope of their funding relative to the public resources allocated to each cycle.

This level of detail will enable to describe the structure of education financing for each country. Equity and the search for economic efficiency generally justify that basic education spending should be assumed by local authorities, and that household contributions to postbasic levels should increase, especially for the upper secondary cycle and higher education.

Given that it satisfies the right to education for all, but also because of the large range of collective benefits provided, basic education is the level most likely to benefit from a significant level of collective funding. On the other hand, the justification for private contributions is more convincing with each successive level: (i) socially, the weak development of education systems tends to effectively limit access to the later levels to children from the most fortunate families; and (ii) in terms of collective efficiency, it is clear that higher education embodies the private nature of the investment in education (any collective benefits depend directly on individual choices, whereas the acquisition of such skills often opens new professional horizons…).

The indiscriminate collective funding of the postprimary levels therefore favors an inverted redistribution of resources (to the benefit of the wealthiest) and runs the risk, at the expense of the collective interest, of weakening the social relevance of individual education choices.

What education funding structures are common in African countries today? What exactly do households finance at each education level? What is the magnitude of their financing? The response to these questions is important to appreciate the sustainability of education policies that rely on greater household contributions. This working paper intends to explore the responses to these questions for fifteen African countries, combining household surveys and available data on public education expenditure produced in the framework of national studies on education funding. These data will in principle enable to respond to the question of who finances what, and to understand the potential evolution of education funding, by component.

The document comprises five main sections:

- Section 2 presents the available data and indicates the methodological framework chosen to estimate household education spending. This framework will be published separately (Pôle de Dakar, 2012; to be published);
- Section 3 offers an overview of the macroeconomic performance of the sampled countries over the past 10 years, outlines the degree of public education investments and the relative weight of private education services;
- Section 4 is devoted to the analysis of household education spending, their extent and composition. When data permits, the breakdown of expenses is also provided by level;
- Section 5 focuses on the analysis of the average level of household education spending, as well as by enrolled pupil. A vision of unit costs will be offered for the entire education system of the different countries considered, before presenting a disaggregation by education level; and
- Section 6, The consideration of the number of pupils enrolled by education cycle will enable to later simulate, on a macroeconomic scale, the scope of household education spending per enrolled child, and to compare the amounts with those invested by governments.

The approach adopted in this paper is both analytic and comparative, for the fifteen countries for which data is available. The comparative perspective becomes fully meaningful in the context of a double review of the economic and education environments of the countries studied. This approach helps to better nourish the reflection on the relevance of the structure of education funding in each country. The conclusions of this study offer some perspectives of the relevance of the current education funding structures in the sampled countries, and in particular their capacities to ensure that the most disadvantaged gain access to the higher education levels (Section 7).

2. Data and Methodology

Household education spending is estimated from data contained in surveys of the budget-consumption variety, but also from other types, including core welfare indicator questionnaires (CWIQ) with household spending components.

Data is available for the following fifteen countries, for the years indicated in parenthesis:

- Benin (2003);
- Burkina Faso (2007);
- Cameroon (2001);
- Republic of Congo (2005);
- Côte d'Ivoire (2002);
- Gabon (2005);
- Madagascar (2001);
- Malawi (2004);
- Mali (2006);
- Mauritania (2008);
- Niger (2005);
- Rwanda (2005);
- Sierra Leone (2003);
- Tanzania (2007); and
- Chad (2001).

The list of surveys is available in Annex Table A1. The surveys, carried out between 2001 and 2008, are not necessarily equivalent in terms of methodology, especially with respect to their inclusion of household education spending. For the purpose of this study, variables as comparable as possible have nevertheless been generated, covering enrollment, household characteristics, and education expenditure. Annex Table A2 categorizes household education spending for each of the fifteen countries.

It is worthy of note that for four countries (Côte d'Ivoire, Mauritania, Madagascar and Rwanda), data on education spending data is available by enrolled child.

For the remaining countries, as is more common in the region, education spending data is available by household. In the latter case, it was necessary to use an econometric model to disaggregate spending by education level.

As indicated, the methodology used here is being published separately by the Pôle de Dakar, focusing on two basic questions: (i) the first is related to household spending. Apparently, its estimation depends greatly on the chosen definition (Cameroon CSR, 2001). Some items are the direct consequence of school attendance (school supplies, enrollment fees, room rental, and so on); others are indirect (school uniforms, school meal costs, transport expenses, and so on); and some are too detached to be considered as education expenses (art teaching, newspapers and magazines, and so on); (ii) the second is related to the statistical methods used to estimate household spending, by child or education level, especially when data are not disaggregated by enrolled child. [1]

This working paper therefore constitutes, to some degree, the implementation of the conceptual framework proposed in the Pôle de Dakar publication previously mentioned, applying an analytical and comparative approach for the countries with available data. The comparative approach is obviously essential to understand the diversity of national situations. However, the surveys were carried out in different years, which could weaken the comparisons among countries to some extent, without the documented knowledge of each national context, both in terms of economic development and the development of their education systems.

Indeed, household spending in general, and education spending in particular, can be significantly swayed by economic cycles (under recession for instance,

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1. Generally speaking, the annual amount of education spending (ES) and the number (Ni) of children/pupils enrolled by level of schooling i are available by household. If a household has no child enrolled in level i, $N_i = 0$. To estimate the average household education spending by child and level, the following econometric analysis is performed, without a constant: $ES = \sum C_i * N_i + U$, where U is the error term. The C_i coefficients, representing the average household cost per child for each education level, are to be estimated.

households may under-invest in education). It is therefore important to also have a comparative vision of the macroeconomic backgrounds of the countries considered. Furthermore, household education spending can be influenced by education policy (such as the abolition of school fees) and varies according to the relative weight of the private sector in providing education services. The implicit consideration of the influence of education policy on household spending, however complicated, seems indispensible.

3. Overview of the Countries' Socioeconomic and Education Contexts

This overview is provided through two complementary angles: (i) on the one hand, through a review of the levels of macroeconomic performance of the countries considered over the last 10 years, and (ii) on the other hand, by outlining the global scope of public investment in education and the relative weight of private education in the recent period.

As underlined earlier, this background information is important to better understand the relative effort of households in education financing: Is household education funding the result of purchasing power and/or the use of private institutions? Does household financing complement state financing, or compensate a lack of it? Further, does state financing oust household funding? If so, to what extent, and for which education levels?

The Global Macroeconomic Context

The studied countries' levels of economic development are generally comparable. The GDP per capita of most of the countries considered is in the US$ 1,000 to US$ 2,000 band (in purchasing power of parity), with an average of US$ 1,500 in 2010. The Republic of Congo and Gabon have higher GDP per capita however, at US$ 4,400 and US$ 15,000 respectively, while GDP per capita for Madagascar, Malawi, Niger and Sierra Leone is below US$ 1,000 (See Table 1 below).

The average standard of living has improved modestly since 2000. The sample countries' GDP per capita has improved overall, growing at an average annual rate of 1.4 percent between 2000 and 2010. This growth has however been unequal among countries. In volume, GDP per capita increased by more than 50 percent in four countries (Rwanda, Sierra Leone, Tanzania and Chad), but remained virtually stable in three others (Cameroon, Gabon and Madagascar). Côte d'Ivoire is the only country whose real GDP per capita dropped (by about 15 percent since 2000), a result of the sociopolitical crisis the country underwent over the period.

Therefore, the majority of the 15 countries' GDP per capita has improved, although in different degrees. The data from household surveys that will be used shortly have thus been collected in the context of improving living standards. For Madagascar and Malawi however, they were collected in a period of stagnation or even minor contraction of GDP per capita over the 2000-05 period, of -0,3 percent and -0,5 percent respectively.

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2. This relatively weak GDP per capita growth is in part due to sustained demographic growth, estimated at 2.6 percent on average for the sample of 15 countries, marginally higher than the Sub-Saharan African average of 2.5 percent.

	Total Population (Millions)	GDP per Capita (US$ PPP)	GDP per Capita Average Annual Growth Rate - 2000-10
Benin	9,6	1, 451	0,8 %
Burkina Faso	4,7	1, 360	2,8 %
Cameroon	20,4	2, 170	0,3 %
Chad	10,2	1, 698	4,4 %
Côte d'Ivoire	22,0	1, 681	-1,6 %
Gabon	1,5	15, 021	0,0 %
Madagascar	21,3	911	-0,4 %
Malawi	15,7	827	2,0 %
Mali	13,4	1, 252	3,0 %
Mauritania	3,2	2, 093	1,5 %
Niger	14,6	755	2,1 %
Congo, Rep. of	3,9	4, 427	1,7 %
Rwanda	10,0	1, 217	5,3 %
Sierra Leone	5,8	807	6,0 %
Tanzania	41,3	1, 413	4,8 %
Average	13,9	1, 513	1,4 %

Source: IMF and authors' calculations.

The Education Context

The preview of the education context focuses on two main aspects: (i) firstly, the analysis of the scope of public funding devoted to education, as well as its allocation by education level and the breakdown of its use (teaching salaries, social spending, and so on) for each; then (ii) an analysis of the relative magnitude of the private supply of teaching for each education level, for each of the sampled countries.

Public Education Funding

In terms of public resources, three main points are noted: (i) the budget priority given to education is generally strong among the 15 countries; however (ii) resources are not always allocated according to the development priorities for each education system; and (iii) the use of resources within each education level varies from one country to the next, with a tendency towards the predominance of salary expenses in the primary and general secondary levels, and of other types of expense in the technical and vocational (TVET), and higher cycles.

Education is given high budget priority. The volume of public financing for education represented 3.7 percent of GDP on average for the 15 countries over the recent period (from 2004 to 2009), markedly below the African average (4.7 percent in 2008) and the OCDE countries' average (5.2 percent in 2007). This relative weakness in the volume of public resources invested in education is basically due to the narrow base of tax income in the countries considered (See Figure 1). [3]

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3. The Republic of Congo and Gabon, whose economies are predominantly oil-based, are exceptions.

FIGURE 1 :

Total Public Education Expenditure and Share of Recurrent Expenses (not Including Debt) Allocated to Education, 2008 or MRY. Percentage of GDP, and Percent.
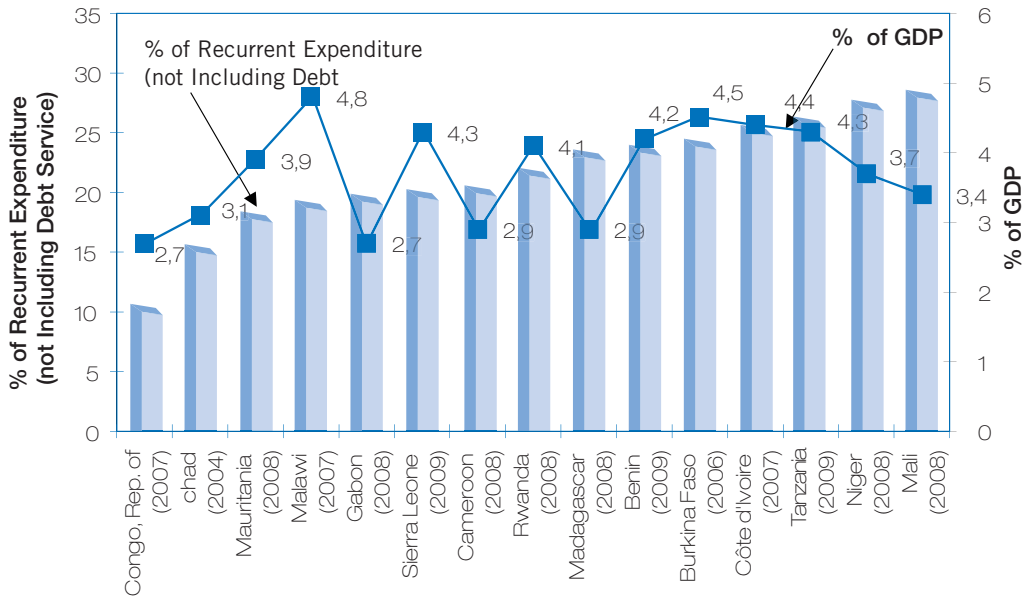
Source: Various CSRs, Pôle de Dakar (UNESCO/BREDA), World Bank, ale, FTI and UIS.

Indeed, the budget priority given to education is fairly asserted in these countries, with close to 22 percent of public recurrent expenditure, not including debt service, allocated to recurrent education spending, a figure equal to the African average. However, the degree of budget priority given to education varies among countries: some devote less than 20 percent of their recurrent expenditure (non including debt) to education (Republic of Congo, Mauritania and Chad), whereas others devote more than 25 percent (Côte d'Ivoire, Mali, Niger and Tanzania).

Resources are not always allocated according to quantitative enrollment needs. The intra-sectoral distribution of recurrent education spending is similar to the situation that is widespread throughout the continent. Indeed, the average shares allocated by the 15 countries to the primary, secondary (general and TVET) and higher

education cycles are estimated at 44.3 percent, 30.7 percent and 21.3 percent respectively (See Table 2), close to the respective African averages of 43.9 percent, 29.9 percent and 20.4 percent. The residual share of 3.7 percent is allocated to the preprimary cycle and nonformal education.

Education priorities, deduced from the levels of development of the different cycles, are not necessarily the same however. The African gross enrollment rate (GER) is double that of the 15 countries for preprimary (26 percent, against 13 percent), 40 percent higher for lower secondary (57 percent, against 40 percent) and 70 percent higher for upper secondary (29 percent, against 17 percent), TVET (553 students per 100,000 inhabitants, against 353) and higher education (836 students per 100,000 inhabitants, against 502).

TABLE 2 :
Intra-Sectoral Allocation of Recurrent Public Education Expenditure, 2008 or MRY.
Percent.

	Primary	Lower Secondary	Upper Secondary	TVET	Higher	Other
Benin (2006)	53,6	12,0	6,7	4,8	19,7	3,2
Burkina Faso (2006)	56,3	9,0	5,6	2,6	22,4	4,1
Cameroon (2007)	29,6	27,1	11,9	16,7	12,1	2,6
Congo, Rep. of (2007)	18,0	24,6	15,1	14,9	25,6	1,8
Côte d'Ivoire (2007)	42,7	17,6	9,8	7,2	20,9	1,8
Gabon (2008)	26,5	15,4	12,1	4,1	38,0	3,9
Madagascar (2006)	53,9	17,6	7,8	3,9	14,4	2,4
Malawi (2007)	44,7	21,9		3,4	27,1	2,9
Mali (2008)	36,5	16,7	12,9	9,9	17,6	6,4
Mauritania (2008)	52,4	16,8	8,7	3,4	16,8	1,9
Niger (2008)	60,2	15,8	4,4	3,4	10,3	5,9
Rwanda (2008)	48,5	16,9	7,0		26,7	0,9
Sierra Leone (2004)	51,0	17,4	5,4	4,0	22,0	0,2
Tanzania (2009)	44,2	13,5		7,0	26,9	8,4
Chad (2004)	46,7	23,7		1,6	19,0	9,0
Sample Average (a)	44,3	16,2	8,6	5,9	21,3	3,7
African Average (2008) (b)	43,9	15,4	9,0	5,5	20,4	5,8

Source: CSRs, UIS, Pôle de Dakar (UNESCO/BREDA), World Bank, FTI and authors' calculations.
Note: (a) Simple average of the values for the 15 sample countries when disaggregated data is available. For the lower and upper secondary cycles and TVET for which such data are not always available, the average has been adjusted so that the total of the subsector averages is 100 percent. (b) Simple average of African countries for which data were available by subsector. The average for each subsector has been adjusted so that the total of the averages is 100 percent.

The intra-sectoral allocation of public education expenditure also varies from one country to another, without any systematic relationship being apparent with the overall level of development of the sector. For instance, the share allocated to primary is expected to be lower in countries that are close to universal primary education, and where demand for secondary education, be it general or TVET, is strong. Although this tendency generally holds, it is far from systematic. [4]

On the one hand, a country such as Niger that appears to be seriously behind in terms of achieving the objective of universal primary education by 2015 (its primary completion rate was 44.2 percent in 2009), allocates 60.2 percent of its recurrent education expenditure to the primary cycle. Mali on the other hand, that is equally behind in terms of this objective (primary completion rate of 54 percent in 2008), only allocates 36.5 percent of recurrent education expenditure to primary. The situation is equally counter-intuitive in countries such as the Republic of Congo, where the low budget priority for the primary cycle (with 18 percent of recurrent education expenditure) does not appear to be justified, given the outstanding progress required in terms or primary completion (the primary completion rate is 69.7 percent).

The use of resources also varies according to education level and country. As in most African countries, salary expenses are predominant for the primary and secondary cycles, and are comparatively minor for TVET and higher education. The average primary teaching salaries' share for the 15 countries reaches 60 percent of recurrent expenses for this level. It drops to 50 percent for general secondary, 34 percent for TVET and 22 percent for higher education. In the latter two cycles, general administrative expenses, operational expenses (in particular for TVET teaching and learning materials) and social spending (for higher education) are predominant. For higher education for instance, social spending (scholarships, financial support to students and student loans) represent up to

4. The share of public recurrent education expenditure allocated to the primary cycle bears a weak correlation with the primary completion rate of the sample countries (R² is 18 percent).

39 percent of the levels' recurrent expenditure on average, equivalent to almost double that spent on teaching salaries.

This overall situation varies by country. For the primary cycle, the share allocated to teaching salaries varies between 34 percent in the Republic of Congo to 82 percent in Malawi; for lower secondary, it varies from 36 percent in Rwanda to 61 percent in Côte d'Ivoire; for upper secondary, it varies from 25 percent in Mali to 62 percent in Côte d'Ivoire; in TVET, it varies from 12 percent in Mali to 50 percent in Chad; and in higher education, the weakest share is noted in Gabon (9 percent) and the greatest in Malawi (38 percent). Social spending represents less than 15 percent of recurrent expenditure for higher education in Cameroon, Malawi and Sierra Leone, but more than 50 percent in Burkina Faso, Gabon, Mali and Niger.

Private Education Supply

Private education is variable from one country to another, but the main finding is that the relative weight of private education supply increases from primary (13 percent), to lower secondary (33 percent), but drops for higher education (20 percent).

Private education supply is a further element to consider in the framework of this study in as much as the enrollment of a pupil in a private school does not usually represent the same household investment as their enrollment in a government school. It is therefore important to measure the scope of private teaching supply, which would reflect the level of household interest in it (either voluntary, or forced, when public education supply is inexistent or lacking).

That said, it is important to clearly define private education supply. In some countries private teaching is directly subsidized by the state, enabling the poorest families to send their children to private schools at no extra cost. This is the case in Mali for instance, where the state prefers to subsidize private upper secondary schools rather than considerably increase the public supply, given that this option is comparatively less costly by pupil than the direct costs involved in providing public teaching. Thus, pupils that do not obtain a place in a public institution can be oriented towards private schools at no further cost to their families. Similar situations are found in many other countries, where private schools receive significant subsidies from the state. In the framework of this study, these schools are treated as public. It is the case of the community schools of the Republic of Congo, Madagascar, Mali, Niger and Tanzania; and of independent subsidized schools in Rwanda.

TABLE 3 :
Distribution of Enrollment by Type of School (Private or Community), by Level, 2009 or MRY.
Percent.

| | Primary | | Secondary | | | Higher |
| | | | Lower | | Upper | |
	Private	Community	Private	Community	Private	Private
Benin	12	0	14	0	22	25
Burkina Faso	14	0	36	0	32	15
Cameroon	21	0	30	0	30	10
Congo, Rep. of	35	0	34	0	36	22
Côte d'Ivoire	12	0	36	0	46	38
Gabon	33	0	31	0	27	n.d.
Madagascar	19	0	42	0	55	8
Malawi	1	0	*	*	23*	11
Mali	22	18	16	1	56	12
Mauritania	10	0	21	0	26	2
Niger	4	0	22	0	37	n.d.
Rwanda	2	0	28	0	54	57
Sierra Leone	5	0	5	0	1	n.d.
Tanzania	2	0	11	0	32	22
Chad	10	22	15	2	13	20
Average	13	3	24	0	33	20

Source: CSRs, Pôle de Dakar (UNESCO/BREDA) and World Bank.
Note: * Malawi only offers one secondary cycle, of four years; the distribution of pupils of this level by type of school is indicated only for the upper secondary cycle.

On average, for the countries considered here, 13 percent of children attend private primary schools, 3 percent attend community schools, and 84 percent attend public schools (See Table 3). Private education supply is greater in the Republic of Congo, attended by 35 percent of primary pupils, and least important in Malawi, where it is attended by just 1.3 percent. Close to a quarter of lower secondary pupils attend private schools. Compared to the primary level, community schools are virtually insignificant at the secondary level (0.2 percent). At this level, Madagascar has the highest private enrollment, with 42 percent of pupils, whereas Sierra Leone has the lowest, with just 5 percent of pupils.

Close to a third of upper secondary pupils are enrolled in a private school (33 percent on average for the 15 countries), whereas community schools are inexistent. Mali, Madagascar and Rwanda offer most private teaching (accounting for about 55 percent of pupils) and, as in the case of lower secondary, Sierra Leone offers least (accounting for just 1 percent of pupils). Finally, the private supply of higher education attracts one in five students (20 percent). The relative weight of the private supply of education nevertheless varies from under 3 percent in Mauritania to nearly 57 percent in Rwanda.

4. Scope and Composition of Household Education Spending

The survey data provides the global volume of household education spending, which can then be compared to total household spending and GDP. These data also provide, for most of the countries studied, the composition of spending. These two aspects are dealt with in turn.

Household Education Spending

On average for the 15 countries, households appear to devote 4.2 percent of their spending to education. This figure, called the education budget coefficient, is far from insignificant. Indeed, household education spending represents 1.7 percent of GDP on average for these countries, equivalent to a little under half public education expenditure (3.7 percent of GDP). [5]

GRAPHIQUE 2 :
Share of Education in Total Household Spending, 15 African Countries, Survey Year. Percent.
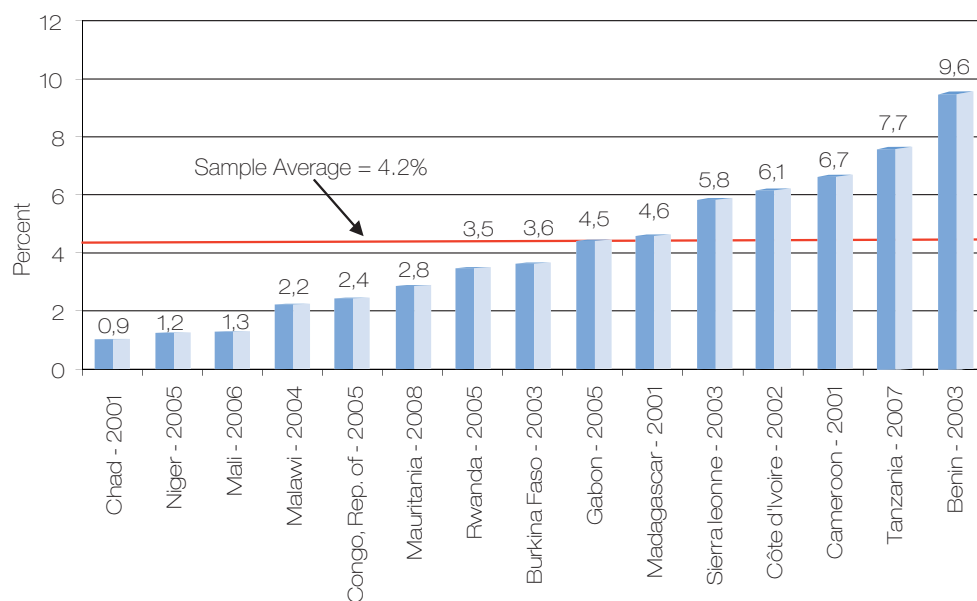
Source: Authors' estimations based on household survey data.

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5. This indicator varies among countries, ranging from under one percent of GDP in the Democratic Republic of Congo, Gabon, Mali and Chad, to over three percent in Cameroon and Sierra Leone. Generally speaking, this indicator increases with the budgetary coefficient (correlation coefficient of + 0.53).

The education budget coefficient varies considerably among countries, by a factor of 1 to 10, as Figure 2 illustrates. Whereas households devote less than two percent of their total spending to education in some countries such as Chad, Niger and Mali, this share is twice as important in other countries such as Gabon and Madagascar, and five times more important in Benin.[6] Contrary to expectations, this variability is not due to gaps in countries' levels of economic development. In countries with comparable levels of economic development such as Burkina Faso and Tanzania, the budget coefficient

varies from 1.2 percent to 7.7 percent. Likewise, the budget coefficient is virtually the same for Gabon and Madagascar, whereas the gap in terms of economic development is considerable between these two countries. These observations appear to reflect the necessary character of education, independently of a country's level of development.

The education budget coefficient also varies within each country according to households' socioeconomic profiles (See Table 4).

TABLE 4 :

Share of Education in Household Spending, by Income Quintile, 15 African Countries, Survey Years. Percent.

	Survey Year	Education Budget Coefficient				
		Q1 (The Poorest 20%)	Q2	Q3	Q4	Q5 (The Wealthiest 20%)
Benin	2003	6,5	7,2	8,1	10,4	12,3
Burkina Faso	2003	2,5	2,6	2,9	3,6	4,4
Cameroon	2001	4,7	5,8	6,5	7,4	7,7
Congo, Rep. of	2005	0,7	1,0	1,6	2,3	4,1
Côte d'Ivoire	2002	2,9	2,9	4,1	5,9	7,4
Gabon	2005	4,9	5,0	4,8	4,2	3,8
Madagascar	2001	2,0	2,7	4,2	4,9	5,8
Mali	2006	0,9	0,8	0,9	1,1	1,9
Mauritania	2008	1,6	2,7	2,3	2,5	3,4
Niger	2005	0,3	0,4	0,4	0,7	2,6
Chad	2001	0,6	0,8	0,8	0,9	1,3
Malawi	2004	0,5	0,6	0,8	1,2	3,9
Rwanda	2005	2,0	2,2	2,3	2,9	4,7
Sierra Leone	2003	2,2	2,8	3,2	4,8	8,2
Tanzania	2007	6,2	5,9	5,9	6,3	9,7
Average		2,6	2,9	3,3	3,9	5,4

Source: Authors' estimations based on household survey data.

The education budget coefficient tends to increase with the wealth quintile, with few exceptions (See Table 4 above).[7] For the countries considered here, whereas the poorest 20 percent of households devote an average of 2.6 percent of their spending to education, the wealthiest 20 percent devote twice the amount. Of course, national situations vary considerably, but the same general trend is observed

in all the countries considered, with the exception of Gabon where the wealthiest 20 percent devote fewer resources to education than the poorest 20 percent.

One might almost deduce that apart from this exception, the wealthiest households give education a higher budget priority than the poorest households. This is doubtlessly

6. The education budget coefficient may have changed in some countries, in particular where the data is relatively old, given changes in household behavior, fee-free education policies, the distribution of enrollment among public and private schools, or the evolution of school fees. In Benin for instance, the budget coefficient is estimated at 9.6 percent for 2003, but this country abolished preprimary and primary school fees for public institutions in 2006. The budget coefficient could therefore have changed since then, unless a substitution process took place, where school fees were replaced by other types of education spending (Benin CSR, 2008). The final result is therefore a priori ambiguous.
7. The tendency is different in some countries such as Gabon, Mali, and Tanzania.

true, to a certain extent, but a higher household education budget coefficient reflects, as will be noted later, different expectations in terms of resource allocation (different distribution of spending, longer schooling careers, greater private enrollment, and so on). [8]

It is therefore important to review the breakdown of household education spending (what do households finance?) and to examine its variability according to households' socioeconomic status as well as by education level.

Breakdown of Household Education Spending

The breakdown of household education spending has highlighted three main spending categories (See Annex 2): (i) school fees; (ii) school supplies and learning materials; and (iii) other spending, that cannot be classed within either of the previous categories. The analytical results are presented in Table 5 below. They cover global household spending, all levels and types of teaching combined.

School fees represent more than half household education spending for the entire education system, whereas school supplies represent a third. Analysis shows that for the 12 countries for which disaggregated data is available, household education spending is first and foremost devoted to school fees, to the tune of 54.8 percent.[9] School supplies represent the second most important category of spending, at 33.9 percent. The remainder of 11.3 percent is devoted to other types of unspecified spending. This overall trend is observed in most countries, with the exception of Côte d'Ivoire and Sierra Leone, where the two first categories of spending are in level competition, and of Gabon, where spending on school supplies and learning materials is greatest.

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8. In Cameroon for instance, Q5 households spend 8.3 times more in total than Q1 households (INS, 2002). The education budget coefficient for the wealthiest households is close to twice that for the poorest households. This suggests that in nominal terms, the education spending of the wealthiest households is 13.6 times (= 8.3 * 7.7 / 4.4) that of the poorest households.
9. The data used here do not provide a breakdown of spending for three countries: Cameroon, the Democratic Republic of Congo, and Chad.

TABLE 5 :

Breakdown of Household Education Spending, 12 African Countries, Survey Years.
Percent.

	School Fees	School Supplies and Learning Materials	Other Spending	Total
Benin (2003)	48,0	37,7	14,3	100
Burkina Faso (2003)	66,6	29,4	4,1	100
Côte d'Ivoire (2002)	37,5	40,7	21,9	100
Gabon (2005)	40,9	57,5	1,6	100
Madagascar (2001)	41,7	35,3	23,0	100
Mali (2006)	68,5	30,0	1,4	100
Mauritania (2008)	53,2	36,0	10,8	100
Niger (2005)	56,7	38,2	5,2	100
Malawi (2004)	71,3	18,0	10,6	100
Rwanda (2005)	60,2	25,3	14,6	100
Sierra Leone (2003)	38,9	39,5	21,6	100
Tanzania (2007)	73,8	19,9	6,3	100
Average	54,8	33,9	11,3	100

Source: Authors' estimations based on household survey data.
Note: Data unavailable for Cameroon, the Republic of Congo and Chad.

This global vision of the breakdown of household spending, however interesting it may be, is not sufficient to inform efficient education policy in favor of the most disadvantaged population segments. In this respect, it is crucial to consider at least two additional factors: (i) on the one hand, the diversity of households, in terms of their education preferences and choices, can affect the way they spend on their children's education. This point can be approached by comparing the structure of education spending observed in poor households to that of wealthy households; (ii) on the other hand, the breakdown of education spending may vary from one level of education to another. This may reflect variations in the nature of education services by level, or reflect different expectations in terms of resource allocations.

These two factors can be combined, when household preferences vary both according to the level of teaching and their socioeconomic status. If the first variable can be determined without major difficulty, the other cannot with the available data. These points are addressed in turn.

School fees are generally wealthier households' first expense, and school supplies absorb most of poorer households' spending. As Table 6 below shows, the breakdown of household education spending depends on households' socioeconomic status. Poorer households (Q1 and Q2) spend most on school supplies and learning materials (at least 50 percent; 56 percent on average for Q1). Households of intermediate income (Q3) spend equally on school fees and supplies, but for the wealthiest households (Q4 and Q5), school fees are the main expense, representing 60 percent of spending.

TABLE 6 :
Breakdown of Household Education Spending, by Income Quintile, 12 African Countries, Survey Years.
Percent.

	Q1			Q2			Q3			Q4			Q5		
	SF	SS	O	SF	SS	O	SF	SS	O	SF	SS	O	SF	SS	O
Benin (2003)	35,3	53,7	11,0	39,2	48,0	12,8	41,4	45,4	13,2	51,4	35,8	12,8	54,0	29,1	16,9
Burkina Faso (2003)	54,8	45,2	0,0	59,2	40,4	0,0	62,9	36,3	0,8	65,8	32,5	1,8	70,2	23,1	6,8
Côte d'Ivoire (2002)	17,8	69,6	12,6	18,0	70,8	11,2	23,9	60,3	15,9	31,1	49,8	19,2	41,9	34,0	24,0
Gabon (2005)	35,7	63,7	0,5	38,3	61,2	0,5	44,4	54,6	1,0	44,6	53,0	2,4	39,3	57,7	3,0
Madagascar (2001)	34,5	56,0	9,5	29,4	39,3	31,3	33,6	40,3	26,1	41,3	40,7	18,0	47,2	29,0	23,7
Mali (2006)	58,3	41,7	0,0	57,4	42,6	0,0	60,2	38,7	1,1	66,8	32,6	0,6	73,6	24,2	2,1
Mauritania (2008)	15,8	73,5	10,8	41,6	45,5	12,9	33,1	53,5	13,4	50,2	40,0	9,8	63,9	26,0	10,2
Niger (2005)	24,0	73,5	2,5	31,0	67,9	1,1	37,1	58,9	4,0	40,1	52,3	7,5	63,6	31,2	5,2
Malawi (2004)	45,9	49,4	4,7	47,7	44,7	7,6	50,5	39,9	9,6	61,1	30,7	8,2	75,7	13,0	11,3
Rwanda (2005)	53,1	40,7	6,2	42,7	40,7	16,7	49,9	37,5	12,6	55,4	31,0	13,6	65,6	19,0	15,5
Sierra Leone (2003)	37,4	57,5	5,2	34,9	54,7	10,4	37,0	51,8	11,3	37,4	45,4	17,2	39,8	35,0	25,2
Tanzania (2007)	42,2	52,3	5,5	45,2	48,0	6,8	59,1	33,5	7,5	67,8	24,4	7,8	87,1	7,4	5,5
Average	37,9	56,4	5,7	40,4	50,3	9,3	44,4	45,9	9,7	51,1	39,0	9,9	60,2	27,4	12,5

Source: Authors' estimations based on household survey data.
Note: Data is unavailable for Cameroon, the Republic of Congo and Chad. SF: School fees; SS: School supplies; O: Other spending.

This general trend is valid for most of the countries of interest, although there are some exceptions: school fees are also the highest budget item for the poorest households in Burkina Faso, Mali and Rwanda. School fees are relatively high in these countries, for all socioeconomic groups. An analysis by education level should indicate whether this trend is general, or specific to certain cycles or types of education.

In Gabon, spending on school supplies and learning materials is just as predominant among the wealthiest households as school fees. Gabon therefore appears to stand apart given the scope of this spending item, for all socioeconomic groups. This is certainly the consequence of two factors that it would be appropriate to explore in greater detail: (i) if textbooks are produced or printed abroad, it is likely that the exogenous cost be relatively high, for the entire population; and (ii) that Gabonese households, regardless of their wealth, systematically go to pains to provide their children with ideal learning conditions, supplying them with all required textbooks. The empirical evidence supporting the latter hypothesis is however scarce.[10]

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10. In 2005/06, 1.6 pupils on average shared a French or math textbook in primary schools, according to the PASEC evaluation (PASEC, 2008).

Overall, the relative importance of school fees within wealthier households' education spending is probably related on the one hand to the more frequent enrollment in private schools, and on the other to the higher probability of access to higher education cycles.[11] In both cases, school fees will be higher. Conversely, the poorest children are more often enrolled in public schools and their schooling careers are more often limited to basic education, where school fees are often capped or even abolished. As a result, the relative share of spending devoted to school supplies can only be higher. The available results tend to confirm that the relative weight of school fees in household education spending is more important for enrollment in private schools than in public ones. This aspect is dealt with below.

These results offer helpful indications in terms of policies that aim to redistribute expenditure to favor the poorest households, and contribute to apprehend with more subtlety the idea that the abolition of school fees systematically entails a rise in enrollment demand. Thus, a policy of providing school supplies might have a greater impact on the demand for enrollment in the poorest households than a further reduction in school fees. This conclusion should however be detailed further. Indeed, such education policies generally target specific education levels. It would therefore be unwise to reach a generic conclusion without a previous analysis by type and level of education (possibly accounting for the social characteristics of the pupils enrolled).

The breakdown of spending varies according to the level of education and households' socioeconomic profiles. In most countries considered here, spending data (overall amount, potential breakdown) are evaluated by household only, and not by enrolled child. It is however possible, through an econometric procedure, to reconstitute education spending by level (See Footnote 1). This approach will be used in the next section. Here, the breakdown of spending by cycle is presented for the four countries for which individual data are available (Côte d'Ivoire, Madagascar, Mauritania and Rwanda). The analysis is carried out through three complementary approaches:

1. Differentiation by Education Level

For the four countries, school fees are the main budget item, requiring almost half household education spending, against about a third for school supplies and learning materials (See Table 7 below). However, this trend does not apply to primary education, where spending on school supplies is greatest. This is particularly noticeable in Côte d'Ivoire and Rwanda; in the other two countries, school fees and school supply expenses are virtually equivalent.

Generally speaking, school fees are the main expense in the higher education cycles (upper secondary and higher education). For basic education (primary and lower secondary), there is no apparent trend. This is due to a combination of factors related to the type of school and household socioeconomic profiles.

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11. This point will be developed later (See Section 6).

TABLE 7 :
Breakdown of Household Education Spending, by Level, Four African Countries, Survey Years. Percent.

	Primary	Lower Secondary	Upper Secondary	Higher	Total
Côte d'Ivoire, 2002					
School Fees	27,1	38,0	37,5	44,6	37,6
School Supplies	53,4	40,1	35,8	27,4	40,5
Other Expenses	19,5	21,9	26,7	28,0	21,9
Total	100,0	100,0	100,0	100,0	100,0
Madagascar, 2001					
School Fees	38,1	40,8	42,7	48,1	41,7
School Supplies	38,9	39,5	31,3	16,6	35,3
Other Expenses	23,0	19,6	26,0	35,4	23,0
Total	100,0	100,0	100,0	100,0	100,0
Mauritania, 2008					
School Fees	46,2	60,2	63,4	32,7	53,1
School Supplies	46,0	31,5	28,4	24,5	36,0
Other Expenses	7,8	8,3	8,2	42,8	10,8
Total	100,0	100,0	100,0	100,0	100,0
Rwanda, 2005					
School Fees	42,7	68,9	70,2	62,1	60,2
School Supplies	48,9	16,7	14,8	13,2	25,3
Other Expenses	8,4	14,4	14,9	24,7	14,6
Total	100,0	100,0	100,0	100,0	100,0
All Four Countries					
School Fees	38,5	52,0	53,5	46,9	48,2
School Supplies	46,8	31,9	27,6	20,4	34,3
Other Expenses	14,6	16,1	19,0	32,7	17,6
Total	100,0	100,0	100,0	100,0	100,0

Source: Authors' estimations based on household survey data.

2. Differentiation by Education Level and Household Wealth

As underlined earlier, the general trend in education spending, with the exception of Rwanda, is one of predominance of school fees among the wealthiest households (Q5), and of school supplies among the poorest households (Q1 and Q2). This trend appears to be valid for all education levels, with a few exceptions. In Côte d'Ivoire for instance, the trend is not systematic at the primary level where spending on school supplies is the greatest among wealthy households, or at least on par with spending on school fees.

In the particular case of Rwanda, the tendency of school fees to predominate in all households' education spending has been underlined earlier, whatever the level of household income. This tendency appears to be valid for all education levels, except primary, where school fees are only the greatest expense for the wealthiest households (Q5).

TABLE 8 :

Breakdown of Household Education Spending, by Level and Household Income, Four African Countries, Survey Years. Percent.

Côte d'Ivoire, 2002		Primary	Lower Secondary	Upper Secondary	Higher	Total
Q1-2	School Fees	15,9	21,7	19,3	n.s.	17,9
	School Supplies	76,9	55,2	60,5	n.s.	70,3
	Other Expenses	7,3	23,0	20,2	n.s.	11,8
Q3-4	School Fees	21,1	33,8	32,2	13,5	28,4
	School Supplies	65,7	48,6	42,9	41,4	53,7
	Other Expenses	13,3	17,6	24,9	45,1	17,9
Q5	School Fees	34,5	41,0	38,8	47,0	42,2
	School Supplies	38,2	35,9	34,0	26,3	33,7
	Other Expenses	27,3	23,1	27,2	26,7	24,1

Madagascar, 2001		Primary	Lower Secondary	Upper Secondary	Higher	Total
Q1-2	School Fees	30,3	31,1	n.s.	n.s.	31,1
	School Supplies	45,8	41,7	n.s.	n.s.	45,0
	Other Expenses	23,9	27,2	n.s.	n.s.	23,9
Q3-4	School Fees	38,3	34,4	29,4	49,7	37,9
	School Supplies	42,0	43,5	35,1	20,8	40,5
	Other Expenses	19,7	22,1	35,5	29,5	21,6
Q5	School Fees	42,5	47,6	47,2	47,9	47,2
	School Supplies	31,3	35,8	29,8	16,0	29,0
	Other Expenses	26,2	16,6	23,0	36,0	23,7

Mauritania, 2008		Primary	Lower Secondary	Upper Secondary	Higher	Total
Q1-2	School Fees	33,4	8,7	1,0	n.s.	33,0
	School Supplies	57,7	73,4	84,6	n.s.	54,3
	Other Expenses	8,9	17,9	14,4	n.s.	12,7
Q3-4	School Fees	37,8	45,8	42,6	5,1	44,4
	School Supplies	53,9	39,2	37,7	51,1	44,3
	Other Expenses	8,2	15,0	19,7	43,7	11,4
Q5	School Fees	62,2	70,6	72,0	39,8	64,7
	School Supplies	31,2	24,6	23,3	21,9	25,4
	Other Expenses	6,6	4,8	4,6	38,2	9,9

Rwanda 2005		Primary	Lower Secondary	Upper Secondary	Higher	Total
Q1-2	School Fees	25,3	63,6	67,2	n.s.	46,4
	School Supplies	68,2	15,5	17,0	n.s.	40,7
	Other Expenses	6,6	21,0	15,8	n.s.	12,9
Q3-4	School Fees	27,5	67,1	67,4	n.s.	53,4
	School Supplies	66,9	17,5	16,0	n.s.	33,4
	Other Expenses	5,7	15,4	16,5	n.s.	13,2
Q5	School Fees	57,2	71,3	72,1	62,5	65,5
	School Supplies	32,3	16,4	13,9	13,1	19,0
	Other Expenses	10,5	12,3	14,0	24,4	15,5

All Four Countries		Primary	Lower Secondary	Upper Secondary	Higher	Total
Q1-2	School Fees	26,2	31,3	33,0	n.s.	32,1
	School Supplies	62,1	46,5	53,2	n.s.	52,6
	Other Expenses	11,7	22,3	13,8	n.s.	15,3
Q3-4	School Fees	31,2	45,3	42,9	23,3	41,0
	School Supplies	57,1	37,2	32,9	34,2	43,0
	Other Expenses	11,7	17,5	24,2	42,5	16,0
Q5	School Fees	49,1	57,6	57,5	49,3	54,9
	School Supplies	33,3	28,2	25,2	19,3	26,8
	Other Expenses	17,6	14,2	17,2	31,4	18,3

Source: Authors' estimations based on household survey data.
Note: = Insignificant data, based on few observations; Q5 = wealthiest quintile; Q1-2 = poorest 40% of households; Q3-4 = households of intermediate income.

3. Differentiation by Level and Type of Education

The analysis of household education spending by type of school (public or private) for four countries is presented in Table 9.

TABLE 9 :
Breakdown of Household Education Spending, by Level and Type of Education, Four African Countries, Survey Years. Percent.

Côte d'Ivoire, 2002		Primary	Lower Secondary	Upper Secondary	Higher	Total
Public	School Fees	11,3	9,5	7,1	13,5	11,1
	School Supplies	67,7	58,9	52,5	40,1	59,1
	Other Expenses	21,1	31,6	40,4	46,4	29,9
	Total	100,0	100,0	100,0	100,0	100,0
Private	School Fees	58,1	59,2	54,8	77,3	59,8
	School Supplies	25,5	26,2	26,1	14,0	24,8
	Other Expenses	16,4	14,7	19,1	8,7	15,3
	Total	100,0	100,0	100,0	100,0	100,0
Madagascar, 2001		Primary	Lower Secondary	Upper Secondary	Higher	Total
Public	School Fees	28,2	24,4	25,9	36,2	29,2
	School Supplies	47,6	50,9	38,4	20,0	43,9
	Other Expenses	24,2	24,7	35,7	43,8	26,9
	Total	100,0	100,0	100,0	100,0	100,0
Private	School Fees	46,6	52,6	58,0	60,2	51,1
	School Supplies	31,5	31,4	24,8	13,1	28,9
	Other Expenses	21,9	16,0	17,2	26,7	20,0
	Total	100,0	100,0	100,0	100,0	100,0
Mauritania, 2008		Primary	Lower Secondary	Upper Secondary	Higher	Total
Public	School Fees	29,0	27,0	16,2	1,7	25,9
	School Supplies	60,6	55,8	65,6	46,0	58,5
	Other Expenses	10,5	17,1	18,2	52,2	15,6
	Total	100,0	100,0	100,0	100,0	100,0
Private	School Fees	80,5	82,6	82,1	58,8	80,0
	School Supplies	17,1	15,0	13,6	6,2	13,7
	Other Expenses	2,4	2,4	4,3	35,0	6,3
	Total	100,0	100,0	100,0	100,0	100,0
Rwanda, 2005		Primary	Lower Secondary	Upper Secondary	Higher	Total
Public	School Fees	33,6	66,3	66,3	51,5	53,0
	School Supplies	61,2	18,0	16,0	14,3	32,9
	Other Expenses	5,3	15,7	17,7	34,2	14,1
	Total	100,0	100,0	100,0	100,0	100,0
Private	School Fees	63,4	73,6	74,6	67,1	69,9
	School Supplies	21,3	14,2	13,5	12,8	15,2
	Other Expenses	15,3	12,2	11,9	20,1	14,9
	Total	100,0	100,0	100,0	100,0	100,0
All Four Countries		Primary	Lower Secondary	Upper Secondary	Higher	Total
Public	School Fees	25,5	31,8	28,9	25,7	29,8
	School Supplies	59,2	45,9	43,1	30,1	48,6
	Other Expenses	15,3	22,3	28,0	44,2	21,6
	Total	100,0	100,0	100,0	100,0	100,0
Private	School Fees	62,1	67,0	67,4	65,8	65,2
	School Supplies	23,9	21,7	19,5	11,5	20,7
	Other Expenses	14,0	11,3	13,1	22,6	14,1
	Total	100,0	100,0	100,0	100,0	100,0

Source : Estimations des auteurs, à partir des différentes données d'enquêtes-ménages.
Note : Les établissements privés subventionnés sont ici considérés comme des établissements publics.

Generally speaking, school fees are predominant for private schooling and school supplies are the main expense in public schools. There are however some divergences from this global picture, by country and education level. In Madagascar for instance, the trend does not apply to higher public education, where the relative weight of school fees (36 percent) is higher than that of school supplies (20 percent). Also in Côte d'Ivoire school supply spending is not the main budget item for households whose children attend public higher education.

In Rwanda, school fees are generally the first expense, in both public and private schools. This trend is observed for all education levels, except for public primary schools, where spending on school supplies is higher, representing about 60 percent of the total.

Overall, the breakdown of spending varies according to the level and type of schooling, as well as according to the socioeconomic status of households. The most effective policy tools to relieve or stimulate household education spending are therefore not necessarily the same for every education level. A generic approach, based on an analysis of bulk household education spending, would therefore be ill-founded unless it considers the level of education and households' socioeconomic status.

5. Average Spending per Enrolled Child

Overview of the Average Level of Education Investment per Enrolled Child

The volume of resources that a household devotes to its children's education generally increases with the number of children enrolled. As this number varies from one household to another, the level of households' education investments in their children cannot be explained in global terms. It would be logical to expect that of two households who dedicate a similar amount of resources to their children's education, the one with most children will have invested the least per child. It is therefore advisable to take differences in the number of children enrolled into account. Reviewing the average level of spending per child (or unit costs) is therefore important, as it will indicate the average intensity of investment per child for their schooling.

TABLE 10 :

Average Household Education Spending by Child, by Level, 15 African Countries, Survey Years.
United States Dollars, in 2004 PPP.

	All Education Levels	Level				Ratio of Higher/ Primary
		Primary	Lower Secondary	Upper Secondary	Higher	
Benin (2003)	165	67	266	718	664	10
Burkina Faso (2003)	126	44	237	381	573	13
Cameroun (2001)	204	70	378	542	744	11
Congo (2005)	68	26	98	136	225	9
Côte d'Ivoire (2002)	217	93	327	530	678	7
Gabon (2005)	223	95	286	435	315	3
Madagascar (2001)	59	44	106	184	421	9
Mali (2006)	29	27	41 *		147	5
Mauritania (2008)	103	66	140	191	368	6
Niger (2005)	40	12	64	205	368	31
Tchad (2001)	37	18	79	98	306	17
Malawi (2004)	31	13	172 *		699	54
Rwanda (2005)	68	27	365	535	1 234	46
Sierra Leone (2003)	113	46	227	409	453	10
Tanzania (2007)	54	17	203	669	850	49
Average of 15 Countries	102	44	214	387	536	12
Index (Primary = 1)		1,0	4,8	8,7	12,1	n.a.
Coefficient of Variation	0,66	0,61	0,49	0,52	0,51	n.a.

Source: Authors' calculations based on national survey data and IMF data.
Note: Annex Table A3 provides the estimations by level, as a percentage of GDP per capita for the survey year. * This figure is an average of both secondary cycles.

Estimations have been carried out separately for each of the 15 countries studied here, on the basis of survey data collected between 2001 and 2008. To ensure a greater degree of comparison of the estimations between countries, amounts in national currency have been converted into 2004 (the median year) constant prices, and expressed in purchasing power of parity. They are presented in Table 10.

As previously indicated, the survey data used enables the spontaneous estimation of the average expenses per enrolled child, all levels considered, by dividing household education spending by the number of children enrolled. The estimation indicates that the average per child for all 15 countries is approximately US$ 100 (in purchasing power of parity for 2004), or about eight percent of GDP per capita. Unit costs do of course vary by country, from under US$ 30 in Malawi and Mali, to over US$ 200 in Cameroon, Côte d'Ivoire and Gabon. This high variation is in part due to the gaps in countries' levels of economic development.

Education unit costs, for all education cycles, are generally weaker in poorer countries than in wealthier ones. This tendency is not however systematic (See Figure 3). For instance, countries like Chad and Mauritania have comparable economic development levels, but their education unit costs vary by a factor of three, from under US$ 40 in Chad to over US$ 100 in Mauritania.

FIGURE 3 :

Unit Costs by Student, All Education Levels, by Economic Development Level, 15 African Countries, 2004. United States Dollars, in 2004 PPP.

$$y = 49,976x - 255,49$$
$$R^2 = 0,3334$$
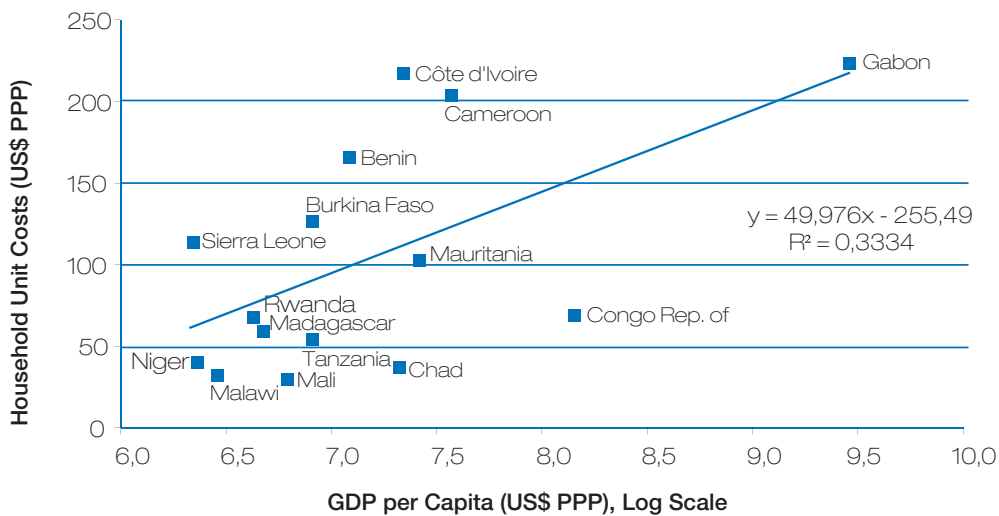
Source: Authors' calculations based on national survey data and IMF data.
Note: Average unit costs are calculated for the entire education system.

The intensity of unit costs therefore depends on other factors that merit further attention, such as household preferences (for a given purchasing power, households can invest more or less per child) and the level of public subsidies (in a context where school is virtually free as a result of generous scholarships, household unit costs tend to drop, even if not systematically). Household unit costs can also vary according to the distribution of children among education levels and types of school, where costs vary. It is therefore appropriate to detail the analysis by level and type of education, and households' socioeconomic profiles.

Unit Costs Increase with Education Levels

Given that schooling costs are not equal for all education levels, it is not sufficient to review household unit costs from a global standpoint, including all education cycles. The econometric method mentioned in Section 2 enables the estimation of unit costs by education level. Given the small size of the subsamples corresponding to preschool and TVET in the samples used here, the estimations are limited to the primary, general secondary (lower and upper cycles) and higher education levels.

These estimations show that unit costs vary by level of education, with an increasing trend from primary (US$ 45 PPP) to higher education (US$ 535 PPA), equivalent to a variation by a factor of 12 (See Table 10 above). Unit costs for lower secondary are about five times higher than those for primary, and those for upper secondary are about nine times those for primary education.

The trend of growth of unit costs by level is observed for almost all countries, with the exception of Benin and Gabon, where unit costs for higher education are lower than those for upper secondary. This may be explained by various complementary factors: (i) Gabon is a country that sends many of its students abroad;[12] (ii) this appears to reflect a quantitative, and perhaps even qualitative shortage in terms of higher education supply; (iii) in this context, children who study locally would mainly be from the poorest households,

and/or may be little inclined to substantially invest in studies whose quality does not seem satisfactory to them; and (iv) the level of scholarships that Gabonese students receive certainly play a part (local scholarships represent about a third of public recurrent expenditure for higher education, not including foreign scholarships). This last argument may also apply in the case of Benin.

Furthermore, the differential in unit costs between primary and higher education is particularly marked in some countries, such as Malawi (where unit costs vary by a factor of 50 between primary and higher education), Tanzania (unit costs also vary by a factor of 50), Rwanda (unit costs vary by a factor of 45), Niger (where they vary by a factor of 30), and Chad (where they vary by a factor of 15). This is due to the low level of primary unit costs in these countries. In Tanzania and Chad for instance, the unit costs for primary are about 60 percent less than the average of the 15 countries. The weakness of primary unit costs can also be explained by the implementation of fee-free schooling policies in Malawi in 1994, Rwanda in 2003 and Tanzania in 2001.

Table 10 above also shows that primary unit costs are decidedly more variable among countries than secondary or higher education unit costs. For the primary level, unit costs are positively correlated to countries' economic development levels ($\rho = + 0.59$), although this correlation is virtually inexistent for unit costs for each other education level. For instance, unit costs for a university student are five times higher in Rwanda than in the Republic of Congo, although the average income per capita is more than three times higher in the Republic of Congo.

Overall, these analyses appear to suggest that: (i) primary unit costs are fixed to some degree, for all households who send their children to school, the supply of education being relatively undiversified at this level; [13] and that (ii) at postprimary levels, more education choices are available to households, which lead to a higher variation in the intensity of education investments per child, even among countries of similar economic development levels.

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12. In 2008, the country had about 5,000 students abroad (UIS estimations), which according to the authors' estimations, was equivalent to a third of all of Gabon's university students. To provide a benchmark, the average rate of international mobility for all Sub-Saharan African countries was only five percent in 2008 (UIS, 2010).

13. Private education is relatively less developed, as illustrated earlier (See Table 3).

Unit Costs are Higher for Private Education, and for Wealthy Households.

Average household unit costs are calculated on the one hand by summing up all the spending made by households, regardless of their socioeconomic characteristics, and on the other by considering the number of enrolled children, regardless of the type of school. It is possible that the socioeconomic differentiation of households translate into variability in the intensity of the average education investment per child according to household living standards. Unit costs may also vary according to the type of school. These plausible hypotheses have been tested against the available data, to appreciate the variability in the scope of unit costs according to households' living standards and the type of school where their children are enrolled.

Unit costs in the private sector are at least two to three times higher than those in the public sector. A distinction by type of school has been carried out for 11 of the 15 countries where the type of school attended was indicated in the surveys (private subsidized schools being considered as public schools). [14]

For each of the 11 countries and for each of the education levels considered, unit costs are available both for pupils enrolled in public schools (public unit costs) and for those enrolled in private schools (private unit costs). However, for a given education level, these partial estimations are not necessarily spontaneously coherent with the estimation of the average unit costs for the entire level, which are obtained separately. This coherence has been verified a posteriori through two complementary approaches, discussed in Box 1. The estimations deemed coherent are presented in Table 11 below.

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14. The public/private distinction was not available in the surveys carried out in Chad, Malawi, Sierra Leone and Tanzania.

Coherence Test between the Partial Public and Private Unit Cost Estimations, and Estimation of Average Unit Costs

Two approaches have been used. In the first, it was checked that the two partial unit costs indeed frame the average unit costs. Under this condition, average unit costs can be written as a combination of the two partial values, the combination coefficients being α for public unit costs and (1-α) for private unit costs, where 0 ≤ α ≤ 1.

The second approach is more restrictive. The estimation of partial unit costs was validated when the coefficient α was close to the proportion of pupils enrolled in public schools (according to school statistics for the survey year). This condition enabled to test the representativity of the surveys used, in the light of official statistics for the share of pupils enrolled in public and private schools.

Illustration of the cases of Benin and the Republic of Congo, for primary education.

- In Benin, primary unit costs were estimated at 14,772 monetary units (MU) in 2003. They are indeed framed by the primary public unit costs (MU 10,572) and the primary private unit costs (MU 65,997). Average unit costs can be written as a convex combination of two partial unit costs, where α is equal to 92.4 percent and (1-α) is equal to 7.6 percent. This last figure is very close to the share of primary pupils enrolled in private schools in 2003 (5.5 percent according to the official statistics of the ministry in charge of primary education), which validates the estimations.

- In the Republic of Congo on the other hand, although average primary unit costs (MU 6,827 in 2005) are framed by the partial unit costs for public schools (MU 2,002) and those for private schools (MU 39,023), the coefficient α that indicates the coherence between the average unit costs and the partial unit costs is estimated at 87 percent, which is much higher than the official statistics of the primary education ministry, according to which 72 percent of pupils were enrolled in public schools in 2005. This invalidates the proposed estimations of the partial unit costs. In this instance, the survey data do not appear to be sufficiently representative of the diversity of the education options on offer.

These comparisons have been extended to all 11 countries for which data was available. Annex Table A4 presents the two main parameters for each country and cycle: (i) P1 is the proportion of private pupils that ensure the following equation: Average Unit Costs = α * Public Unit Costs + (1-α) * Private Unit Costs, where α = 1-P1; and (ii) P2 is the share of private pupils according to administrative data. The partial unit costs are validated when the gap between P1 and P2 is below a given limit. The lower the limit (in absolute terms), the lower the bias in the estimation of the proportion of pupils enrolled in private schools.

To the extent that the household surveys' main objective was not to measure enrollment, it may be ambitious to anticipate a low level of bias. For this reason the acceptable limit was set at eight percentage points (in absolute terms).

Under this hypothesis, the coherence between partial unit costs and average unit costs is achieved for eight countries for primary education, nine countries for lower secondary, five countries for upper secondary, and eight countries for higher education. The coherence is achieved for all four cycles only in the case of three countries: Cameroon, Mauritania and Rwanda.

BOX

It is apparent that the increasing structure of unit costs by education level is confirmed, both for public and private education. As expected, unit costs are higher in the private sector. Thus, primary pupils enrolled in private schools cost their families about six times more than their peers enrolled in public schools. This ratio is of 3.1 for lower secondary, 2.3 for upper secondary, and 3.7 for higher education.

The differential in public and private unit costs is therefore highest for primary education (See Table 11). This suggests that in a context where public schooling supply is predominant, the use of private education is the result, to some extent, of status-sensitive behavior or a quality choice, but at the cost of a substantial financial effort.

TABLEAU 11 :

Average Unit Costs by Education Level and Type of School, 11 African Countries, Survey Years. United States Dollars, in 2004 PPP.

	Primary		Lower Secondary		Upper Secondary		Primary + Secondary		Higher	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Benin (2003	48	301	180	651	p.c.	p.c.	p.c.	p.c.	458	1 285
Burkina Faso (2003)	28	215	110	460	p.c.	p.c.	128	507	367	1 927
Cameroon (2001)	44	165	300	593	430	850	n.e.	n.e.	597	1 732
Congo Rep. of (2005)	p.c.	p.c.	32	280	p.c.	p.c.	38	292	p.c.	p.c.
Côte d'Ivoire (2002)	70	280	206	589	304	919	n.e.	n.e.	p.c.	p.c.
Gabon (2005)	p.c.	p.c.	193	545	308	742	n.e.	n.e.	210	757
Madagascar (2001)	25	115	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Mali (2006)	p.c.	p.c.	n.d.	n.d.	n.d.	n.d.	p.c.	p.c.	102	417
Mauritania (2008)	48	236	77	464	74	517	n.e.	n.e.	183	2 503
Niger (2005)	7	241	24	386	p.c.	p.c.	34	450	213	925
Rwanda (2005)	19	209	319	449	457	611	n.e.	n.e.	888	1 550
Average	36	220	160	491	315	728	--	--	377	1 387
Average (% of GDP pc)	2,9 %	21,4 %	12,0 %	37,2 %	21,8 %	44,1 %	--	--	35,4 %	119,5 %
Private/Public Ratio	6,1		3,1		2,1		--		3,7	

Source: Authors' calculations based on national household survey data and IMF data.
Note: The estimations expressed as a share of GDP per capita for the year of the survey are presented in Annex Table A3. * The estimations for the entire secondary cycle are only presented for countries where the distinction between the lower and upper levels was impossible (Mali) or when the partial unit costs for one of the other of the levels were deemed incoherent (Benin, Republic of Congo, Madagascar and Niger). n.d.: not disaggregated (the distinction between public and private was not possible). n.c.: not coherent (partial unit costs were not coherent with the average unit costs). n.e.: not estimated (partial estimations were deemed coherent for lower and upper secondary).

This argument can also be used for higher education. However, unlike primary education that aims to be free as a basic public service, for higher education the question is also to establish whether the relative expense of private university is not related to the weak level of unit costs for public universities. This debate will have to be conducted for each country, on the basis of the private funding devoted to universities and public higher education institutions (this point will be dealt with in the report's conclusions).

The wealthiest households' unit costs are at least three times those of households from the two poorest quintiles. Economically disadvantaged households spend significantly less by child than the wealthier ones (See Figure 4). At the primary level, the unit costs for a Q5 household are almost six times those of a Q1-2 household. At the secondary level, this ratio is close to three, and for higher education it is slightly over four. The gap in terms of education investments per child therefore appears to be starker by wealth than according to the type of school attended.

FIGURE 4 :

Scale of Unit Costs, by Socioeconomic Group and Education Level, Survey Years. Multiplicator.
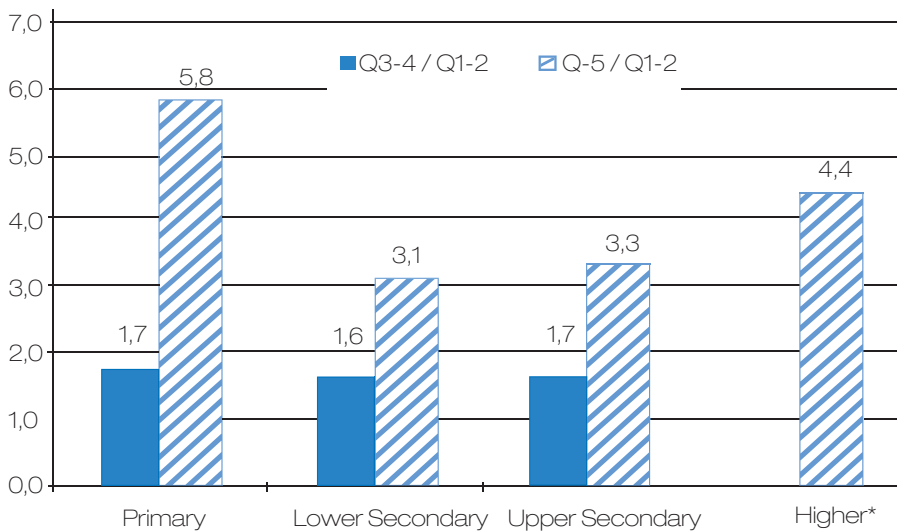
Source: Authors' calculations, based on Annex Table A5.
Reading Note: At the primary level, unit costs for a Q5 household are 5.8 times those of a Q1-2 household. At the secondary level, unit costs for Q3-4 households are 60 to 70 percent higher than those for Q1-2 households.
Note: This figure is based on the average of the estimations obtained for the 15 countries. * For higher education, Q1-2 and Q3-4 quintiles have been combined, given that few children at this level come from the respective wealth bands. The estimations for each country, expressed as a percentage of GDP per capita for the survey year, are presented in Annex Table A5.

These strong variations in unit costs according to household socioeconomic status could be explained by: (i) the differential use of private education by poor and wealthy households; (ii) the fact that socially disadvantaged households acquire fewer goods and services (pedagogic materials, extra tuition, and so on) in relation to their children's schooling; and (iii) the fact that

Q1-2 households are those whose expenses are most reduced in a context of fee-free schooling. For instance, for the four countries where primary education was free at the time of the survey (Cameroon, Malawi, Rwanda and Tanzania), primary unit costs for Q5 households were almost eight times those of Q1-2 households. In other countries, the ratio was of a factor of five.

The joint consideration of unit costs by level of education on the one hand, and by enrollment on the other, enables the macroeconomic simulation of the scope of household education spending for the enrollment of their children for each cycle. This reconstitution of household spending according to their allocation by education level enables to establish the relative weight of households in financing each education level.
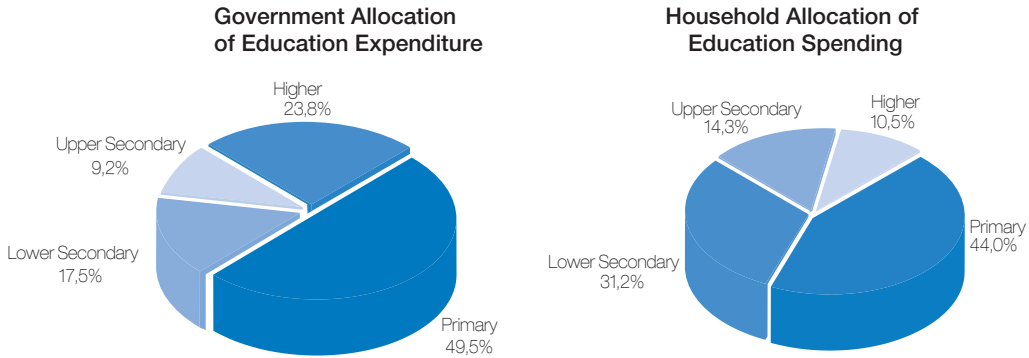
6. A Substantial Contribution to the National Education Effort

The reconstitution of household education spending by level enables the analysis of its intra-sectoral distribution. This can then be compared to that of the state, as presented in Table 2 earlier. However, given the constraints in the estimation of household spending for some cycles (preschool, non-formal, literacy, TVET), a redistribution of public education expenditure (across the primary, general secondary, and higher education levels) is necessary prior to any comparison with household spending.

Comparative Interpretation of Resource Allocation among Cycles, by Households and the Government

Given the differences in the levels of unit costs by level as well as in enrollment, the magnitude of household education spending necessarily varies from one level to another. It is estimated that for the 15 countries considered, 45 percent of household education spending on average is devoted to the primary level, 30 percent to lower secondary, 15 percent to upper secondary and 11 percent to higher education. [15]

FIGURE 5 :

Allocation of Government Expenditure and Household Spending for Education by Cycle, 15 African Countries, 2004. Percent.

Government Allocation of Education Expenditure

Higher 23,8%
Upper Secondary 9,2%
Lower Secondary 17,5%
Primary 49,5%

Household Allocation of Education Spending

Upper Secondary 14,3%
Higher 10,5%
Lower Secondary 31,2%
Primary 44,0%

Source: Authors' calculations based on household survey data, IMF data, and country CSRs.
Reading Note: The primary cycle receives 50 percent of public education expenditure on average in the 15 countries under study in this report; in these countries, households on the other hand devote 44 percent of their education spending on average to their children's primary education.
Note: Only education resources devoted to the primary, general secondary, and higher education cycles (by the government or households) are considered here. The distribution of these amounts has therefore been adjusted to total 100 percent.

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15. This global trend varies by country, as Annex Table A6 shows.

Primary education is the cycle that receives most household education spending. Allocations to other levels are reduced with each successive level of the education pyramid. In terms of public education expenditure, the perspective is somewhat different: although primary education is a priority, higher education receives a much larger allocation than general secondary education.

As Annex Table A6 shows, the intra-sectoral allocation of household education spending varies from country to country, as does the allocation of public resources. It also varies according to education level, given the double difference of: (i) the level of resources devoted to education expenses; and (ii) the distribution of resources among education cycles.

Comparative Distribution of Education Financing by Cycle

Households' financing of education is equivalent to half public financing. . Overall, public education expenditure represents 3.7 percent of GDP on average in the 15 countries considered here, against 1.7 percent of GDP for household spending. In other words, household education spending represents the equivalent of 46 percent of public expenditure (See Figure 6). Therefore, when the government devotes US$ 100 to the sector, households invest the equivalent of a further US$ 46, which is substantial.

FIGURE 6 :

Household Education Spending, 15 African Countries, Adjusted Estimations, 2004
Percentage of Recurrent Public Education Expenditure
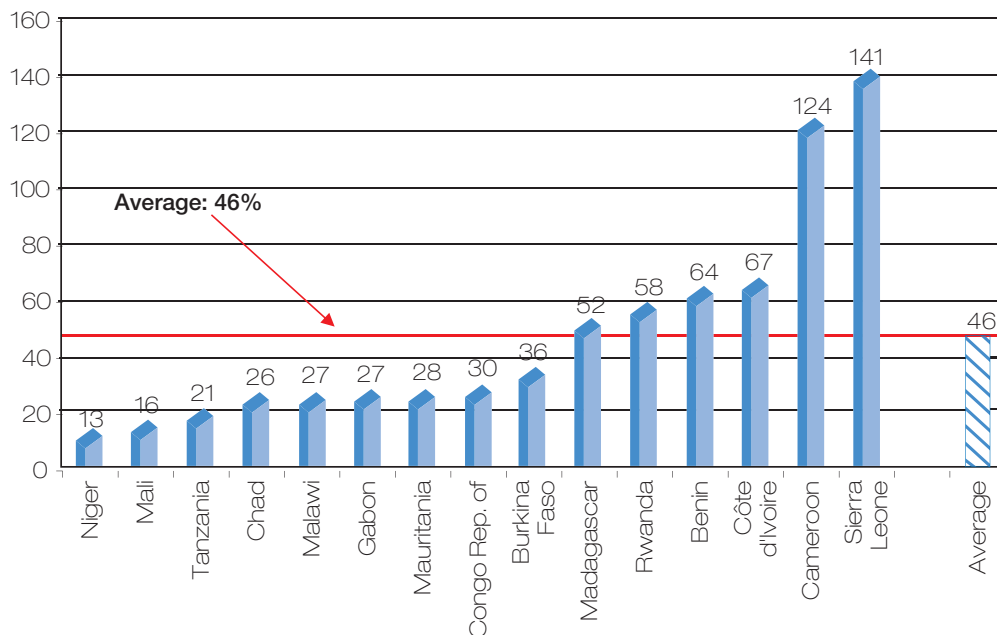
Source: Authors' calculations based on household survey data, IMF data, and country CSRs.
Reading Note: On average, for every US$ 100 spent by the government, households spend US$ 46.

In some countries such as Cameroon or Sierra Leone, household spending is considerably higher than government expenditure. Given that the level of budget priority given by these countries' governments to education is considered to be high (See Section 3 above), it is reasonable to conclude that in these two countries in particular, household contributions to the national education effort are considerable. In most other countries, household contributions represent at most the equivalent of 70 percent of public expenditure, although with strong variations among countries.

This variability is to be compared with the degree of budget priority given to education by the governments of the countries concerned: are household contributions and government expenditure complementary, or partially substitutable? On this front, three categories of country can be described:

- Six countries (Benin, Cameroon, Côte d'Ivoire, Madagascar, Rwanda and Sierra Leone) show both a high level of budget priority for education (at least 20 percent of recurrent expenditure, not including debt service) and household contributions that represent at least 50 percent of government financing. Household contributions are therefore considerable in these countries, and are not deemed to compensate for a lack of public financing;
- In four countries (Burkina Faso, Mali, Niger and Tanzania), the budget priority for education is high, and household contributions represent less than 50 percent. The government appears to be compensating for households' relative under-investment in education; and
- The five remaining countries (Republic of Congo, Gabon, Malawi, Mauritania and Chad) are probably facing a general under-funding of education, reflected in both the low budget priority given to the sector by the government, and the low level of household contributions.

This overview allows for a global perspective of the relative weights of the government and households in funding education. It requires further detail, through the analysis of the distribution of funding by education cycle.

The financial contribution of households to the national education effort is strong in secondary education, but very weak for higher education. For primary education, household spending represents the equivalent of a third (33 percent) of public education expenditure. For lower secondary, it represents the equivalent of 68 percent. This proportion reaches a record level of 85 percent for upper secondary, before dropping to under 20 percent for higher education (See Figure 7 below).

Therefore, in comparison with public education spending, household contributions to higher education are lower than for secondary education, as for primary education. This global trend is valid for almost all the countries studied (See Annex Table A7). In Rwanda however, the relative contribution of households to the funding of higher education is higher than their contribution to primary education, but lower than for secondary education. The general finding is therefore that a considerable break exists in the national effort to fund higher education, which is preoccupying, for both equity and efficiency reasons.

FIGURE 7 :

Dépenses éducatives des ménages, par cycle d'enseignement, moyenne pour 15 pays d'Afrique, 2004.
Pourcentage des dépenses publiques courantes d'éducation.
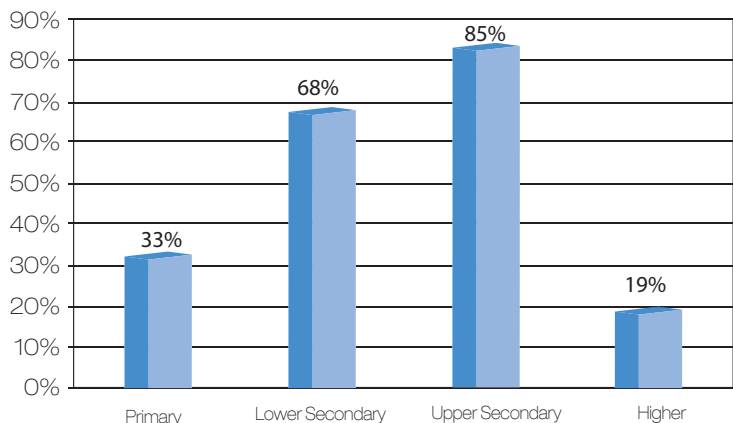
Source: Authors' calculations based on household survey data, IMF data and country CSRs.

For equity reasons above all, the representativity of pupils from the most disadvantaged social strata drops with each successive education level (See Figure 8).

FIGURE 8 :

Distribution of Enrolled Pupils by Wealth Quintile and Education Level, Average for 15 African Countries, Survey Years.
Percent.
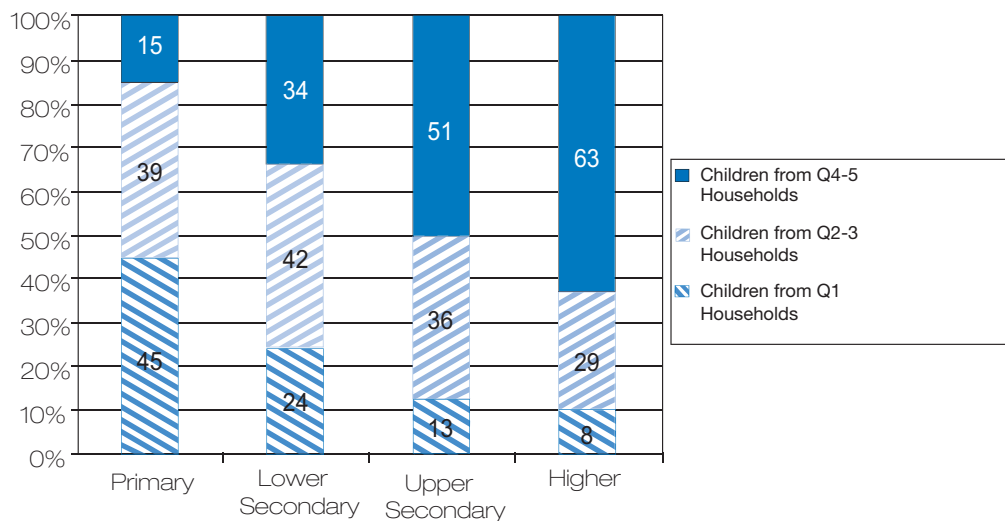
Source: Authors' calculations based on countries' household survey data.

In higher education, more than 60 percent of students are from Q5 households, whereas less than 10 percent are from Q1-2 households (the same shares are 45 percent in primary, 24 percent in lower secondary, and 13 percent in upper secondary). This trend is valid for all countries considered, although it is more pronounced for some (See Annex Table A8).

In contributing more to the national funding effort for higher education, governments reinforce the social selectivity that is apparent in schooling careers. This may be particularly marked in some countries where the financing of higher education is disproportionate, given the scale of scholarships (or other social spending not directly related to training).

On average, in the countries for which data is available (11 of the 15), 33 percent of recurrent higher education expenditure, not including scholarships for studying abroad, is devoted to local students' scholarships. The equity objective therefore raises questions about the amount devoted to scholarships (what ceiling is reasonable?) and about the targeting mechanisms to rationalize how they are granted (what objective academic or socioeconomic criteria are used?). These questions meet with diverse and contextual answers, which must be adapted to each country.

It is therefore necessary to deepen the reflection for each country, to better understand the financing and functional allocation mechanisms for public higher education resources. International experience suggests that there is some flexibility to improve how the responsibility for funding education is shared between governments and households, and ensure that the distribution reflects the state of the dialogue between the different education system stakeholders.

In terms of effectiveness, the individual returns on education increase with each level (Schultz, 2004; Kuepie et al., 2006; Coclough et al., 2009). In other words, the return on investment is greater for higher education graduates than for secondary school leavers. It is also greater for secondary school leavers than for primary completers. These results suggest that the relative effort of households in financing education should increase with each level, with a minimal effort for the primary level, and maximum contributions to higher education. However, paradoxically, the relative effort of households is minimal for higher education.

7. Conclusion and Perspectives

This report provides a broad vision of national education funding in 15 African countries, underlining the fact that household contributions to education are substantial, with an investment that represents, in equivalent terms, close to half public education expenditure. The analysis confirms the necessary character of the education service, whose weight in household budgets varies in close relation to countries' level of economic development. Also, the budgetary effort made by poor households towards their children's schooling is far from insignificant when compared with the effort made by the wealthiest households.

The breakdown of household education spending varies by level: school fees are the main item for upper secondary and higher education. However for primary and lower secondary, the only rule is the diversity of national situations.

This is due to a combination of factors related to the type of school attended and households' socioeconomic profiles. Indeed, school fees are often the predominant expense for the wealthier households, whereas school supplies and learning materials tend to be the greatest budget item for poorer households. School fees are generally the main expense in private schooling, whereas school supplies are the main item in public schools.

There are however some exceptions to these global patterns. In Côte d'Ivoire for instance, the wealthiest households spend most on school supplies for their children enrolled in primary. Likewise in Madagascar, school fees are in fact the greatest expense for higher education. These examples clearly demonstrate that the most effective policy tools to relieve or stimulate household education spending will not necessarily be the same regardless of the level of education. A generic approach based on an analysis of global household spending would therefore be inadequate without differentiation by education cycle, and possibly school type.

Moreover, as expected, average household spending per pupil increases with each level of education, is greater among wealthy households and for private schools. However, the relative dearness of the private sector is particularly noticeable for the primary cycle. It therefore appears that in a context where the supply of education is predominantly public, and possibly even free, the choice of private education reflects either status-sensitive behavior, or a very expensive quality choice. The relative dearness of the private sector in terms of higher education mainly reflects the lack of household contributions to their children's education in public institutions.

Finally, given the double difference in the scale of resources devoted to education and in their allocation among different levels, the distribution of education funding between governments and households varies by education level. Thus, for every US$ 100 spent by governments on primary education, households spend the equivalent of a further US$ 33. Household contributions increase considerably, to US$ 68 for lower secondary and US$ 85 for upper secondary, before dropping drastically to US$ 19 for higher education, well below contributions for the primary cycle.

This great divide in the national effort to finance higher education poses both equity and effectiveness issues. Equity is an issue because the representativity of students from the most disadvantaged social groups drops throughout the education pyramid. Over 60 percent of higher education students are from Q5 households, whereas less than 10 percent are from Q1-2 households. Effectiveness is an issue because the individual returns on education increase with each level, which suggests that the relative weight of household contributions should also increase. Paradoxically, the share of household contributions is least for higher education, where individual returns are highest.

If this funding structure should be maintained as the education systems of the countries studied here expand, it would raise an obvious issue in terms of the access of the most disadvantaged groups to the higher education levels. To reconcile effectiveness and equity, this expansion must necessarily be accompanied by mechanisms that incentivize considerable household investment in higher education (as is the case in countries where generous and ill-targeted scholarships have been gradually replaced by conditional loan systems) and a more active policy in terms of collective redistribution of resources, favoring the access of the poorest to higher education levels, in line with their capacity.

These redistribution policies should be built considering the flexibility required in terms of: (i) increasing the public funding of education and improving the intra-sectoral allocation and use of education funds; and (ii) potentially increasing household investment in the education system.

In some countries (Benin, Cameroon, Côte d'Ivoire, Madagascar, Rwanda and Sierra Leone), household funding is already considerable, and does not substitute for a lack of government financing. These countries might move towards an intra-sectoral reallocation of public education resources, aiming to increase the share allotted to basic education.

In a second group of countries (Burkina Faso, Mali, Niger and Tanzania), the state appears to compensate for the under-investment of households in education. There is therefore scope to increase household contributions. These countries could reflect on mechanisms that incentivize greater household contributions to higher education.

A last group of countries (Republic of Congo, Gabon, Malawi, Mauritania and Chad) faces a global under-funding of education, both by governments and households. The arguments to increase the level of budget priority for education and incentivize households to contribute more, especially in higher education, are thus insufficient. Increasing the level of budget priority could be accompanied by a revision of the allocation of resources among education cycles.

These policy leads, however relevant they may be, must be adapted to each country situation. Further complementary analytical work will be necessary to identify all potential options. It would be appropriate to first explore the extent to which the relative household effort can be relieved in the lower education cycles (primary and secondary) and increased for higher education. To do so, it will be necessary to estimate both: (i) the minimal financial contribution expected from households for the lower levels; and (ii) the maximum contribution that it is reasonable to expect from households for the higher levels, while simultaneously ensuring better chances of access to these cycles for the poor (for instance through the implementation of support funds fed in part by the increased household spending at the higher levels).

This doubtless constitutes a promising research avenue to determine public/private education co-financing policies, which would be both more effective and more equitable.

Annexes :

TABLE A1 : List of Surveys

	Country	Survey	Année
1	Benin	Core Welfare Indicator Questionnaire (CWIQ) (Questionnaire unifiée des indicateurs de base du bien-être - QUIBB)	2003
2	Burkina Faso	Core Welfare Indicator Questionnaire (CWIQ) (Questionnaire des indicateurs de base du bien-être - QUIBB)	2007
3	Cameroon	Cameroonian Household Survey (ECAM I) (Enquête Camerounaise auprès des ménages - ECAM I)	2001
4	Congo	Congolese Household Survey (ECOM) (Enquête Congolaise auprès des ménages - ECOM)	2005
5	Côte d'Ivoire	Household Living Standards Survey (ENVM) (Enquête du niveau de vie des ménages - ENVM)	2002
6	Gabon	Gabonese Survey for the Monitoring and Evaluation of Poverty (Enquête Gabonaise pour l'évaluation et le suivi de la pauvreté)	2005
7	Madagascar	Household Survey (EAM) (Enquête auprès des ménages - EAM)	2001
8	Malawi	Integrated Household Survey	2004
9	Mali	Light Integrated Household Survey (ELIM) (Enquête légère intégrée auprès des ménages - ELIM)	2006
10	Mauritania	Reference Survey on Illiteracy in Mauritania (ERAM) (Enquête de référence sur l'analphabétisme en Mauritanie - ERAM)	2008
11	Niger	Nigerien Survey on Living Conditions (Enquête Nigérienne sur les conditions de vie)	2005
12	Rwanda	Integral Survey on Household Living Conditions (EICM) (Enquête intégrale sur les conditions de vie des ménages - EICM)	2005
13	Sierra Leone	Sierra Leone Integrated Household Survey (SLIHS)	2003
14	Tanzania	Household Budget Survey (HBS)	2007
15	Chad	Survey on Informal Sector Consumption in Chad (ECOSIT2) (Enquête sur la consommation du système informel au Tchad -ECOSIT2)	2001

TABLE A2 : Breakdown of Household Education Spending by Main Items, 15 African Countries.

	School Fees	School Supplies	Other
Benin (2003)	School Fees (h1a); Building Contributions (h1e).	Books and Supplies (h1b); School Uniforms (h1c).	Transport Expenses (h1d); Other Expenses (h1f).
Burkina Faso (2003)	School Fees (J11/J21); PTA Contributions (J15/J25); Other School Contributions (J16/J26).	Books and Supplies (J12/J22); School Uniforms (J13/J23).	Transport Expenses (J14/J24).
Côte d'Ivoire (2002)	Enrollment Fees (Q63); Other Enrollment Fees (Q64); Schooling (Q65); PTA Contributions (Q72); Other Expenses (Q74).	Textbooks (Q66); Uniform and Sport-wear Expenses (Q68); Other School Supplies (Q67).	Transport (Q69); Food, Canteens, etc. (Q70); Tutor, Home Teacher (Q73).
Gabon (2005)	School Fees (Playschool, Primary, General Secondary, Technical Secondary, Higher) See QRD, Page 19, Section M.	Textbooks, School Uniforms, Notebooks, Bags and Satchels, Raincoats, Paper Supplies, Ring-binders and Paper, Other Supplies See QRD, Page 19, Section M.	Tutoring Expenses See QRD, Page 19, Section M.
Madagascar (2001)	School Fees (Q27); FRAM Contributions (Q28a); Insurance Fees (Q28b); School Fees (Q29); Other Expenses (Q37).	School Uniforms (Q30); Sport-wear (Q31); Books (Q32); School Supplies (Q33).	School Transport (Q34); Food (Q35); Boarding (Q36).
Mali (2006)	School Fees (Playschool, Primary, General Secondary, Technical Secondary, Higher) See QRD, Page 19, Section M.	Textbooks, School Uniforms, Other Supplies - See QRD, Page 19, Section M.	Tutoring Expenses See QRD, Page 19, Section M.
Mauritania (2008)	School Fees (J1-1.1); Contributions to PTAs (J1-1.3).	Books and School Supplies (J1-1.2).	Other School Contributions (J1-1.4).
Niger (2005)	School Fees; PTA Contributions; Under the Table Expenses; Building Contributions; Other Expenses.	Books and School Supplies; School Uniforms.	School Transport.
Malawi (2004)	School Fees (C30A); Management Fees (C30D); Building and Maintenance Contributions (C30E); PTA Contributions (C30F).	School Uniforms (C30C); Materials and Supplies' Expenses (C30B).	Other Education Expenses (C30G).
Rwanda (2005)	Enrollment and Schooling Fees (S2AQ10A); PTA Contributions (S2AQ10B); Other School Fees (S2AQ10G).	Uniforms and Sport-wear (S2AQ10C); Books and School Supplies (S2AQ10D).	School Transport (S2AQ10E); School Canteens and Boarding S2AQ10F.
Sierra Leone (2003)	School Fees (s2aq6); CTA Expenses (s2aq7); Extra-curricular Expenses (s2aq12); Other Expenses (s2aq13).	Uniforms (s2aq9); Books (s2aq9).	Transport (s2aq10); Food (s2aq11).
Tanzania (2007)	School Fees; Other Expenses; PTA Expenses.	Books and School Supplies; Uniforms; Bags.	Tutor Expenses, Food, Canteen.

Source: Household Survey Data and Questionnaires.
Note: The name of the related variable is provided in parenthesis, as indicated in the country questionnaires. CTA = Community Teachers Association.

TABLE A3 : Household Unit Costs in Education, by Cycle and Type of School, Survey Years. Percentage of GDP per capita.

		Primary			Lower Secondary			Upper Secondary			Higher		
		Public	Private	Average	Public	Private	Average	Public	Private	Average	Public	Private	Average
Benin	2003	4,0	25,1	5,6	15,0	54,3	22,2	p.c.	p.c.	60,0	38,2	107,3	55,4
Burkina Faso	2003	2,8	21,7	4,5	11,1	46,6	24,0	p.c.	p.c.	38,6	37,1	195,2	58,0
Cameroon	2001	2,3	8,6	3,6	15,7	31,1	19,8	22,5	44,5	28,4	31,3	90,8	39,0
Congo Rep. of	2005	p.c.	p.c.	0,7	0,9	7,7	2,7	p.c.	p.c.	3,7	p.c.	p.c.	6,2
Côte d'Ivoire	2002	4,2	16,9	5,6	12,4	35,6	19,7	18,3	55,5	32,0	p.c.	p.c.	40,9
Gabon	2005	p.c.	p.c.	0,7	1,5	4,3	2,3	2,4	5,8	3,4	1,7	6,0	2,5
Madagascar	2001	14,5	67,5	25,9	p.c.	p.c.	62,1	p.c.	p.c.	107,5	p.c.	p.c.	246,0
Mali	2006	p.c.	p.c.	2,8	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	10,6	43,4	15,2
Mauritania	2008	2,6	12,7	3,5	4,1	24,9	7,5	4,0	27,7	10,3	9,8	134,2	19,7
Niger	2005	1,2	39,5	1,9	3,9	63,2	10,5	p.c.	p.c.	33,5	34,9	151,5	60,3
Chad	2001	n.d.	n.d.	1,8	n.d.	n.d.	7,5	n.d.	n.d.	9,3	n.d.	n.d.	29,3
Malawi	2004	n.d.	n.d.	2,0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	108,5
Rwanda	2005	2,4	25,7	3,3	39,2	55,3	44,9	56,2	75,2	65,8	109,3	190,7	151,9
Sierra Leone	2003	n.d.	n.d.	8,5	n.d.	n.d.	41,7	n.d.	n.d.	75,1	n.d.	n.d.	83,2
Tanzania	2007	n.d.	n.d.	1,5	n.d.	n.d.	17,5	n.d.	n.d.	57,6	n.d.	n.d.	73,1
Average		4,3	27,2	4,8	11,5	35,9	18,8	20,7	41,8	40,4	34,1	114,9	65,9

Source: Authors' calculations based on national household survey data and IMF data.
Note: n.d.: not disaggregated (the distinction between public and private and/or between upper and lower secondary cycles was not possible with the available household survey data. However, the average unit costs for both secondary cycles is estimated at 4.3 percent of GDP per capita in Mali and 26.7 percent of GDP per capita in Malawi); n.c.: not coherent (partial unit costs are not coherent with the average unit costs).

TABLE A4 : Private Education, Comparison of Simulated (so that Average Unit Costs are a Balanced Average of the Public and Private Unit Costs) and Official Shares. Percent.

		Primary		Lower Secondary		Upper Secondary		Total Secondary		Higher	
		P1	P2	P1	P2	P1	P2	P1	P2	P1	P2
Benin	2003	7,6	5,5	18,4	14,4	55,4	16,2	28,7	14,7	24,9	27,5
Burkina Faso	2003	8,8	13,0	36,3	35,1	43,2	28,1	37,8	34,1	13,2	9,8
Cameroon	2001	21,0	27,0	26,8	29,0	26,7	29,0	n.d.	29,0	12,9	7,6
Congo Rep. of	2005	13,0	27,7	26,5	32,3	30,2	21,1	28,0	30,4	41,7	12,2
Côte d'Ivoire	2002	10,8	11,4	31,5	38,7	36,7	42,0	n.d.	39,6	14,5	32,3
Gabon	2005	20,1	31,0	26,4	30,9	29,2	27,3	n.d.	29,9	19,3	13,2
Madagascar	2001	21,5	21,6	35,3	44,7	33,3	48,9	34,8	45,4	18,4	8,2
Mali	2006	8,1	20,6	n.d.	15,8	n.d.	46,9	11,8	21,3	14,1	11,9
Mauritania	2008	9,3	9,7	16,2	21,1	26,5	26,1	n.d.	22,7	7,9	2,3
Niger	2005	1,8	4,1	11,1	8,6	25,0	16,6	13,7	9,7	21,8	21,2
Tchad	2001	n.d.	29,5	n.d.	12,9	n.d.	13,5	n.d.	13,0	n.d.	13,4
Malawi	2004	n.d.	0,8	n.d.	n.d.	n.d.	n.d.	n.d.	23,5	n.d.	n.d.
Rwanda	2005	3,8	1,0	35,3	36,7	50,5	49,8	n.d.	41,3	52,3	52,2
Sierra Leone	2003	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Tanzania	2007	n.d.	1,0	n.d.	17,7	n.d.	37,4	n.d.	18,7	n.d.	32,0

Source: Authors' calculations based on national household survey data and country CSRs.
Note: P1is the share of pupils in private schools, that fulfils the following equation: Average Unit Costs = α * Public Unit Costs + (1-α) * Private Unit Costs, where α = 1-P1. P2 is the share of pupils in private schools, according to administrative data. n.d.: not disaggregated (the distinction between public and private is not possible based on the household survey data). Shaded cells indicate an absolute gap between P1 and P2 above eight percentage points.

TABLE A5 : Education Unit Costs, by Level and Wealth Quintile, Survey Years.
Percentage of GDP per capita.

		Primaire			Lower Secondary			Upper Secondary			Total Secondary			Higher		
		Q1-2	Q3-4	Q5	Q1-2	Q3-4	Q5	Q1-2	Q3-4	Q5	Q1-2	Q3-4	Q5	Q1-2	Q3-4	Q5
Benin	2003	4,0	7,2	18,6	10,9	24,7	42,6	16,6	58,2	89,9	n.d.	n.d.	n.d.	19,8	43,5	51,8
Burkina Faso	2003	2,8	5,3	14,7	14,4	19,2	39,7	11,0	19,7	56,2	n.d.	n.d.	n.d.	34,3		58,1
Cameroon	2001	2,6	6,2	21,4	11,7	19,5	36,2	14,2	20,2	44,5	n.d.	n.d.	n.d.	15,5	27,8	50,6
Congo rep. of	2005	0,3	0,9	2,3	0,8	1,8	4,2	0,9	1,7	3,9	n.d.	n.d.	n.d.	2,0		9,7
Côte d'Ivoire	2002	3,2	4,0	11,2	12,4	12,5	25,7	14,4	18,1	38,0	n.d.	n.d.	n.d.	15,4		47,2
Gabon	2005	0,7	1,4	2,5	1,7	2,5	5,5	2,4	3,1	5,4	n.d.	n.d.	n.d.	1,5		3,9
Madagascar	2001	2,0	5,4	19,1	4,9	10,7	18,4	9,0	16,3	24,8	n.d.	n.d.	n.d.	22,9		59,3
Mali	2006	1,2	2,0	7,8	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1,5	2,2	4,1	2,6		18,1
Mauritania	2008	2,5	3,0	6,2	3,6	5,9	11,3	4,6	6,9	12,7	n.d.	n.d.	n.d.	11,8		23,5
Niger	2005	0,9	1,1	5,7	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	4,3	9,0	16,5	3,3		63,1
Tchad	2001	1,4	1,7	3,1	5,4	7,1	8,5	5,3	6,3	10,5	n.d.	n.d.	n.d.	12,2		35,1
Malawi	2004	0,5	0,7	5,0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	11,7	13,8	36,9	n.d.	n.d.	128,2
Rwanda	2005	1,6	2,0	11,1	40,6	35,9	55,5	50,6	57,1	74,0	n.d.	n.d.	n.d.	24,9		159,9
Sierra Leone	2003	5,0	7,0	19,1	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	21,1	35,5		66,8		72,5
Tanzania	2007	0,9	1,8	6,2	7,4	12,2	28,9	15,5	30,1	67,5	n.d.	n.d.	n.d.	23,7		68,0
Average		2,0	3,3	10,3	10,3	13,8	25,1	13,1	21,6	38,9	9,7	15,1	29,9	20,5		56,6

Source: Authors' calculations based on national household survey data and country CSRs.
Note: Q1-2 = poorest 40 percent of households; Q3-4 = 40 percent households with intermediate income; Q5 = wealthiest 20 percent of households.
   n.d.: data is insufficient to estimate unit costs.

TABLE A6 : Distribution of Household Education Spending, by Level, Updated to 2004. Percent.

		Primary	Lower Secondary	Upper Secondary	Higher
Benin	2003	40	30	15	14
Burkina Faso	2003	40	40	10	10
Cameroon	2001	37	33	19	10
Congo rep. of	2005	37	44	13	7
Côte d'Ivoire	2002	37	30	18	15
Gabon	2005	40	33	20	7
Madagascar	2001	63	21	8	8
Mali	2006	64	26		10
Mauritania	2008	60	18	11	10
Niger	2005	40	32	17	11
Chad	2001	53	28	12	7
Malawi	2004	54	41		6
Rwanda	2005	28	29	23	19
Sierra Leone	2003	48	30	16	7
Tanzania	2007	31	43	8	18
Average		45	30	15	11

Source: Authors' calculations based on household survey data and IMF data.
Note: Only spending devoted to primary, general secondary and higher education is considered. The distribution is therefore adjusted to total 100 percent.

TABLE 7 : Household Education Spending, by Level, Updated to 2004.
Equivalent Percentage of Public Education Expenditure.

	Primary	Lower Secondary	Upper Secondary	Higher
Benin	43	146	132	41
Burkina Faso	21	130	54	14
Cameroun	69	96	147	50
Congo Rep. of	29	56	20	5
Côte d'Ivoire	37	74	79	31
Gabon	22	31	24	3
Madagascar	51	55	43	19
Mali	27	14*		9
Mauritania	28	26	32	16
Niger	6	18	31	10
Chad	23	24	23	8
Malawi	22	33*		4
Rwanda	34	102	195	43
Sierra Leone	78	141	235	24
Tanzania	14	79*		14
Average	33	68	85	19

Source: Authors' calculations based on household survey data, IMF data and country CSRs.
Note: * Figure for both secondary cycles.

TABLE A8 : Distribution of Enrollment, by Country, Wealth Quintile and Level, 15 African Countries, Survey Years. Percent.

		Primary	Lower Secondary	Upper Secondary	ETFP	Higher
Benin 2003	Q1-2	54	39	25	5	10
	Q3-4	37	43	47	52	31
	Q5	10	18	28	43	59
	Total	100	100	100	100	100
Burkina Faso 2003	Q1-2	48	26	11	2	1
	Q3-4	40	45	45	30	23
	Q5	13	29	45	68	76
	Total	100	100	100	100	100
Cameroon 2001	Q1-2	61	42	25	38	18
	Q3-4	32	41	48	46	42
	Q5	7	16	28	15	40
	Total	100	100	100	100	100
Congo rep. of 2005	Q1-2	44	21	8	nd	3
	Q3-4	36	43	40	nd	41
	Q5	20	35	51	nd	56
	Total	100	100	100	nd	100
Côte d'Ivoire 2002	Q1-2	35	12	5	1	1
	Q3-4	39	33	24	13	19
	Q5	26	55	71	87	80
	Total	100	100	100	100	100
Gabon 2005	Q1-2	62	49	38	nd	26
	Q3-4	32	41	48	nd	51
	Q5	5	9	15	nd	23
	Total	100	100	100	nd	100
Madagascar 2001	Q1-2	50	15	4	nd	6
	Q3-4	39	52	32	nd	22
	Q5	11	33	65	nd	72
	Total	100	100	100	nd	100
Malawi 2004	Q1-2	32	11		0	5
	Q3-4	41	32		8	11
	Q5	26	57		92	85
	Total	100	100		100	100
Mali 2006	Q1-2	42	28	13	nd	12
	Q3-4	41	47	46	nd	38
	Q5	17	25	40	nd	50
	Total	100	100	100	nd	100
Mauritania 2008	Q1-2	40	14	7	9	5
	Q3-4	37	38	32	33	28
	Q5	23	49	61	57	68
	Total	100	100	100	100	100

Niger 2005	Q1-2	34	18	12	0	0
	Q3-4	46	32	24	12	12
	Q5	20	50	64	88	88
	Total	100	100	100	100	100
Rwanda 2005	Q1-2	35	13	12	20	1
	Q3-4	49	44	32	43	5
	Q5	16	43	56	37	94
	Total	100	100	100	100	100
Sierra Leone 2003	Q1-2	33	17	6	21	4
	Q3-4	41	31	21	12	10
	Q5	26	52	73	67	86
	Total	100	100	100	100	100
Tanzania 2007	Q1-2	53	23	9	nd	6
	Q3-4	38	48	35	nd	15
	Q5	9	29	56	nd	78
	Total	100	100	100	nd	100
Chad 2001	Q1-2	39	24	12	28	2
	Q3-4	42	43	42	34	34
	Q5	19	33	47	38	63
	Total	100	100	100	100	100

Source: Authors' calculations based on data from the surveys listed in Annex Table A1.

Bibliography :

☐ Colclough, C., G. Kingdon and H-A. Patrinos. 2009. *The Pattern of Returns to Education and its Implications*. Research Consortium on Educational Outcomes & Poverty Policy Brief, N°4, April.

☐ Kuepie, M., J-C. Nordmand and F. Roubaud. 2006. *Education and Labour Market Outcomes in Sub-Saharan West Africa.* DT/2006-16. Dial.

☐ UIS (UNESCO Institute of Statistics). 2010. *Global Education Digest. Montréal.*

☐ INS (National Institute of Statistics, Cameroon). 2002. Evolution of Poverty in Cameroon between 1996 and 2001 (Original Title: *Évolution de la pauvreté au Cameroun entre 1996 et 2001)*. p. 51. Yaoundé.

☐ Mingat, A., B. Ledoux and M. Rakotomalala. 2010. Postprimary Teaching in Sub-Saharan Africa: Financial Viability of Different Development Options (Original Title: *L'enseignement post-primaire en Afrique subsaharienne : Viabilité financière des différentes options de développement).* Africa Region Human Development Series. World Bank.

☐ PASEC (CONFEMEN's Programme of Analysis of Education Systems). 2008. Towards Primary Enrollment in 2015: Diagnostic Evaluation of the Quality of Primary Teaching in Gabon (Original Title: *Évaluation diagnostique de la qualité de l'enseignement primaire au Gabon)*. Dakar.

☐ Pôle de Dakar. 2012. Household Education Spending: Review and Estimation Methods Applied to Fifteen African Countries (Original Title: Les dépenses des ménages en éducation : *Appréhension et méthodes d'estimation appliquées à une quinzaine de pays d'Afrique).* UNESCO-BREDA. Dakar. To be published.

☐ Pôle de Dakar. 2007. Education for All in Africa: The Urgency for Integrated Sector Policies (Original Title: *Éducation pour tous en Afrique : L'urgence de politiques sectorielles intégrées).* UNESCO-BREDA. Dakar.

☐ CSR (Country Status Reports):
   • World Bank and National Country Teams: Madagascar (2006), Sierra Leone (2004)
   • Pôle de Dakar, World Bank and National Country Teams: Benin (2006), Burkina Faso (2006), Cameroon (2002), Republic of Congo (2005), Côte d'Ivoire (2007), Mali (2008), Niger (2008), Chad (2003), Malawi (2008), Rwanda (2008)
   • Pôle de Dakar, Agence Française de Développement and National Country Teams: Gabon (2008), Mauritania (2008)
   • Pôle de Dakar and National Country Teams: Tanzania (2009)

☐ Schultz, T. P. 2004. *Evidence of Returns to Schooling in Africa from Household Surveys: Monitoring and Restructuring the Market for Education.* Journal of African Economies, No. 13(2), pp. 95-148.

Benin
Burkina Faso
Cameroon
Republic of Congo
Côte d'Ivoire
Gabon
Madagascar
Malawi
Mali
Mauritania
Niger
Rwanda
Sierra Leone
Tanzania
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