

# Public Expenditure Review of the Education Sector in the Democratic Republic of Congo

*An Efficiency, Effectiveness, and Equity Analysis*



Democratic Republic of Congo:  
Education Sector Public Expenditure Review

*An Efficiency, Effectiveness, and Equity Analysis*

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**ABBREVIATIONS AND ACRONYMS**

ASSONEPA	Association Nationale des Ecoles Privées Agréées
BAP	Brevet d’Aptitude Professionnelle
BCECO	Bureau Central de la Coordination
BIA	Benefit Incidence Analysis
BMD	Bachelors-Masters-Doctorate
CAP	Certificat d’Aptitude Professionnelle
CAT	Cellule d’Appui Technique
CEP	Certificat d’Études Primaires
CODR	Coordination des Districts
CPPSB	Comité Permanent de Préparation et de Suivi Budgétaire
DEA	Diplôme d’Études Approfondies
DEA	Data Envelopment Analysis
DEP	Direction des Études et Planification
DES	Diplôme d’Études Supérieures
DMU	Decision Making Unit
DPSB	Direction de la Préparation et du Suivi du Budget
DRC	Democratic Republic of Congo
DSCPR	Document de la Stratégie de Croissance et de Réduction de la Pauvreté
DTE	Decentralized Territorial Entity
EAM	Écoles des Arts et Métiers
ECD	Early Child Development
ECN	École Conventionnée
ECOFIRE	Commission Économique, Financière et de Reconstruction
EFA-FTI	Education for All Fast Track Initiative
EG	Écoles Générales
EMIS	Education Management Information System
EN	Écoles Normales
ENC	École non Conventionnée
EP	Écoles Professionnelles
EPR	École Privée
EPSP	Enseignement Primaire, Secondaire et Professionnel
ET	Écoles Techniques
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GER	Gross Enrollment Ratio
GPE	Global Partnership for Education
GPI	Gender Parity Index

HBS	Household Budget Survey
HCP	Human Capital Projection
HDI	Human Development Index
ICT	Information and Communication Technology
INS	Institut National de la Statistique
IRR	Internal Rate of Returns
ISP	Instituts Supérieur Pédagogiques
IST	Instituts Supérieur Technique
MAS	Ministère des Affaires Sociales
MDG	Millennium Development Goals
MEPSINC	Ministère de l'Enseignement Primaire, Secondaire et de l'Initiation à la Nouvelle Citoyenneté
MEPSP	Ministère de l'Enseignement Primaire, Secondaire et Professionnel
MESU	Ministère de l'Enseignement Supérieur et Universitaire
METP	Ministère de l'Enseignement Technique et Professionnel
MTEF	Medium-Term Expenditure Framework
NER	Net Enrollment Ratio
PASEC	Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN
PCR	Primary Completion Rate
PER	Public Expenditures Review
PETS	Public Expenditure Tracking Survey
PIE	Plan Intérimaire de l'Éducation
PGAI	Plateforme de Gestion de l'Aide Internationale
PROVED	Province Educative
PRRIS	Projet de Réhabilitation et de Reconstruction des Infrastructures Scolaires
SECOPE	Service de Contrôle de la Paie des Enseignants
Sous-PROVED	Sous Province Educative
SSA	Sub-Saharan Africa
STR	Student Teacher Ratio
TENAFEP	Test National de Fin d'Études Primaires
TVET	Technical Vocational Education and Training
UGP	Unité de Gestion de Projet
UNAZA	Université Nationale du Zaïre
UPE	Universal Primary Education
WDI	World Development Indicator

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## Executive summary

1. This executive summary presents the findings of a study on the performance of the education sector in the DRC from a public financing point of view and provides recommendations for consideration by the Government to improve efficiency and learning outcomes in the sector. The objective is to provide the government with evidence-based advice to assist in prioritizing options for addressing pressing challenges in the sector, particularly a large number of out of school children, poor quality of learning, high household costs and low efficiency in the utilization of public resources. The report recognizes that there are deeper issues in governance particularly related to challenges in decentralization, but these are beyond the scope of this report as they involve more than one sector and requires specific and targeted analysis. These will need to be addressed in future studies as they are critical to achieving any far-reaching reforms in the education sector.

2. The executive summary is structured as follows: it starts with a brief introduction to the macroeconomic and education sector context, followed by a discussion of the performance of the education sector based on select outcome indicators. Section three analyzes education sector financing, including adequacy, equity and efficiency of public spending and affordability of schooling. Section four analyzes key sector management issues including efficiency and effectiveness of resources utilization followed by summary of policy recommendations.

### I. Macroeconomic and sector context

3. **After two decades of conflict and economic instability, the Democratic Republic of Congo (DRC) is making inroads towards achieving sustainable economic growth**, even as the country continues to deal with ongoing unrest in the eastern region. The DRC has maintained an average growth rate of about 7.5 percent since 2010, fueled by heightened activity in the extractive industries. It has consistently outperformed the Sub-Saharan average economic growth over the 2010-2014 period and is expected to continue its outstanding performance in the next few years, indicating strong potential for further significant economic development.

4. **Despite this growth, the revenue envelope in DRC is still low given the country's large and growing population.** As discussed in the 2014 PEMFAR exercise, the country's public finance sector is characterized by its weak resource mobilization which directly hinders its ability to address the country's most pressing human development needs and translate high growth into development. In fact, despite the strong growth trends, the poverty incidence rate remained high at 63.5 percent in 2013. The DRC also had one of the lowest GDP per capita in the world in 2013, after the Central African Republic, with 723USD (PPP, current international dollars)- lower than countries such as Malawi (780 USD), Madagascar (1,395 USD) as well as by larger countries such as Ethiopia (1,354 USD). The DRC also ranked 186 out of 187 countries in the latest HDI 2013 rankings with little improvement in its HD indicators- both in health and education- since 2005 (Niger ranked 187). In fact, the DRC government spends less on education than other SSA countries. International comparison shows that the DRC's spending on education as a share of GDP (1.8 percent), is inadequate and lagging, especially compared to the SSA average of 4.6 percent.

5. **The large cohort of youth in DRC can potentially deliver a dividend for the country. A sound education sector is fundamental to reaping this dividend.** The DRC's population has a very large youth

cohort and reaping the benefits of the demographic dividend requires that sufficient funding is allocated to address priority issues at all levels of education. This also entails having a strong targeting mechanism in place to ensure funds reach the most vulnerable and marginalized populations.

6. **The two parallel school systems in DRC poses a unique challenge in achieving an integrated sector development with equity.** The primary and secondary public school system in the DRC is characterized by two types of schools: (i) écoles conventionnées and (ii) écoles non-conventionnées. Both are supported by the state budget. The non-conventionné schools, are typical public schools, managed and operated by the government while the conventionné schools, which account for a large majority of the country's public schools, are managed by the country's various religious networks, as agreed in a 1977 convention. There were 67,068 public pre-primary, primary and secondary schools across the DRC in 2012 and about 17.2 million children enrolled. Most children (70 percent) are enrolled in the public conventionné school network while 18 percent are enrolled in public non-conventionné schools and 12 percent in private schools. The conventionné network has played an important role in sustaining the education sector, especially during difficult social and economic times in the country's history when public service delivery was disrupted. Today, although conventionné schools tend to be relatively more efficient and associated with lower unit cost, the divided management system makes it difficult to effectively and uniformly organize and manage public schools, resulting in issues such as high growth in teaching staff. This unplanned and non-budgeted onboarding of staff has created important issues for the sector, resulting in unpaid staff and shifting the cost burden to households.

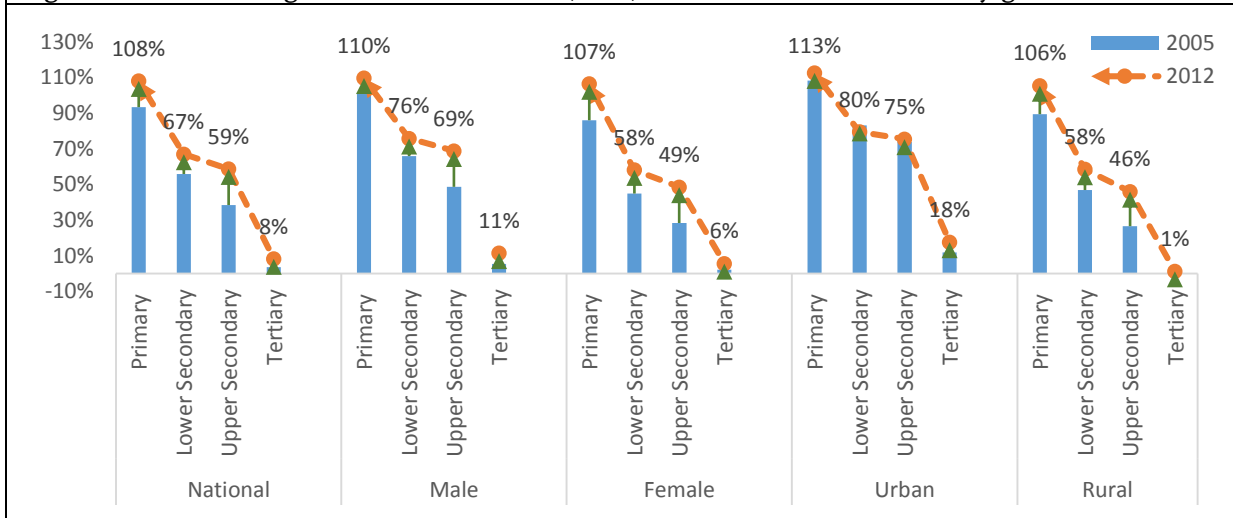
7. **Fragmentation in the governance of the education sector creates difficulties in evolving a comprehensive sector development strategy.** Ministerial responsibilities for the education sector in DRC have evolved over time. Currently, the sector is managed by three ministries: (i) Ministry of Primary, Secondary and Adult Education, (ii) Ministry of Technical and Vocational Education and Training (TVET), and (iii) Ministry of Higher Education and Scientific Research. At the national level, there appears to be insufficient clarity in division of responsibilities regarding TVET, as institutions in this area straddle all the three ministries. Furthermore, at the sub-national level, there is insufficient coordination between Provincial Ministries which are supposed to manage the entire school system in the provinces and the National Coordination Committees which coordinate the écoles conventionnées and have a direct reporting line to the national level. This misalignment makes it difficult for the provincial ministries to ensure a coordinated and equitable development of the sector in their areas of responsibility.

## II. Education sector performance

8. **The key access indicators show that, overall, the DRC improved significantly between 2005 and 2012 across all levels of education, especially among girls and in rural areas.** In particular, the overall GER increased from 93 percent to 108 percent at the primary school level, from 56 to 67 percent in lower secondary, and from 38 to 59 percent in upper secondary (Figure E.1). The increase in access is mostly driven by strong improvement in female participation at all levels of education, even though it remains inferior to male gross enrollment rates. Female participation has registered a substantial increase at the upper secondary level, growing from 28 to 49 percent over the 2005–2012 period. Enrollment has also significantly improved in rural areas, increasing from 89 percent to 106 percent at the primary level, from 47 to 58 percent in lower secondary and from 27 to 46 percent in upper

secondary. The significant improvement in the gross enrollment ratio may reflect the policy focus on primary education, especially by international donors, in order to help the country achieve its MDG goals.

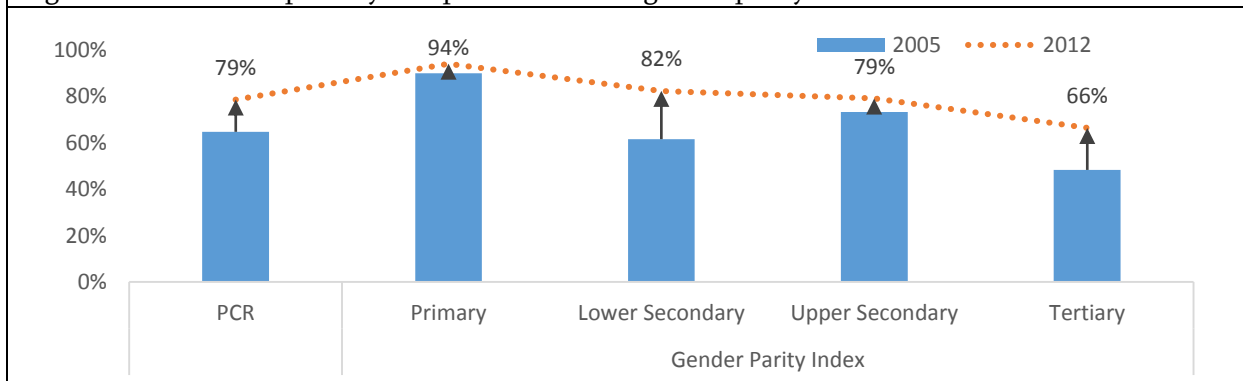
Figure E.1: Trends of gross enrollment ratios(GER) for all levels of education by gender and area



Source: Authors' estimations based on HBS 1-2-3 2005 and 2012

9. **Despite the significant improvement in access to education, the DRC will fail to meet its 2015 MDG goals in education.** Although the country has committed to achieving the MDGs and despite international partners' focus on this goal, the DRC is still lagging behind. In particular, the primary completion rate increased from 65 to 79 percent between 2005 and 2012 (Figure E.2). As with the access indicators, the increase in the primary completion rate is driven mostly by improvement among females and in rural areas. In fact, rural girls showed an increase from 37 to 69 percent over the period. At the same time, the gender parity index (GPI) has only marginally improved across all levels of education with the exception of upper secondary. The GPI increased from 90 to 96 percent in primary, 62 to 74 in lower secondary, 48 to 73 in higher education and decreased from 73 to 59 percent in upper secondary. It is very unlikely that the DRC will be able to overcome the current gaps within the given timeframe in either the primary completion rate or gender parity index.

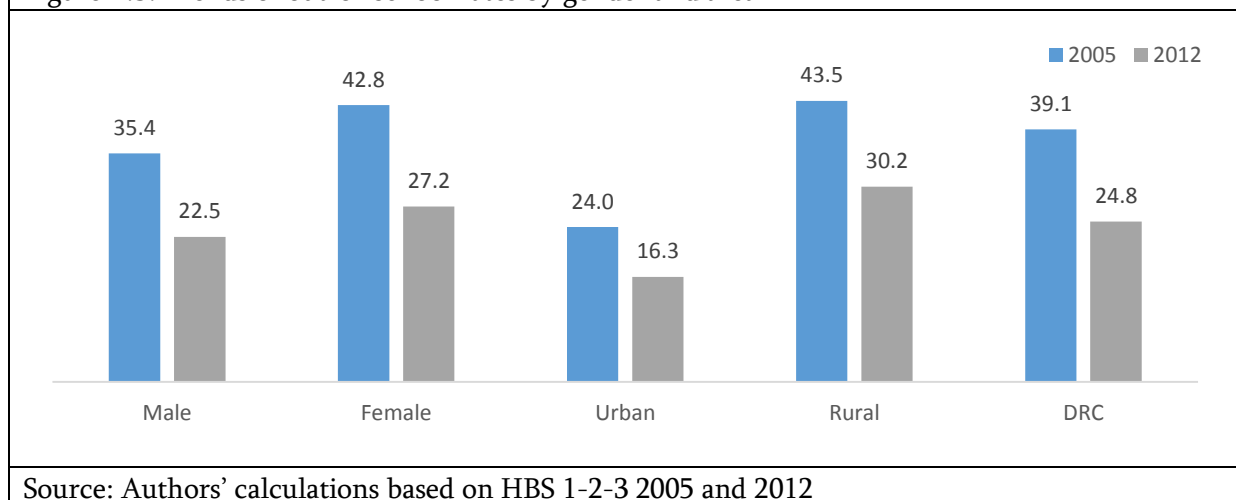
Figure E.2: Trends of primary completion rate and gender parity index



Source: Authors' estimations based on HBS 1-2-3 2005 and 2012

10. **The DRC has made significant progress overall in its education goals but the large number of out-of-school children remains one of the most pressing issues facing the education sector.** Despite achieving a reduction in the out-of-school rate from 39.1 percent in 2005 to 24.8 percent in 2012, the proportion of school age children not in school is still significant (Figure E.3). There were an estimated 19.2 million school aged children (6-17 years old) in 2012, of which about 25 percent were out-of-school. Being out-of-school is predominantly an issue affecting rural areas and girls, although the incidence among those two sub-groups has improved since 2005. In 2012, rural areas registered 30.2 percent of children out-of-school compared to 16.3 percent in urban areas, with 27.2 percent of females among school aged children out-of-school compared to 22.5 percent of males. The improvement has been mainly driven by the enrollment of females in rural areas even though their out-of-school rate remains still high, at 33.7 percent in 2012. Compared with other SSA countries, the DRC's rate is just below the SSA average of 27 percent and is comparatively better than many of the low-income SSA countries. However, given that the DRC has the third largest population in SSA, the out-of-school issue affects about 4.9 million children and is therefore is in reality still a significant problem.

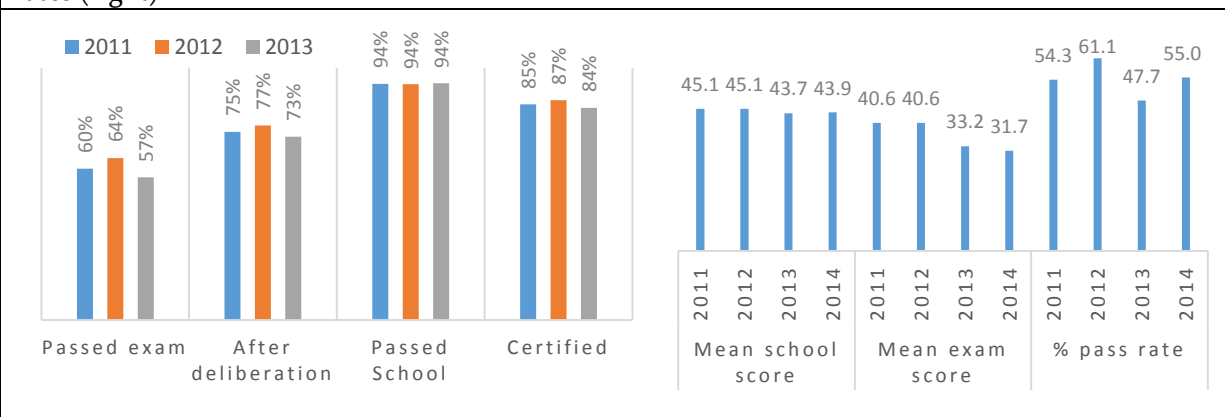
Figure E.3: Trends of out-of-school rates by gender and area



Source: Authors' calculations based on HBS 1-2-3 2005 and 2012

11. **Pass rates for examinations marking the end of primary and secondary levels indicate that performance has stagnated or decreased;** it also reveals variations in performance across the types of schools. The end of the primary cycle is marked by the TENAFEP examination, which is administered to all grade 6 students, while the Examen d'État is administered at the end of the upper secondary level. The performance of students on TENAFEP exam (at the "pre-deliberation" stage) shows a slight decrease in pass rates between 2011 and 2013. The TENAFEP results by type of school indicate that overall, private schools tend to perform marginally better, and that between the two public-school regimes, the conventionné schools tend to outperform the non-conventionné. At the secondary level, the overall mean exam score and school score were on the decline between 2011 and 2014, with only the conventionné schools registering an increase. In 2014, there were 612,515 participants end-of-secondary Examen d'État of which 35 percent are female, and with an overall pass rate of 55 percent, although it has fluctuated between about 47 and 61 percent between 2011 and 2014 (Figure E.4).

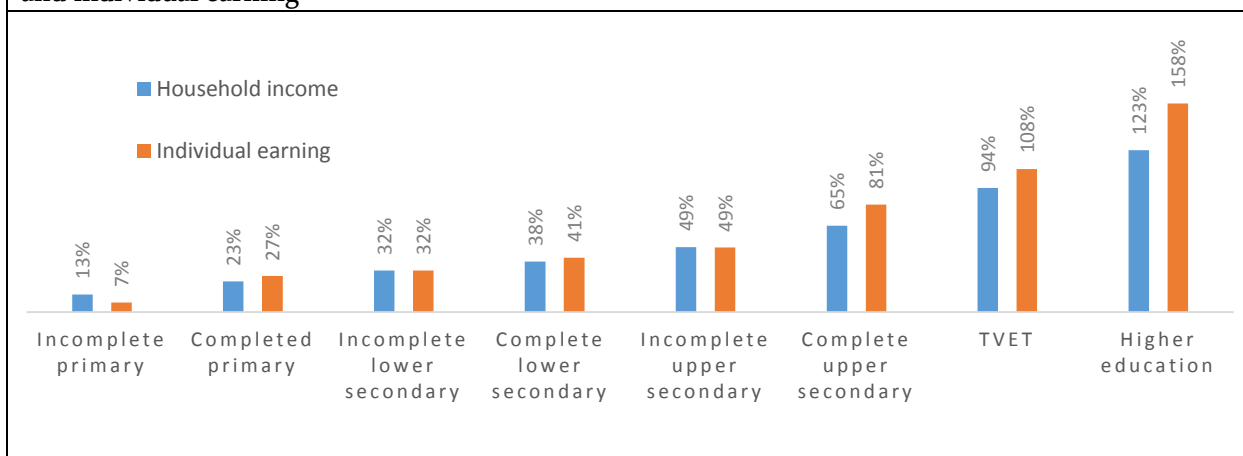
Figure E.4: TENAFEP, school pass rates and certification (left); Examen D'Etat scores and pass rates (right)



Source: Authors' estimations based on TENAFEP and Examen d'État result from MEPSP, 2011 to 2014

12. **Education is a key determinant of livelihoods in the DRC, and this provides a clear rationale for public and household spending on education.** Among the many benefits of education, the two main channels through which education leads to better opportunities and livelihoods are: (i) it increases earnings - an additional year of education is associated with an average increase of 9.1 percent in monthly earnings and each level of education is associated with higher levels of earning (Figure E.5). (ii), it increases the chances of employment in sectors with high returns, and of gaining contract employment, which offers greater stability. For example, an additional year of education increases the probability of working in wage employment and in household enterprise by 38 percent and 12 percent, respectively, compared to farming activities. Similarly, with agriculture as the base category, an additional year of education increases the likelihood of working in the services and industrial sectors by 20 percent and 16 percent respectively, compared to agricultural sector.

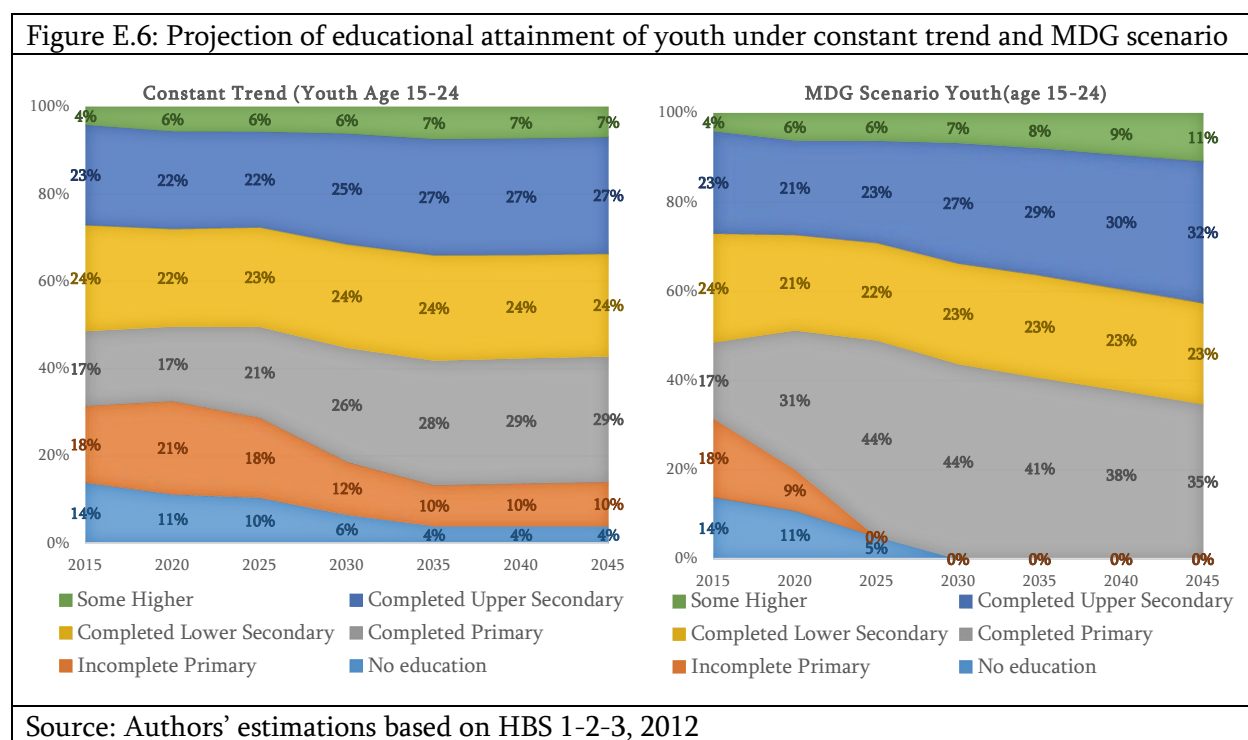
Figure E.5: Private rate of returns to education by level of education in terms of household income and individual earning



Source: Authors' estimations based on Ministry of Budget, SECOPE, EMIS and HBS 1-2-3, 2012



13. A forecast of human capital trends over the next 30 years shows that if DRC invests sufficiently to achieve universal primary education completion (MDG Goal 2), it will reduce by 18 percent, the number of youth aged 15-24 entering the labor market without having completed the primary cycle by 2030 (see methodological note 5 in the Annex).<sup>1</sup> At present, about 18 percent of youth enter the labor market without any education or having dropped out of primary education. If current trends persist, this figure will decrease slightly to 12 percent by 2030 and 10 percent by 2045. However, with some increase in investments, universal primary completion can be achieved, with the possibility of eliminating this challenge by 2030 (see assumptions in the annex). Figure 6 shows the trends for the two scenarios. (Figure E.6). Achieving the MDG goals in education will require concerted efforts across several areas- including financial considerations, as well as management and policy reforms. However, although finance is not the only solution, given that cost is the main reason for out-of-school children, increased financial commitment is necessary to accommodate the out-of-school children and increase retention and lead to better completion. Based on the current out-of-school rate, the cost equivalent of accommodating all out-of-school children, is estimated to be 1.4 percent of GDP (i.e. increase of spending from currently 1.8 percent of GDP to 3.2 percent).

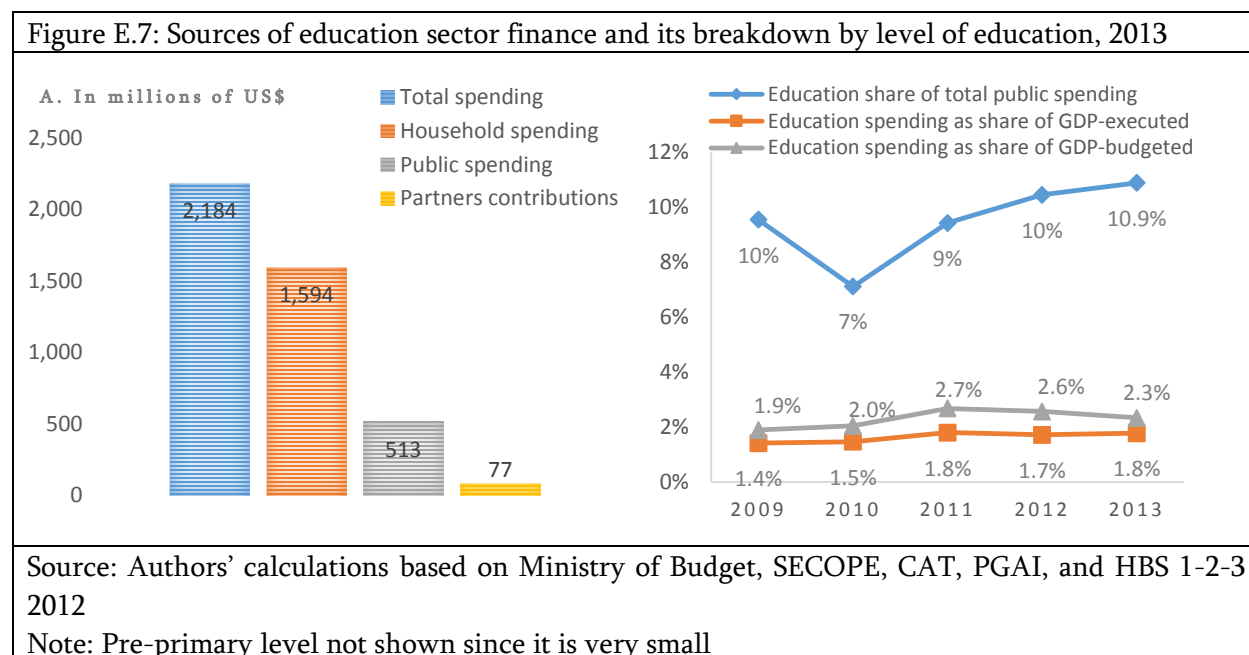


<sup>1</sup> The first scenario assumes that the transition rates between two five-year consecutive levels of education remain constant over time; and the second scenario assumes universal primary education by 2020 by improving retention rates.

### III. Education sector financing

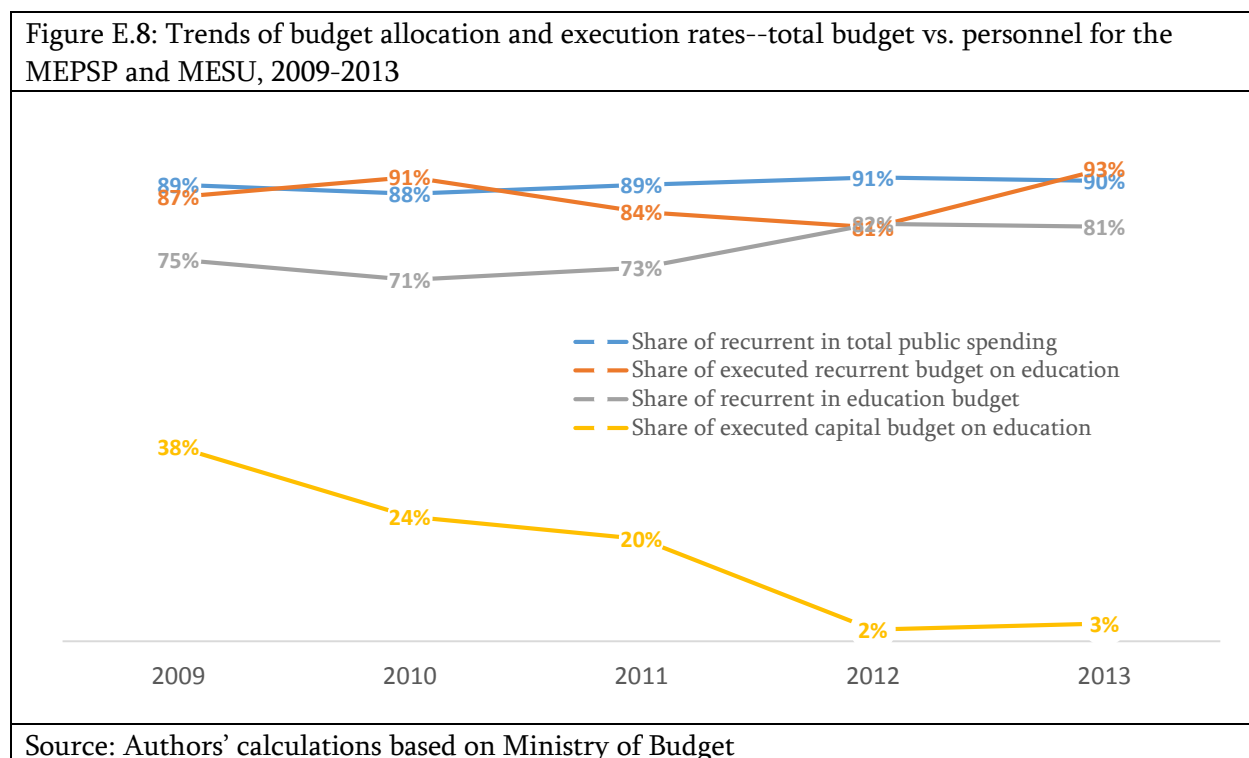
14. **Despite recent efforts to improve budget allocation, the public education sector in DRC is underfunded compared to most other countries in the region - with only 10.9 percent of the public budget being allocated to education and with education budget execution at about 1.8 percent of GDP.** The SSA average is at 17 percent of overall budget allocation and 4.6 percent as a share of GDP. This places the DRC among the lowest among

15. **The education sector remains largely financed by households.** Although there has been some improvement regarding the burden borne by households, the latter still finance 73 percent of education spending in the DRC (down from 90 percent in 2005). The government contributes 23 percent to education spending (up from 6 percent in 2005), while donors contribute the remaining 4 percent (Figure E.7). However, the reduction in the contribution of households tends to reflect the increase in the base education spending by the government rather than a reduction in the education burden itself on households.



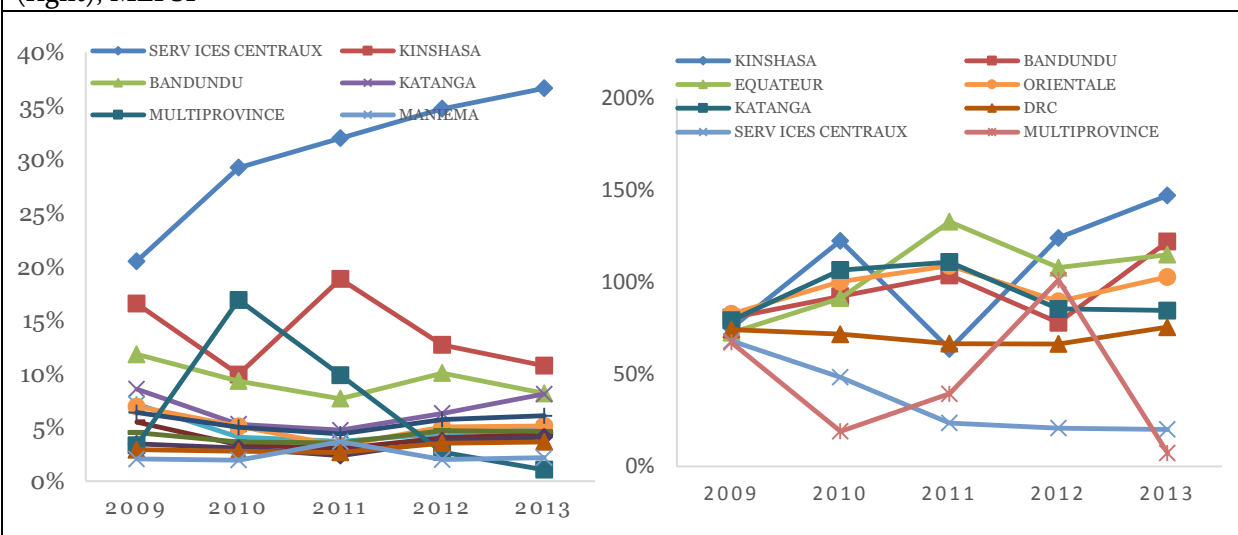
16. **Budget allocation and execution are not aligned, resulting in large discrepancies between the two.** In particular, while the budget execution of recurrent spending- which comprises mostly salary payments- is nearly fully executed, capital spending on the other hand is grossly under-executed (Figure E.8). In addition, the high share of salaries in recurrent spending indicates that the budget does not adequately provide for non-personnel costs which are essential for the public schools to efficiently teach, and manage their establishments. The low execution rate of capital spending, especially since 2010, is linked to the budget's heavy reliance on external sources of funding for capital spending. In particular, the share of capital spending budgeted on external resources increased from 38 percent to 89 percent between 2009 and 2010 and has hovered between 84 and 89 percent since. However, the execution rate of these external funds has simultaneously decreased from 74 percent in 2009 to 22 percent in 2010 and to just about 3 percent in 2013. One of the key reasons provided for the low execution rate of capital spending is that development partners require donor funded capital spending

to be included into the budget but execution of these funds is not under the control of the government. Government's dependence on external funding in the budget preparation process clearly undermines the adequate provision of capital spending in the sector and leads to negative spillover effects on households where schools tend to demand contributions to compensate.



17. **Although the education sector at the primary and secondary levels are decentralized in terms of school management, the financial management of the sector remains centralized and seems to be increasingly so.** The share of the budget allocated to the Services Centraux (general services - 37 percent in 2012) is larger than any allocation to the provinces and has been steadily increasing over time, from 20 percent in 2009 (Figure E.9). However, a closer examination of the execution rate reveals that the budget allocated to central services suffers from very low execution rates (about 20 percent in 2013) while the funds at the provincial level register at times execution rates above 100 percent. This implies that although the central services are allocated a larger share of the voted budget, the budget is in reality executed at the provincial levels. This finding creates strong credibility issues with respect to the education sector budget preparation process and undermines any analysis of the budget process since the allocations do not even remotely reflect the real execution. To understand the issues in the decentralization status and framework, detailed analysis is required and is outside of the scope of this analysis.

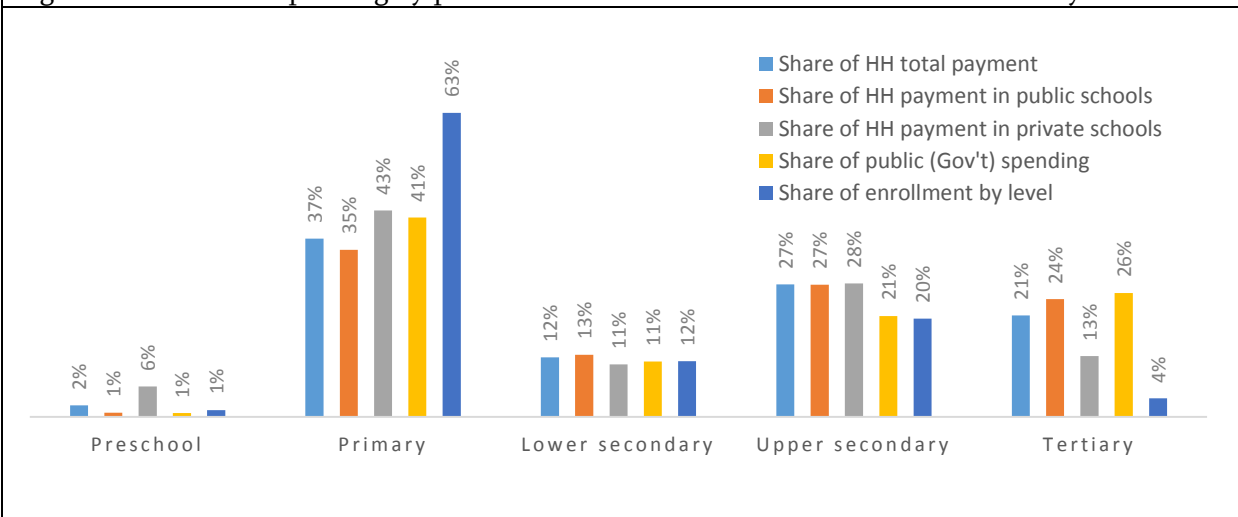
Figure E.9: Trends of budget allocation by province(left), and execution rates for select provinces (right), MEPS



Source: Authors' calculations based on Ministry of Budget

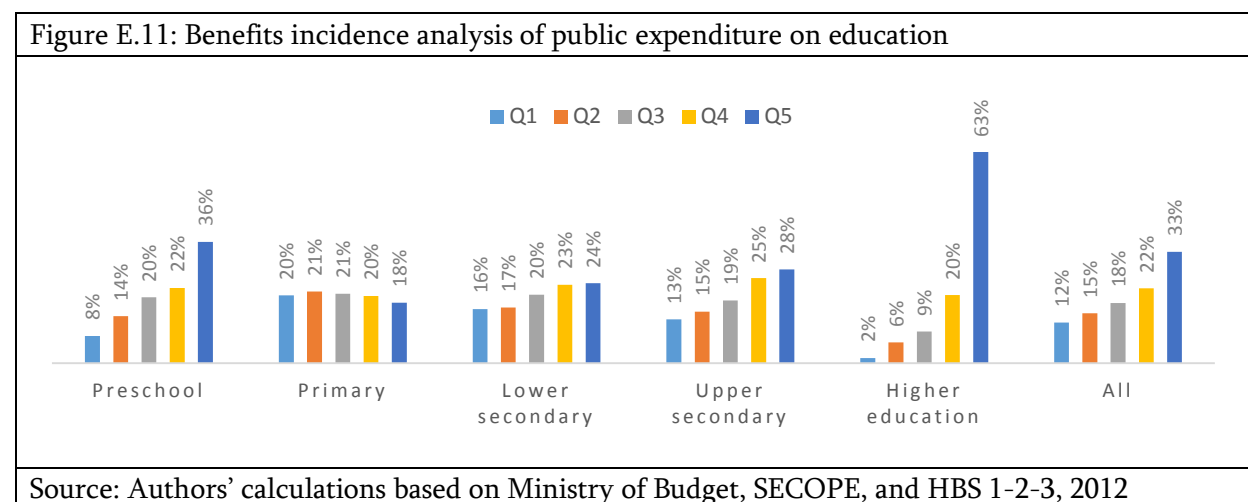
18. **The budget allocation is not aligned with the MDGs, reflecting a lack of clear prioritization in the budget elaboration and allocation process.** Examination of the budget allocation by level of education reveals that in 2013, only 40 percent of the budget allocation went to the primary education level while the majority was dedicated to the post-primary levels- with 26 percent going to higher education alone- even though, on average, 63 percent of all students were enrolled at primary level (Figure E.10). The budget allocation to the primary sector is low by all standards- the average budget allocation to the primary sector in the SSA is around 44 percent while the GPE recommendation is at 50 percent.

Figure E.10: Share of spending by public and household and enrollment distribution by level.



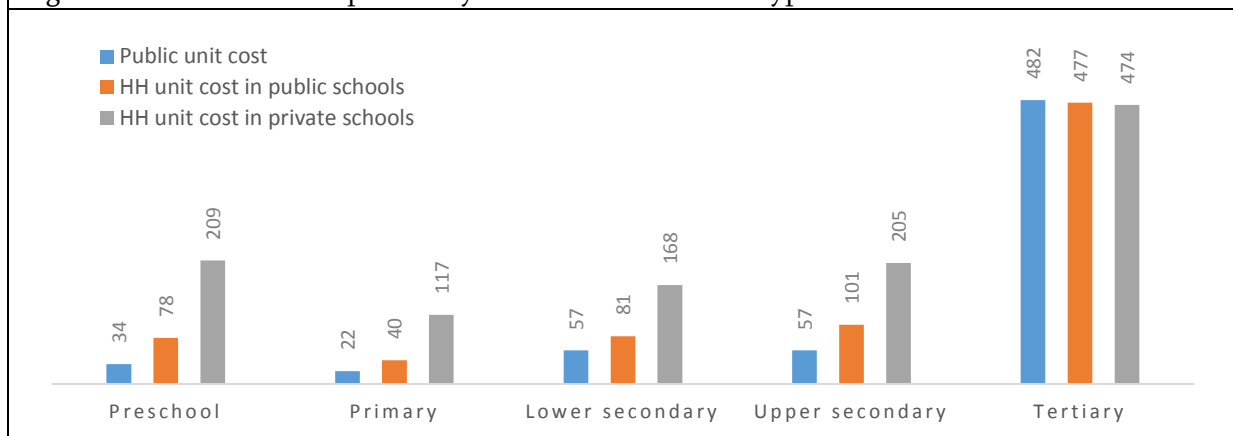
Source: Authors' calculations based on Ministry of Budget, SECOPE, and HBS 1-2-3, 2012

19. **Public spending on education in the DRC is biased towards the rich.** The analysis of public spending across all education levels shows that the poorest quintile receives only 12 percent of the total education spending (8 percent less than its share in population) while the richest quintile receives 33 percent of the total benefits (13 percent more than its share in population) (Figure E.11). At the primary level, public spending appears to be equitable in the sense that the poorest quintile receives the same share of public benefits (20 percent) as their population share while the richest receives 18 percent of the benefits (only 2 percent of less than their population share). The pro-rich nature of the public spending on education starts at the lower secondary level where enrollment from poor families starts declining.



20. **There is a significant variation in the total unit cost across provinces, level of education, by school types.** Figure E.12 shows the public unit cost and household unit cost by level of education and the breakdown of the household unit cost based on whether they are paid into public or private schools. Unit cost comparisons show that households spend more in preschool, primary and secondary education while the government spends slightly more in higher education. Unit cost in non-conventionné schools are almost twice as expensive as conventionné schools at all levels of education, which is driven by disproportionately more public funds non-conventionné in the form of operating costs relative to conventionné schools. For example, public non-conventionné schools receive more than twice the amount received by conventionné schools for non-salary expenses, even though the conventionné schools account for over 75 percent of public enrollment and represent about 67 percent of all primary and secondary schools. Although private school are more expensive in general education (primary to secondary), private higher education are more efficient than public higher education but this could mask differences in the quality of education. Per student cost in preschool, primary and secondary education is lower in public schools than it is in private schools whereas per-student cost in public higher education is more than double that of its private counterpart. For example, in higher education, per student cost is US\$959 in public institutions, which is more than twice what it costs in private establishments (US\$474).

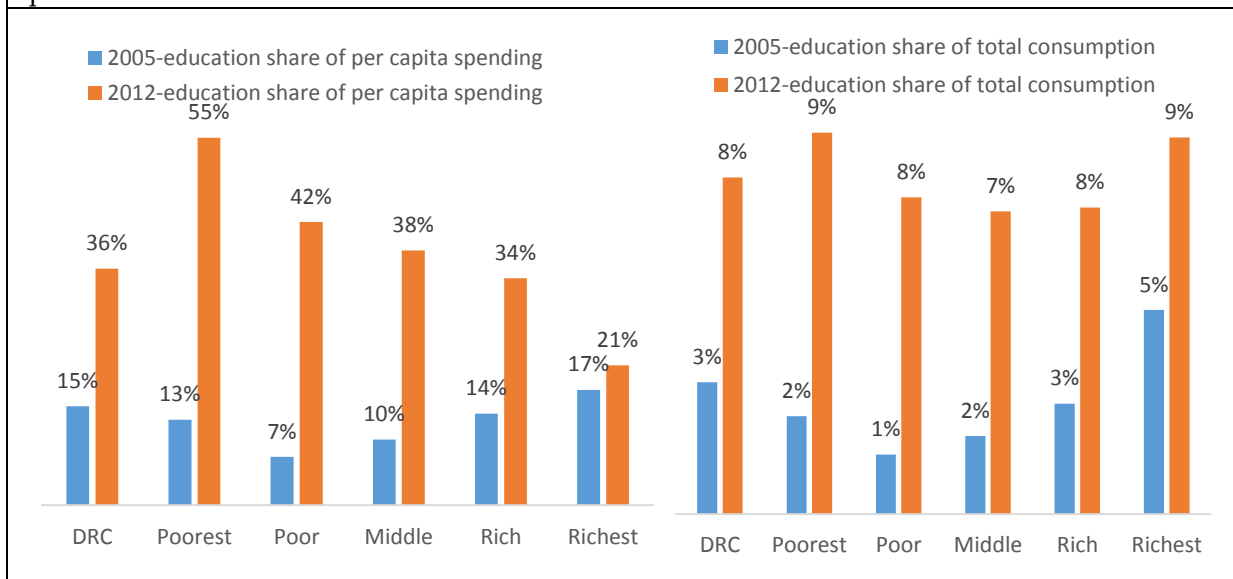
Figure E.12: Unit cost comparison by level of education and type of schools attended



Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

21. **The high unit cost in post-primary education levels is prohibitive to poor households, despite their strong commitment to educating their children.** Unit costs of post-primary education are a particularly heavy burden for the poorest households- the unit costs represent 76 percent of their per capita income for lower secondary, 96 percent for upper secondary and 390 percent at the higher education level. That being said, the poor remain committed to sending their children to school; as such, they increased their spending on education as a share of total household consumption between 2005 and 2012 significantly more than any other quintile (Figure E.13).

Figure E.13: Household per capita (left) and share of total spending (right) on education by wealth quintile

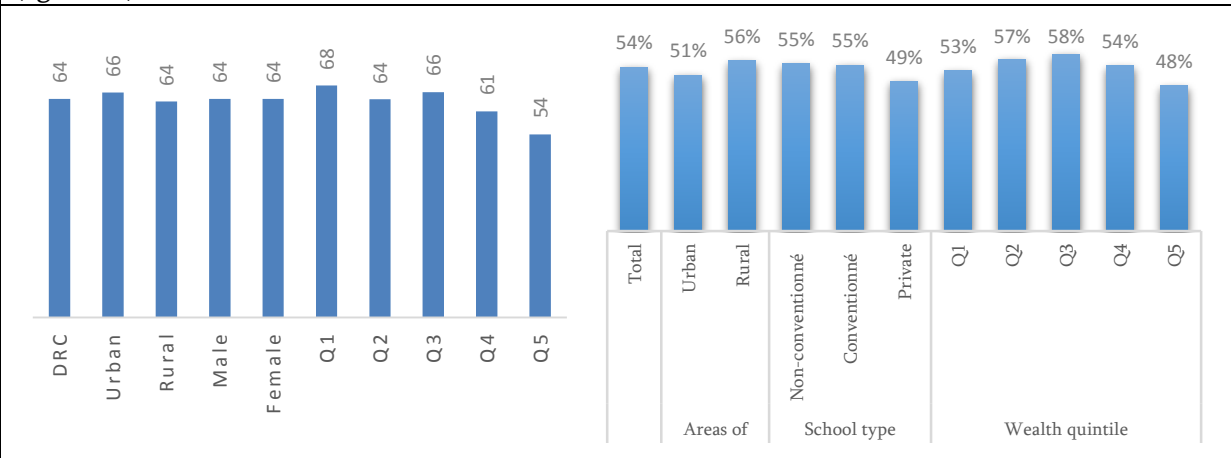


Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

22. **School fees represent the highest share of household contributions to education spending and households are very dissatisfied with the high costs- even though they still contribute a high share of spending.** Estimations using the latest household survey 2012/13 indicate that 65 percent of household

payments for education are in the form of school fee contributions (Figure E.14). The three main reasons that household contributions to education finance are so high stem from the fact that (i) only about 67 percent of public school teachers are on the official payroll, (ii) teacher salaries are still low in comparison with other public sector employees, leading households to compensate teachers already on payroll with supplemental salaries (*frais de motivation*), and (iii) the education sector does not budget adequate funds to cover operating costs borne by public schools and the public school system. In order to fill in the gap, schools have relied heavily on households through school fees. This has led to very high household unit costs at all levels of education, despite the introduction of a fee-free policy (*gratuité*) in 2010. Indeed, 64 percent of out-of-school children (and 68 percent of out-of-school children from poor households) identify the high cost of education as the leading reason they are not in school. The lacuna in the budgeting for the education sector, exemplified by the poor use of unit cost estimation to adequately fund the education sector, has contributed to its inability to accommodate all school age children, particularly from poor households. It is very clear through the analysis in this report that a true fee-free policy cannot be achieved without fully addressing all three of these factors.

Figure E.14: School fees account for the most often given reason for being out-of-school (left) and household dissatisfaction rate over frequency of fee contributions (right) for school age children (age 6-17)



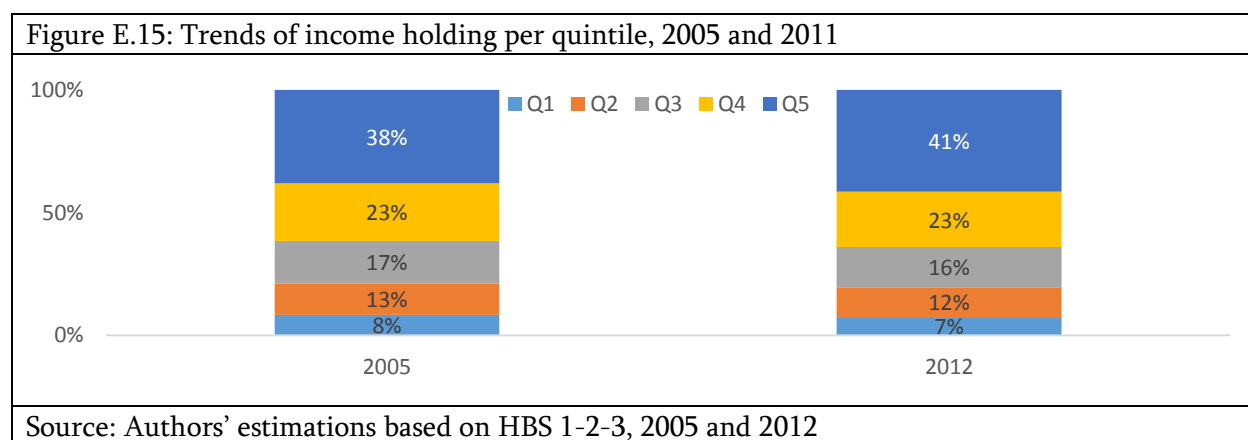
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

23. **Household wealth, distance to school and public education expenditures all determine to varying extents the likelihood of being out-of-school.** Multivariate regressions help to further explore the factors affecting the out-of-school rate in the DRC and to provide further evidence that household wealth, which is indicative of the households' ability to finance education, is a key factor. We also focus on two other explanatory factors: distance to school<sup>2</sup> and public education expenditures. In addition to the variables of interest, the availability of data allows us to consider other supply side factors (such as school facilities,) and demand side factors (such as students' personal characteristics and households' characteristics) as control variables. The results show that both supply and demand side factors significantly affect the likelihood of being out-of-school. In particular, the longer distances to primary and secondary schools are positively linked to the probability of being out-of-school, while living in a household that belongs to the highest income quintile is associated with a lower probability of being

<sup>2</sup> A more detailed discussion about the relationship between distance to school and school participation is proposed in section 6.4.2

out school. The probability of being out-of-school decreases with higher public education expenditures. Other factors of interest have also been teased out of this analysis such as the fact that being a female is associated with a higher probability of being out-of-school.

24. **The trend in inequality in the DRC indicates that the income holding of the poor (the first three quintiles), diminished between 2005 and 2012, worsening the gap between the poor and wealthy.** Figure E.15 shows the income distribution by quintile for 2005 and 2012. The increased inequality coupled with the huge burden of education costs on the poor, implies that the worsened wealth distribution may lead to further cyclical intergeneration inequality. The income holding of the poorest quintile is only 7 percent compared to--= their population share of 20 percent; and it declined by 1 percentage point since 2005. In contrast, the richest quintile's income holding increased by 3 percentage points from 38 percent in 2005 to 41 percent in 2012, which implies that the country is growing more inequitable. Given that the high schooling costs in the DRC have already excluded many children from participating in the education system, it is very important for policy makers to institute pro-poor education policies to break the intergenerational poverty trap.



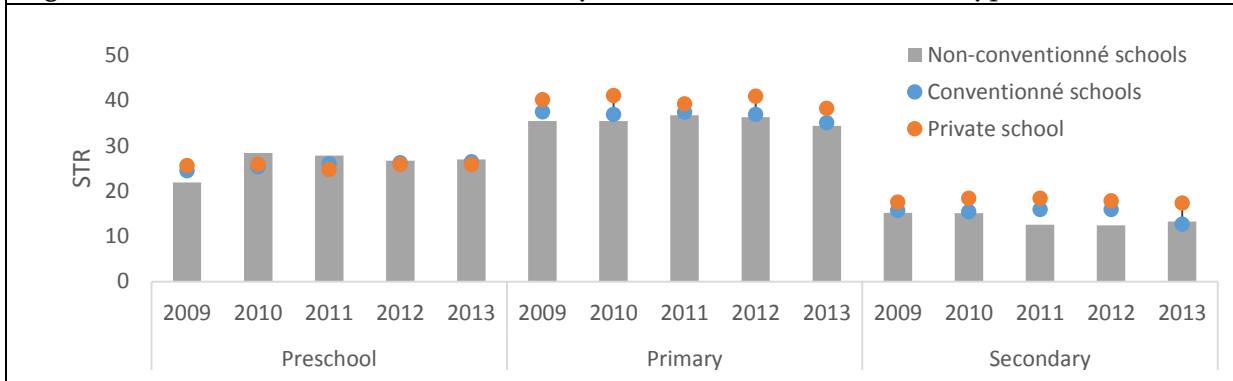
#### IV. Management of the education sector

25. **The country faces large internal inefficiencies in the education sector.** These are attributed to three main sources: Inefficient student teacher ratio (STR) and class sizes, High repetition and dropout rates, and Unmanaged and unplanned staff onboarding into the education system.

26. **Inefficient student teacher ratio (STR) and class sizes.** The current STRs in both primary (34:1) and secondary education (13:1) are significantly below the optimal levels of 40:1 and 25:1 respectively, which signals an under-utilization of resources(Figure E.16). These STRs tend to be even lower than in the private sector and do not shown any signs of improvement over time. The low STR at the secondary level may be attributed to the inefficiently extensive curriculum program, with an excessively large number of different study specializations, at that level of education. Optimal use of resources could lead to potentially US\$432 million in savings (equivalent to 1.4 percent of GDP in 2013). It is also important to note that the STR tends to diminish in higher grades within each cycle, which is indicative of a retention issue, and also that the STR tends to vary considerably across and within provinces.



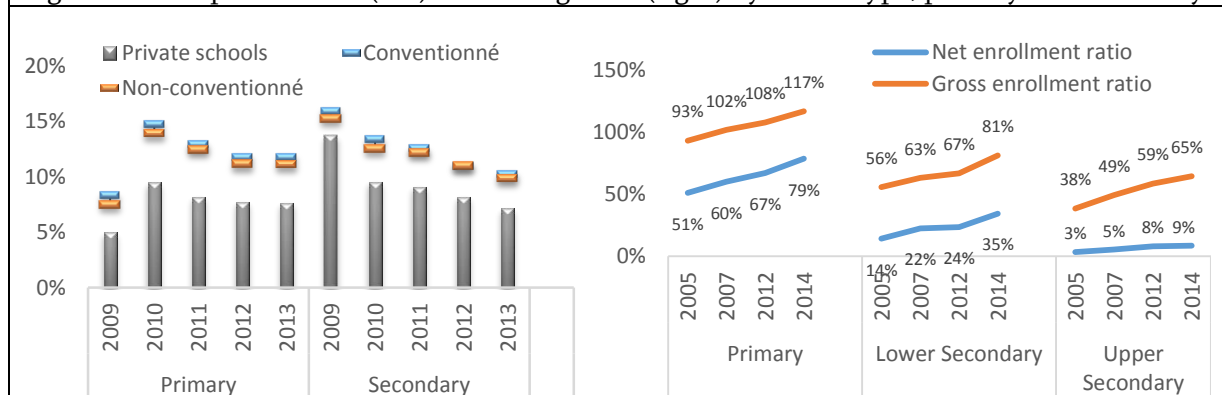
Figure E.16: Trends of student-teacher ratio by level of education and school type



Source: Authors' calculations based on EMIS, 2012/2013

27. **High repetition and dropout rates.** The cost estimate of school repetition and level-specific dropouts finds the public is subject to 0.2 percent of GDP in losses (48 billion FC) and households to 0.5 percent of their total consumption expenditure (102 billion FC) in losses. The public sector lost the equivalent of about 12 percent of total recurrent spending on primary and secondary education due to the high repetition and dropout rates. Similarly, households lost about 9 percent of their total current spending on education at the primary and secondary levels. This lost income and foregone output, over the lifetime of the affected children, is equivalent to 7.0 percent of GDP measured in today's terms. The private sector also lost 8.7 percent of their total consumption expenditure in today's terms as the result of dropout and repetitions. The repetition rates in the DRC are around 10.7 percent at the primary level, and 5.9 and 6.8 percent at the lower secondary and upper secondary levels respectively, while the corresponding dropout rates for SSA countries as a whole are 3.7, 3.5 and 4.6 percent respectively (Figure E.17). Being overage is associated with repetition and interruption of schooling. In other words, because of interruptions in schooling or repeating successive grade levels, children have difficulty in completing the desired school level within the standard timeframe and become overage students. Being overage in the classroom may be demotivating to the student as well, and also negatively impacts the teachers' ability to manage the class, given the wide age range.

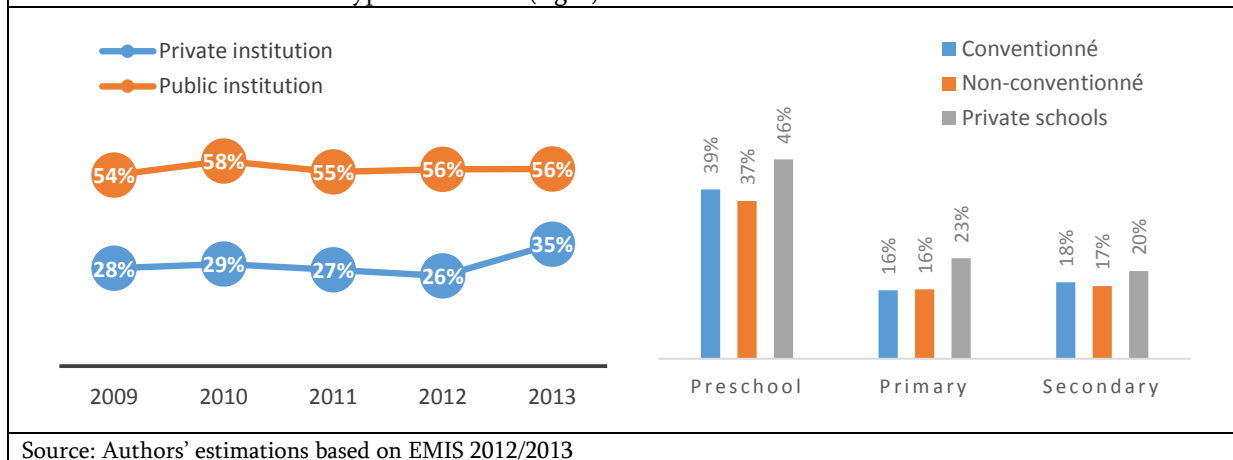
Figure E.17: Repetition rate (left) and overage rate (right) by school type, primary and secondary



Source: Authors' estimations based on HBS 1-2-3, 2012

28. **Unmanaged and unplanned staff onboarding into the education system.** The excessive number of administrative staff suggests that the education system may be used as an employment buffer, especially in higher education where they outnumber the teaching staff (Figure E.18). However this practice may be diverting resources away from other, more pressing needs, such as hiring more qualified (and therefore more highly remunerated) teachers or even reducing school fees, which, as discussed, are one of the leading factors keeping children out of school. In addition, the growth in the number of teachers has outpaced the growth in student enrollment, especially in conventionné schools. Similarly, non-conventionné schools' share of non-salary spending constitutes about a third of total recurrent education spending compared with less than 2 percent for conventionné schools, which clearly reflects relatively inefficient use by such schools of the scarce resources. Although the actual needs in terms of administrative staff depend on the school context (including such considerations as the number of students, facilities available etc.), cutting the current rate in half (for schools and universities under both education ministries) would lead to a saving of 15 percent of total personnel spending (equivalent to 0.3 percent GDP).

Figure E.18: Trends in share of administrative staff in total higher education employment (left), and by educational level and school type for MEPSP (right).



29. **The lack of a clear and uniform human resource management system has several implications on the quality of teachers as well as the ability to sustain high standards of teaching.** Estimates using the 2012/13 household survey indicate that education sector staff accounts for about 45 percent of the wage bill in the public sector. Given that 80 percent of public schools are conventionné, the high growth in teaching staff, which is driven mostly by conventionné schools, has several implications: (i) since the sector is already under-funded, it puts further strain on existing resources, which leads to teachers not being compensated well enough; (ii) it also has an impact on the quality of teachers hired since more qualified and more experienced staff tends to be more highly remunerated; (iii) given their low remuneration levels, teachers often take on a secondary job; this may also adversely affect teaching quality, especially if the teacher is regularly absent or late, which in turn affects learning outcomes. Lastly there is a significant lack of female representation among teaching staff (only 20 percent), which presents serious gender parity issues in the sector.

## **V. Policy recommendations**

30. The policy recommendations presented below are informed by the empirical findings derived from an in-depth analysis of the education sector and follow-up consultative workshop with sector experts and development partners. The recommendations are grouped under four broad topics: (i) finance, (ii) internal efficiency gains, (iii) system management, and (iv) developing human capital needs. A policy recommendation matrix is included at the end for easy cross-reference. Given that the PEMFAR provides a detailed fiscal space analysis which underpins the financial recommendations of the education sector PER, a joint review of the proposed policy recommendations below together with the PEMFAR analysis would be helpful in grasping the broader financial context.

### **Sector financing**

31. A combination of interventions are proposed in order to improve sector financing. These fall into two main categories: budget allocation and budget execution. Specific measures include: (i) increasing budget allocation to the education sector. Many of the key issues facing the education sector stem directly and indirectly from underfunding of the education budget. In particular, increase the education sector budget, allowing the budget to onboard all public education staff, increase salaries to truly reflect the premium placed on the teaching profession, adequately fund operating costs, and reach excluded, out-of-school children. It is estimated that increasing the budget to the equivalent of 4.7 percent of GDP, in line with the recommendations, would allow the sector to fully onboard all public sector teachers, accommodate all out-of-school children, and help defray some of the additional costs borne by households; (ii) improving the balance in capital spending in favor of internally generated resources to avoid the low execution rate of capital spending due to availability of external funding. This will ensure the credibility of the budget as well as the availability of funding for immediate infrastructure needs; (iii) strengthening budget elaboration process to clearly reflect the sectoral priorities of the government, especially with respect to attaining the MDGs; (iv) clarifying budget nomenclature to reflect sectoral allocation and priorities and allow better monitoring and evaluation of the goals and priorities; (v) adopting a clear, standardized and transparent process to determine staffing needs prior to budget preparation in order to eliminate the issue of teachers who are not in the payroll; and (vi) introducing programs to foster equity in education such as conditional cash transfers, school feeding programs and targeted scholarships including scholarships for girls.

### **Internal efficiency gain**

32. As mentioned above, the DRC's education sector is characterized by three main sources of internal inefficiencies: (i) inefficient use of existing resources, leading to low student-teacher ratio (STR) and small class sizes, (ii) high repetition and dropout rates, and (iii), inefficiencies linked to inappropriate proportions of non-teaching staff. Analysis shows that efficiency gains in the utilization of these resources could save an equivalent amount of 1.6 percent of GDP, the largest proportion being from STR and class size. Specific recommendations to realize such gains include: (i) an extensive revision of the curriculum at the secondary school level where the STR is extremely low, with a focus on reducing the number of study programs for students to choose from; (ii) the creation of a school mapping tool to assist with efficient identification and monitoring of infrastructure projects, to ensure that expansion of schools targets needy areas; (iii) introduction and implementation of a policy on mandatory school enrollment age and automatic promotion at least within the primary level to minimize the problem of repetition, which tends to lead to overage children and subsequent dropout;

(iv) the introduction of clear guidelines on allowable ratio of administrative staff/teaching staff/student ratio at the school level and enforcement of this rule to ensure teachers are deployed in the most efficient manner.

### **Sector management**

33. The division of the public education system between the conventionné and non-conventionné systems creates discordance in the management of public education system. One of the recent and rampant issues facing the DRC's education sector is the lack of adherence to standards and guidelines across school types. In particular, many conventionné schools, which have recently been built (despite the moratorium in place on new construction), fail to comply with agreed standards such as the minimum number of students required to open a school, the student-teacher ratio, and the appropriate teacher-administrative staff ratio, leading to inefficiencies such as low Student-to-Teacher Ratio (STR), and the disproportionately excessive hiring of teachers relative to student enrollment growth rates. The lack of a clear and uniform human resource management system has several implications on the quality of teachers as well as the ability to sustain high standards of teaching, and places a direct burden on education sector finances. The following key recommendations would help overcome such challenges: (i) improve efficiency of education provision by establishing a uniform public school management system with greater accountability and enforcement of rules and regulations to ensure standards maintained across all schools. This suggests that public schools stand to gain from increased coordination across school types through, for example, the creation of accountability channels for the sous-PROVED (local education overseeing offices) regarding teacher recruitment and deployment for both types of public schools, conventionné and non-conventionné. It would also help to set up a systematic monitoring and evaluation of schools by both the province and central authorities which would best determine what measures to adopt vis-à-vis non-compliant establishments. (ii) Strengthen the capacity of SECOPE to effectively manage a teacher database and salary payment system.

### **Human capital planning**

34. The DRC's labor market shows positive and significant returns to education but initial analysis of labor market needs and growth indicates disparities between demand for labor among drivers of economic growth and education attainment of the labor supply. This mismatch between labor demand and labor supply could have significant implications for future opportunities for the labor force and could hinder economic growth potential of the country. In order to ensure alignment of labor supply production and labor demand needs, the public sector needs to integrate private sector players (key employers) in establishing curricula and programs and develop an ongoing partnership in education matters. Activities indicated as "short term" are ones that can be implemented in the next 1-2 years; medium term is 3-5 years; and long term more than 5 years.

Policy recommendation matrix				
Area/Issue	Policy	Action	Timeline	Responsible Agency
Sector financing	Increase the allocation to the education sector budget to catch up with the SSA average	The education budget as a share of GDP and as a share of total spending should be revised upwards to address the sector gaps identified in this report, including putting all teachers on the payroll and accommodating all out-of-school children.	Short to medium-term	Ministry of finance
	Align capital spending to internal resources and increase non-personnel operating cost allocations	Given the poor level of execution of capital spending budgeted on external resources, the education capital spending there should be a more balanced budgeting between internal and external resources. Operating cost allocations to schools should be increased.	Short-term	Ministries of education
	Improve budget nomenclature	Budget nomenclature should be revised to allow monitoring and evaluation of both recurrent and capital spending to each level of education.	Short-term	Ministry of budget, Ministries of education
	Improve budget preparation and elaboration process	The budget preparation process and final allocation should reflect the sectoral priorities outlined in the MTEF through better coordination across agencies.	Short-term	Ministries of education and Ministry of budget
	Adopt a clear strategy to onboard the schools and staff not on SECOPE payroll	Budgeting should precede and guide the number of schools and staff added to payroll annually	Medium-term	Ministries of education
	Use Unit cost to determine resource distribution	Use unit cost to determine equitable distribution of resources in planning access expansion policies, including accommodating out-of-school children.	Short to medium-term	Ministries of education
	Increase teachers' base salary and account for variations in living costs across provinces.	To avoid additional fee collection from parents, teachers' salary scale should be revised upwards, reflecting the government's "valorization" policy, with adequate adjustments for cost of living differences across provinces.	Short to medium term	Ministries of education, Ministry of budget
	Increase female teaching staff	To make the school environment conducive to learning, especially for younger children, it is important to have a clear strategy to onboard female teachers.	Short to medium term	Ministries of education

	Implement programs and measures to foster equity in education and reduce incidence of out-of-school children.	Given that cost of education is the most important barrier for out-of-school children, targeted programs should be implemented to help defray costs and attract children to school. Programs can also use CCTs, school feeding or even scholarship programs.	Short to medium-term	Ministries of education, Ministry of budget
Internal efficiency gain	Improve internal efficiency and increase completion.	Introduce and implement policy on automatic promotion and mandatory enrollment at age 6	Medium-term	Ministries of education
	Ensure teachers are effectively used at optimal STR	Revise curriculum to ensure course load and options are optimal	Short-medium term	Ministries of education
	Create a formula to determine teacher recruitment and administrative staff needs at the school level.	Norms need to be developed and enforced so as to standardize approach to determining administrative staffing needs at school level based on criteria such as STR, classrooms, school size, subjects taught and facilities available at the school	Short-medium term	Ministries of education
Sector Management	Establish a uniform public school management system.	Establish systematic monitoring and evaluation oversight of all schools to ensure standards are upheld; provide the means to enforce compliance.	Medium-term	Ministries of education
	Target future infrastructure development to areas with verified need	Implement and institutionalize school mapping to guide new infrastructure development.	Short-term	Ministries of education
	Investment in alternative service delivery channels	Develop alternative learning outlets (e.g. ICT-based distance learning).	Medium to Long term	Ministries of education, Ministry of budget, Ministry of finance
	Strengthen education management at decentralized levels and ensure that these levels are adequately funded	Commission a cross-sectoral study to understand the constraints to full implementation of the decentralization policy and propose measures to address these constraints	Short to medium term	Government in collaboration with the WB and other development partners

Human capital development	Align the curriculum at secondary and higher education to the future needs of the country.	Reform higher education governance policy to require strong participation of private sector in institutional governing councils and in program definition so as to dynamically align programs to priority needs of the economy. This could be enforced through performance contracts between institutions and the Government (example of Senegal)	Medium-term	Ministries of education, Ministry of youth, Ministry of employment, Fédération des Entreprises du Congo (FEC, the private sector representative )
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## I. Introduction

35. A sound education sector is fundamental for the economic, social, and political transformation of the Democratic Republic of Congo (DRC). The DRC has achieved significant progress in its education sector over the last decade, demonstrating strong resilience following a particularly violent period in its history. At the same time, while reasonable progress has been made in access, it is very unlikely that the DRC will achieve its key education related Millennium Development Goals (MDG)--universal primary completion by 2015 and gender equality in all levels of education. Enrollment in early childhood education (ECE) is particularly limited and the country continues to grapple with providing equitable access and quality schooling at all levels, with extremely high rates of out-of-school children. The DRC's development trajectory will depend on its ability to reap the benefits of its resource-rich territory, which will require large investments in human capital to transition to an economy based on improved productivity, innovation, and technology.

36. The DRC's population has a very large youth cohort and reaping the benefits of the demographic dividend requires ensuring that sufficient funding is allocated to address priority issues at all levels of education. A strong targeting mechanism should also be put in place to ensure funds reach the most vulnerable and marginalized populations. The three tenets of education investments can be summarized as follows: invest early, invest smartly, and invest for all. First, it is now commonly agreed that foundational skills acquired early in childhood make possible a lifetime of learning, hence the traditional view of education as starting in primary school takes up the challenge too late. Second, realizing returns on each dollar spent in education requires smart investments—that is, investments that have proven to contribute to learning. Quality, therefore, needs to be the focus of education investments, with learning gains as a key metric of quality. Third, learning for all means ensuring that all students, not just the most privileged or gifted, acquire the knowledge and skills that they need. This goal will require lowering the barriers that keep vulnerable and marginalized groups from attaining as much education as others (World Bank 2011)

37. The previous public expenditure review (PER 2008) was not education sector specific and was based on limited available data, but provided key policy recommendations including an increase in spending on the education sector, declaring a moratorium on new personnel additions onto the payrolls and creating new schools until: (i) the teacher census and a school mapping exercise are completed, (ii) school fee collection from parents is regulated, and (iii) more effective human resources management including a strengthening of the role of SECOPE in teachers management is put in place. This PER builds on its predecessor to provide a follow-up on the key findings of the 2008 study and expands on the scope to include in-depth analysis of the sources and levels of funding, budgetary allocations across and within the sectors, and the quality, affordability, sustainability, equity, and efficiency of public expenditures on education. The findings are expected to inform the government's education sector reforms, as well as inform development partners and other stakeholders on the key challenges to the education sector finance and education outcomes in DRC.

38. Unlike the previous PER, this PER benefited from a much more developed database and more recent household surveys. The main data sources for the analysis include: (i) 2005 and 2012 1-2-3 HBS, (ii) 2014 Demographic and Health Survey (DHS), (iii) Education Management Information System from 2009 to 2013, (iv) payroll data from SECOPE, (v), budget data from the Ministry of Budget, (vi), learning



outcomes at primary and secondary levels from MEPS, and (vii) donor data from CAT and PGAI and (viii) other data collected from field visits and development partners. These datasets allowed for a comprehensive analysis using several econometric models and techniques including Benefit Incidence Analysis (BIA), Data Envelopment Analysis (DEA), Population Development Environment (PDE), Oaxaca decomposition, Sequential logit, and other relevant multivariable regression and qualitative assessment methods.

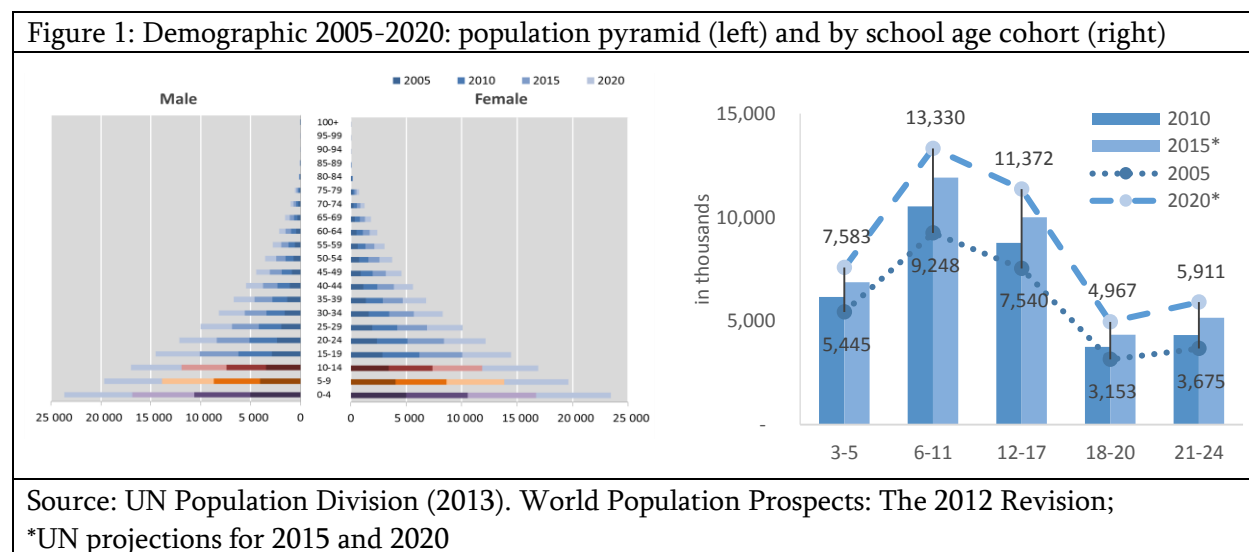
39. The structure of this report is organized into seven sections. Following the introduction, section two discusses the country context in terms of demographic dividends and available fiscal space for increasing social sector demand. Section three provides an overview of the education sector context including a chronological order of education sector policies, goals, priorities and structure. Section four analyzes key indicators of education sector performance. Section five analyzes education sector financing including budget framework and process, the key actors, sources of funding, trends of public expenditure, budget allocation and execution, equity, affordability and unit cost analyses. Section six examines education sector management issues focusing on efficiency and effectiveness of resources utilization. The analysis is followed by a summary of main findings and policy recommendations. The annex section is divided into four segments including a methodological note, supporting tables, figures and boxes for the sections listed above.

## II. Country Context

40. The DRC is the geographically largest Sub-Saharan African (SSA) country<sup>3</sup> with 2.34 million square km in surface area, and the third largest SSA population, behind Nigeria and Ethiopia, with an estimated population of 65.7 million<sup>4</sup>. The country is divided into 11 administrative provinces<sup>5</sup>, with the three largest population cohorts in Katanga (15 percent), Kinshasa (12 percent) and Bandundu (11 percent). While most of the population continues to live and work in rural areas<sup>6</sup> (61.5 percent), there has been a consistent shift towards urbanization. In 2012, 38.5 percent of the population reported living in urban areas, almost twice as much as in 1960. The capital city of Kinshasa is by far the largest urban conglomeration in the country and one of the most highly populated urban areas in the world, with an estimated population of 7.5 million, followed by Lubumbashi and Mbuji-Mayi.

### Demographic context

41. The population of the DRC is characterized by a very large youth cohort, with about 45 percent of the population below the age of 15, and an estimated 19.2 million school-aged children as of 2012. The cohort of school age children (6-17yrs) is expected to increase to 24.7 million by 2020 (Figure 1). About 50 percent of the population is female and the fertility rate, which is at 6.04 births per woman<sup>7</sup>, is among the highest in the world. The large youth composition of the country renders the education sector a key focus area for the development agenda of the country and in ensuring young Congolese are able to fully participate in the economy. The changing demographics of the DRC is an important component in understanding the stock, evolution and possible trends in the human capital accumulation of the country which is further explored in this report.



<sup>3</sup> Following the creation of South Sudan.

<sup>4</sup> Source: 1-2-3 HBS survey data. The last census survey was carried out in 1984 and the official decree for the second census survey to be held was declared in 2009. Plans to carry out the census have been pushed back until after the 2016 presidential elections. The Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat forecasts population growth rate to remain at around 2.6-2.7 percent

<sup>5</sup> According to Article 2 of the 2006 Constitution established after the elections of the same year, the DRC was to divide the country into 26 administrative provinces instead. As of 2015, this had not yet been put into effect.

<sup>6</sup> Based on 1-2-3 HBS survey 2012.

<sup>7</sup> Source of population data: World Development Indicators (WDI)

42. **The current socio-demographic, economic and political landscape of the country has been influenced by the aftermath of a major war that unfolded between 1996-1997 and 1998-2002**, and in which millions of people lost their lives. In addition, the war’s catastrophic impact on the country’s infrastructure, including the schooling infrastructure, left it reeling and the country is still today only on its path to recovery. Despite ongoing conflicts in the eastern region of the country, which highlight the fragility of the recovery process, the DRC has nonetheless shown incredible resilience both in terms of its economy and its people, and, as such, has positioned itself to become an African giant to be reckoned with.

### **Economic context**

43. **The DRC is an extremely resource-rich country, with strong disparities in natural resources across provinces.** It is particularly rich in minerals such as diamonds, copper, cobalt, coltan, oil and gold. Katanga, and to some extent the Kivu region is particularly well endowed in natural resources although the conflicts in the eastern region have been hindrances to the development of the sector in this region.

44. **Until the early 2000s, the DRC’s economic growth was extremely volatile.** This was due to erratic fiscal and monetary policies, loss of hard currency through a decline in export receipts, financial meltdown, and hyperinflation. It was further aggravated by the war that unfolded during the 1990s. Bolstered by the ending of the conflict in 2002, the country’s economic performance bounced back, further strengthened by a simultaneous recovery in mining prices on international markets. Since 2010, the growth rate has been robust, indicative of the strong fundamentals in the economy (Table 1).

45. **However, despite a strong aggregate economic performance and a more stable macroeconomic outlook, there has been limited improvement in key socio-economic indicators<sup>8</sup>.** Real GDP per capita grew by an average of 3.1 percent between 2005 and 2012 (Table 1) and remains much below the average for low-income countries<sup>9</sup> (1933.9 USD in 2013, WDI). In parallel to this moderate increase in real per capita GDP, poverty incidence has only marginally improved, decreasing from 71.3 to 63.4 percent<sup>10</sup> between 2005 and 2012.

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Real GDP growth rate	6.1	5.3	6.3	6.2	2.9	7.2	6.9	7.2	8.5
Real GDP per capita growth	3.1	2.4	3.3	3.3	0.0	4.1	4.0	4.5	5.9
GDP per capita (PPP, current international \$)	555.4	568.6	587.3	606.5	606.7	631.8	656.8	684.8	723.0

Source: The World Bank Group

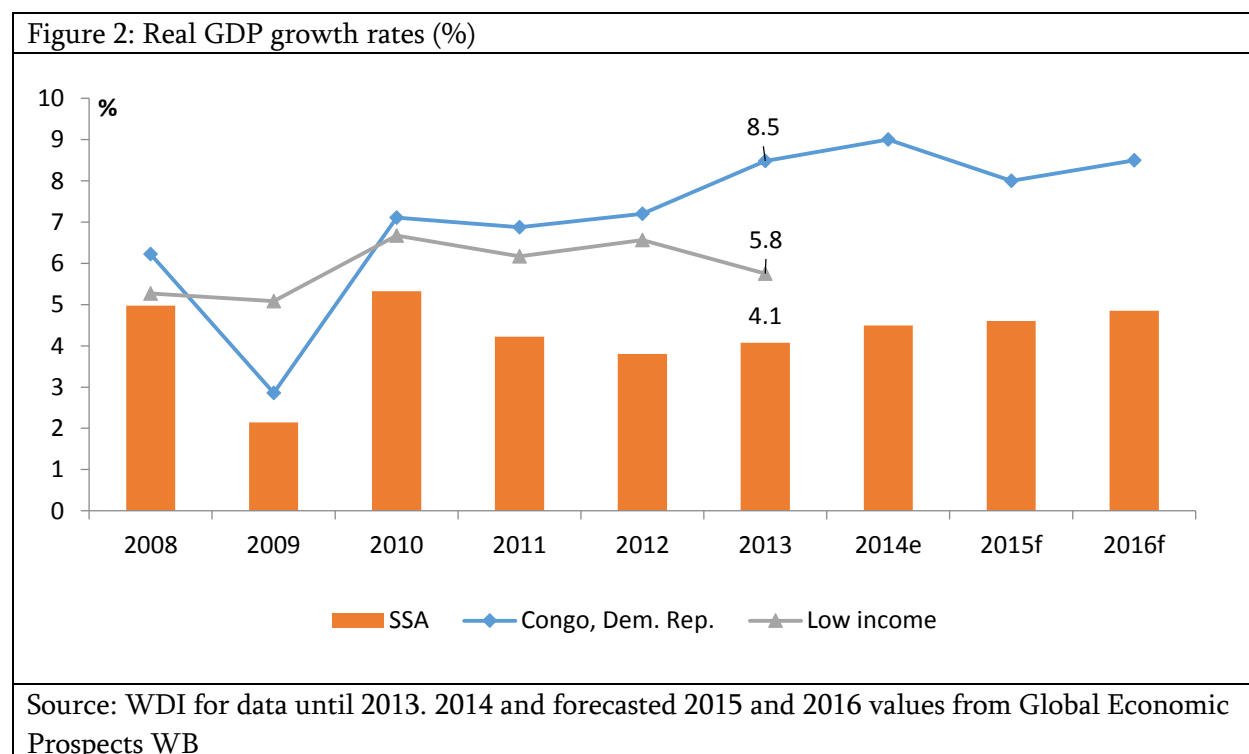
<sup>8</sup> It is important to note that the DRC ranked 186 out of 187 countries in the latest HDI 2013 rankings. Life expectancy for females in 2013 was estimated at 51.8 while male life expectancy was estimated at 48.2 years.

<sup>9</sup> DRC had the 6th lowest real GDP per capita among SSA countries in 2013, following Burundi, Eritrea, Malawi, Madagascar and the Central African Republic.

<sup>10</sup> Poverty reduction was driven mainly by rural areas where the incidence dropped from 75.8 to 65.2 percent over the 2005-2012 period. Urban poverty rates dropped from 61.8 to 60.4 percent during the same period.

46. At the regional level, GDP growth in the DRC has consistently outperformed the Sub Saharan African average (4.1 percent in 2013) as well as the low-income countries average (5.8 percent in 2013) since 2010. The DRC continued to display strong economic growth in 2014 with a forecasted real growth rate of 9.0 percent. This robust growth trend is expected to continue into 2015 with forecasted real growth rates of 8.0 percent (Figure 2).

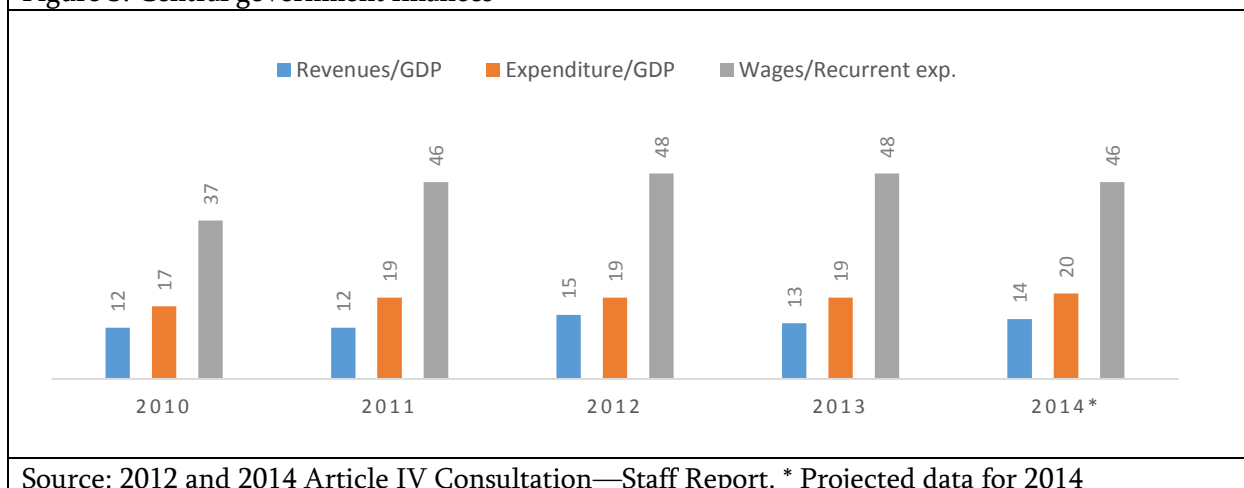
47. GDP growth is mainly driven by the extractive industries, specifically the mining sector which contributed over 18 percent of GDP<sup>11</sup> on average in 2010-2013. Despite the growing prominence of the mining industry, the services sector remained the largest contributor to GDP (41 percent) over the period 2010-2013 although its contribution to GDP has been on the decline since 2006. Meanwhile the agricultural sector contributed 7.0 percent of GDP over the same period.



48. Despite a difficult fiscal and monetary environment, macroeconomic stability has improved in the DRC but there are still important challenges. The public finances indicate that while total revenues averaged 13 percent of GDP between 2010 and 2014, total expenditures amounted to 19 percent of GDP over the same period (Figure 3). Recurrent expenditures comprise mostly salaries (wage bill) which is equivalent to 48 percent of recurrent expenditures in 2013 and projected to be 46 percent in 2014.

<sup>11</sup> In particular, production of copper increased by 90 percent while production of coltan quadrupled between 2010 and 2014. Gold production more than doubled between 2013 and 2014, the highest production peak in over 20 years, in large part due to new mines opening in the east of the country- Mining production data source: Banque Centrale du Congo publication "Condensé Hebdomadaire D'informations Statistiques No1./2015".

Figure 3: Central government finances



Source: 2012 and 2014 Article IV Consultation—Staff Report. \* Projected data for 2014

### III. Education Sector Context

49. This chapter provides a brief outline of the evolution of the education sector in the DRC and helps in understanding how the country’s complex history brought about the current education structure. The chapter will also describe the current administrative and management system for all levels of education and will examine the sector strategy to better understand how the education sector goals and priorities have evolved.

#### Education system evolution and structure

50. **The education system in the DRC was first introduced in the early 1900s, by Belgian missionaries during the early colonization period<sup>12</sup>.** The initial purpose was to instruct indigenous people so that they could read and write in the language of the administrative authority as well as advance religious education. In 1926, the first informal education system, known as foyers d’apprentissage, started to develop across the colony to impart home-economics skills to women and help men learn a trade. The education sector however remained relatively unsophisticated. Between 1935 and 1940, many of these foyers d’apprentissage, still under the management of the religious organizations, were upgraded to crafts’ schools (écoles artisanales des métiers) and middle schools (école moyenne) which supplied the Congolese administration with a qualified workforce capable of occupying positions in the colonial administration.

51. **The first secondary schools were introduced in 1948. Six years later, in 1954, the first university of the DRC, Université de Lovanium<sup>13</sup>, was created by the Catholic Church and was financed and managed by the Catholic University of Louvain, although it also received substantial subsidies<sup>14</sup> from**

<sup>12</sup> The DRC was colonized by Belgium from 1908 until its independence in 1960.

<sup>13</sup> Known today as University of Kinshasa

<sup>14</sup> The subsidy covered the staff salaries, half of missionaries’ salaries, half of the non-salary operating costs, three-quarters of the maintenance costs and purchase of materials, three-quarters of student maintenance costs and 70 percent of construction costs- B. Lututala Mumpasi (2002). « Pertinence et Effets Pervers de la Privatisation de l’Enseignement Supérieur et Universitaire en République Démocratique du Congo. » Travaux et Recherches de l’Université Kongo, October 2002.

the colonial authorities. In 1956 the second university, Université Officielle du Congo<sup>15</sup>, was created by the colonial administration and was affiliated to the Universities of Bruxelles, Liège and Gand. A second private university, Université Libre du Congo<sup>16</sup>, was created by the Protestant Church in 1963. In parallel, 14 Instituts Supérieurs Pédagogiques (ISPs) and Instituts Supérieurs Techniques (ISTs) were created between 1965 and 1966 to train the countries' teachers and professionals.

52. **Following the advent of the Mobutu regime in 1965, the education sector in the DRC experienced significant changes, most prominently the nationalization of schools- a process referred to as l'étatisation.** The first phase of l'étatisation in education began in 1971 when all higher education institutions, both private and religious institutions, were centralized under the National University of Zaire or UNAZA. In 1974, the second phase of l'étatisation was extended to primary and secondary schools, which were removed from the management of religious organizations.

53. **Control over the management of the schools was returned to the local communities in 1977 through an agreement between the government and the religious organizations.** This shift was the result of the significant problems the central authorities faced in managing an over-centralized system, along with the difficult economic situation<sup>17</sup>, which was aggravated by the étatisation policy, forcing the central authorities to devolve responsibilities back to the local communities. This led local communities, religious authorities and households to assume much of the management and financing responsibilities for their local schools. In 1977, the government formalized this situation through an agreement, (Convention de Gestion des Ecoles Nationales; see Annex D Box 1) with four representative signatories from the Roman Catholic, Protestant, Kimbanguists and Islamic faiths. The agreement formally returned management of primary and secondary schools back to religious organizations although the schools still belonged to the central ministry as the organizing authority.

54. **Shortly thereafter, in 1981, higher education institutions, which had been operating as one under UNAZA, were allowed to re-establish the original universities and institutes** as separate entities, although all got the status of public establishments, irrespective of their original affiliation. Higher education remains centralized, under the management of MESU in Kinshasa, to this day.

55. **In 1986, the government introduced the first education framework law,<sup>18</sup> which, however, did not provide any further clarifications on the specific role, rights and responsibilities of the religious authorities.** The lack of a clear division of responsibilities in the administration and management of education between the public and the religious authorities persists to this day, which in turn undermines the possibility of enforcing a uniform national policy. The education system has experienced major changes since the first education framework law. Most recently, a free fee policy has been introduced and its full implementation is still ongoing<sup>19</sup>.

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<sup>15</sup> Known as University of Lubumbashi

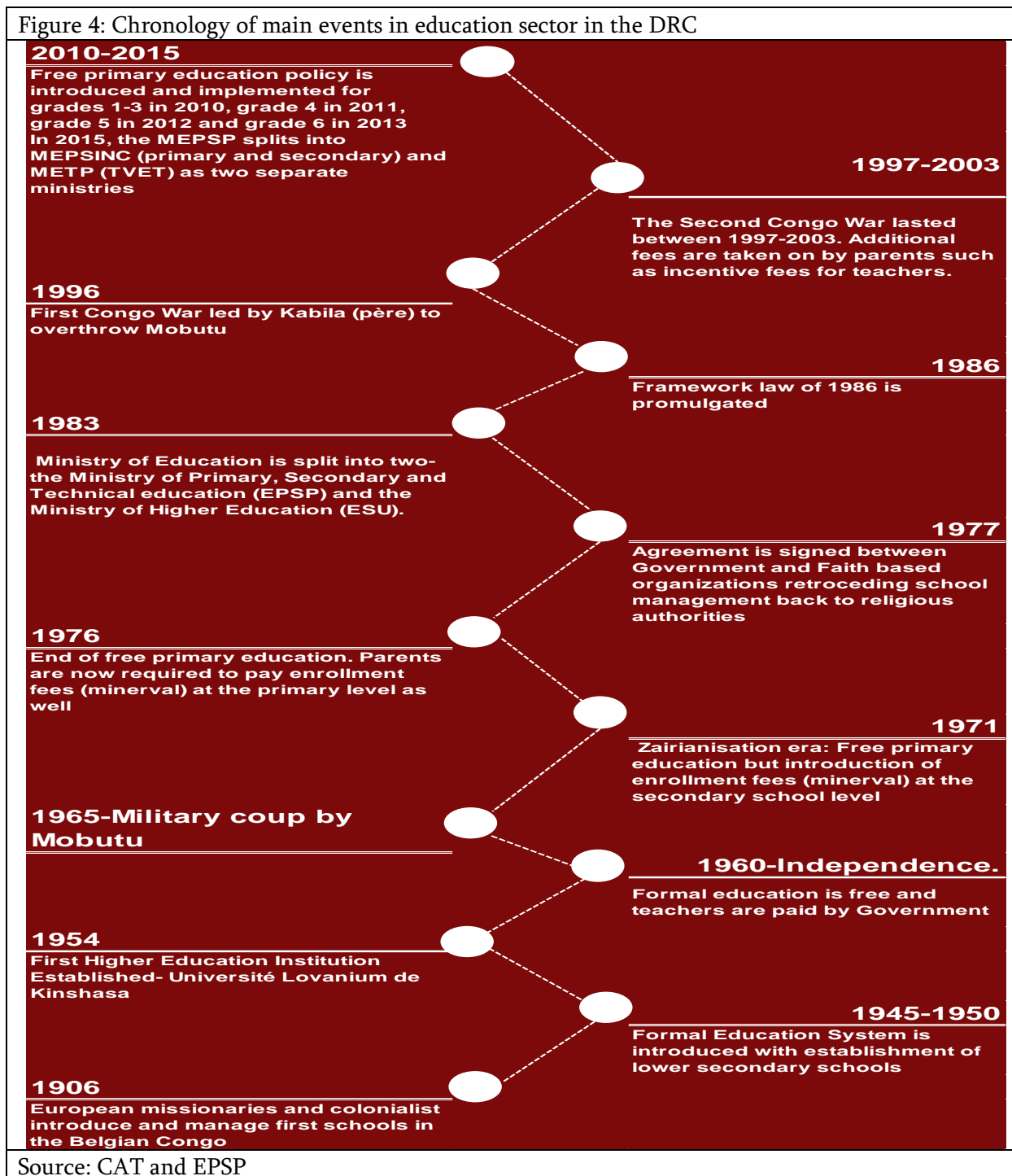
<sup>16</sup> Known as University of Kisangani

<sup>17</sup> Such as the increase in the sovereign debt, high unemployment rate, and decrease in public revenues.

<sup>18</sup> Loi-Cadre 86-005 du 22 septembre 1986 sur l'enseignement national

<sup>19</sup> A detailed discussion about the free fee policy is proposed below

Figure 4: Chronology of main events in education sector in the DRC



56. The organizational structure of the central ministries in charge of education has changed several times since independence, reflecting the shifting priorities of the sector. Between 1997 and 2003, the education sector in the DRC was administered by a single ministry of education responsible for all levels of education- primary, secondary and higher education. Since 2003, the ministry’s operations have been divided into two: (i) Ministère de l’Enseignement Primaire, Secondaire et Professionnel or

MEPSP (Ministry of Primary, Secondary and Technical and Vocational Education), and (ii) Ministère de l'Enseignement Supérieur, Universitaire et de la Recherche Scientifique or MESU (Ministry of Higher Education and Scientific Research). In parallel, the Ministère des Affaires Sociales or MAS (Ministry of Social Affairs) remained in charge of non-formal education, literacy, remedial classes, and technical training, as well as continuing adult education. However, in January 2015, the MEPSP was split in two: (i) Ministère de l'Enseignement Primaire, Secondaire et de l'Initiation à la Nouvelle Citoyenneté, or MEPSINC (primary and secondary education) and (ii) Ministère de l'Enseignement Technique et Professionnel or METP (technical and vocational Education). This new structure shifts the focus onto the Technical and Vocational Education and Training (TVET) sector in particular.

57. **The primary and secondary public school system in the DRC today is characterized by two types of schools: (i) écoles conventionnées and (ii) écoles non-conventionnées.** Both are supported by the state budget. But the conventionnées schools, which account for a large majority of the country's public schools, are managed by the different religious networks, as agreed under the 1977 convention. Both types of schools are supervised by a hierarchy of national, provincial and local offices, known as bureaux (Figure 5). For example, the Roman Catholic network is supervised by the coordination nationale des écoles conventionnées catholiques at the national level, which has an office in the capital Kinshasa and is headed by a national coordinator who is nominated by the Catholic authorities and appointed by the government. A key function of the coordination nationale is also to provide a national-level counterpart for all catholic-run schools in education matters in dealings with the central government. The coordination nationale is also the first entity to disseminate national guidance and instructions from the ministry of education to its provincial and sub-provincial bureaux. At the provincial level, the Roman Catholic network has 13 provincial coordinating offices - one in each administrative province except for Equateur and Kasai-Oriental which have 2 each, and each is headed by a provincial coordinator who is also nominated by the network and appointed by the government. The provincial level coordinating offices (CODR) are in charge of the catholic school network within their province. There are also 83 sub-provincial bureaux in the catholic school network, which supervise the schools at the local level. These bureaux play an essential role in the management of the schools, including decisions about recruitment, deployment, and promotion of teachers<sup>20</sup>. School heads are nominated by the provincial coordination and appointed by the governor. The needs in terms of teaching staff are identified by the schools directly. According to the regulations, schools are required to have 1 teacher per classroom at the primary level, and 1.5 teacher per classroom in secondary education. According to the regulations, staffing needs are transmitted to the central authorities by the directors of the bureaux (conseiller résident). The selection of candidates is performed at the school level and approved by the director and submitted to MEPSP's Service de Contrôle de la Paie des Enseignants or SECOPE, (the teacher payments oversight service), which is in charge of hiring teachers and issuing an identification number used for salary payments, which is, by law, a cost assumed by the central ministry.

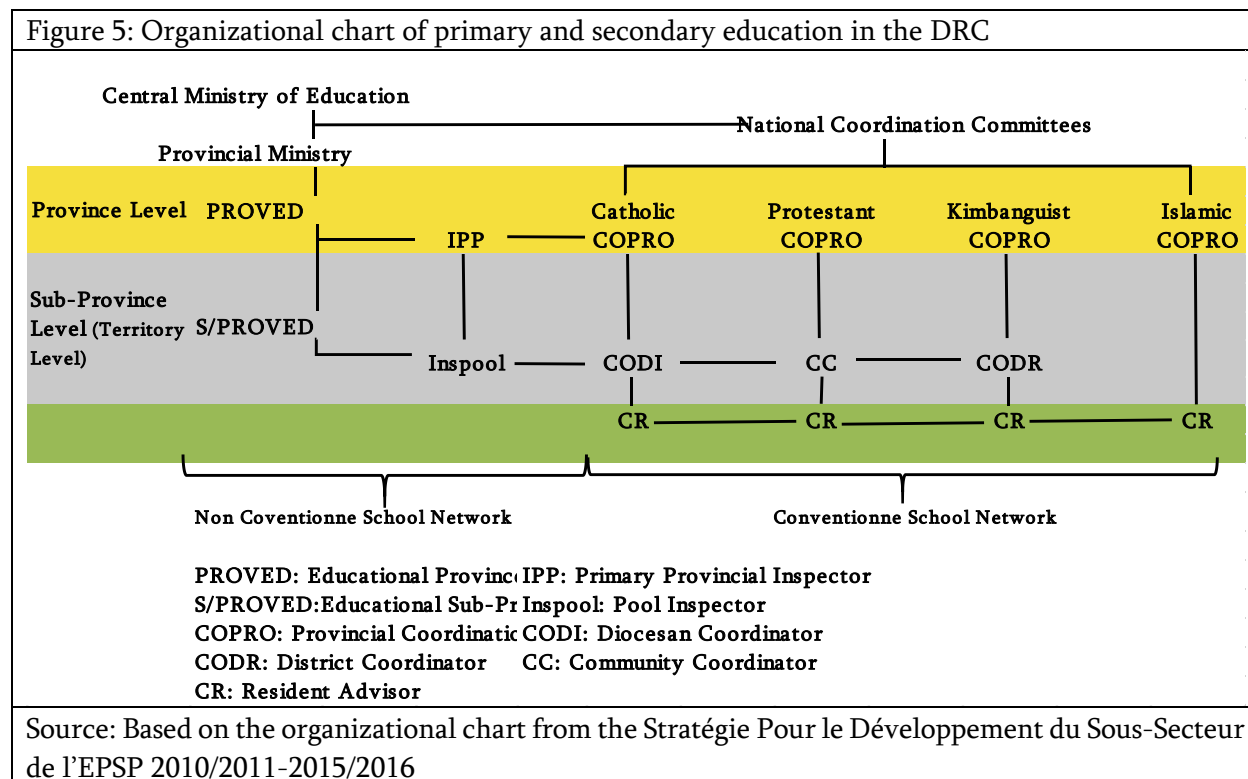
58. **The non-conventionnées schools, are typical public schools, managed and operated by the government.** The non-conventionnées schools are under the administrative control of the PROVED- the province level education bureau, which is under the local governor's administration, but is also accountable to the MEPSP, and the Sous-PROVED, at the sub-provincial level (Figure 5). The school head is appointed by the governor upon recommendation of the PROVED. The school heads, together

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<sup>20</sup> Source: Education in the Democratic Republic of Congo: Priorities and Options for Regeneration, World Bank 2005.



with the school-based management committees, are in charge of the academic, administrative and financial management of funds received- either from the state or from parent contributions<sup>21</sup>.



59. There were 67,068 public pre-primary, primary and secondary schools across the DRC in 2012 and about 17.2 million children enrolled. Most children (70 percent) are enrolled in the public conventionné school network while 18 percent enrolled in public non-conventionné schools and 12 percent in private schools (Figure 6).

60. Private schools are primarily present in urban areas<sup>22</sup> and, as mentioned above, account for 12 percent of enrolled pre-primary, primary and secondary students (Figure 6). Private schools are most prevalent in the provision of pre-primary education, accounting for 52 percent of children enrolled in 2012 (Figure 6). The private sector also plays a particularly big role in the capital, Kinshasa, accounting for 65 percent of schools (pre-primary to secondary) and accommodating over 55 percent<sup>23</sup> of students, the highest private school participation in the country. Private schools are represented at the national level by the Association Nationale des Ecoles Privées Agréées or ASSONEPA (national association of approved private schools)<sup>24</sup>.

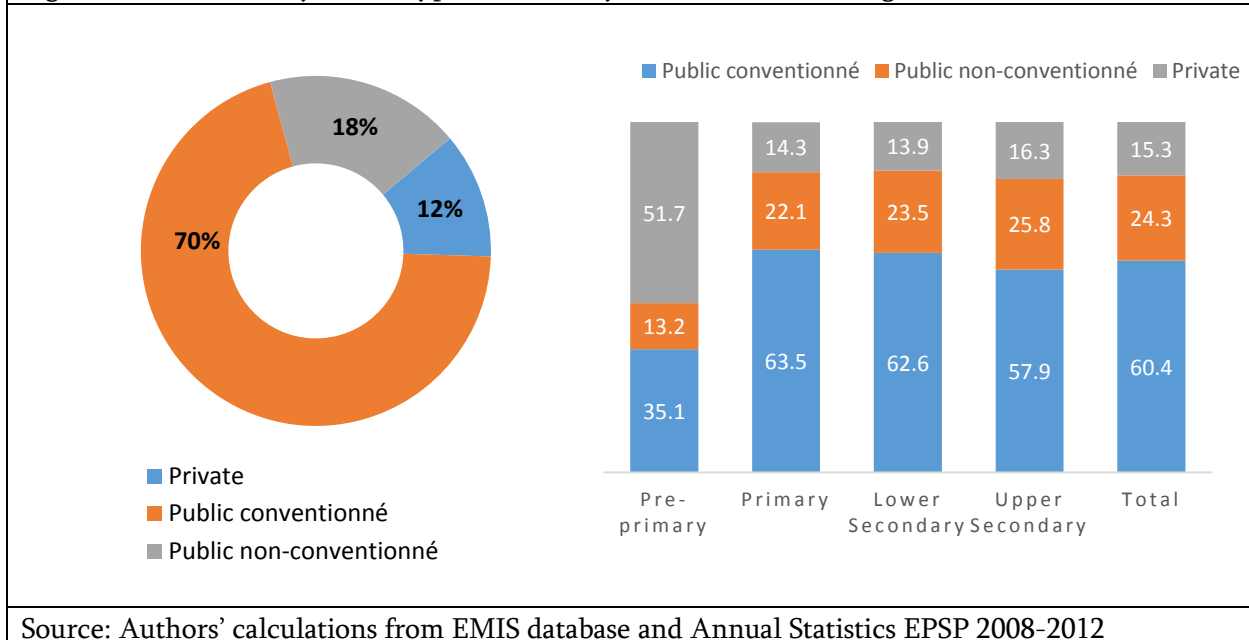
<sup>21</sup> The scope of the responsibilities of the school head has narrowed since the 'bancaisation' took effect in 2013 effectively requesting all teaching staff paid by the government to have their salaries directly paid to their bank accounts. According to the Public Expenditure Tracking Survey (PETS) carried out in the wake of its implementation, officials have reported considerable reduction in leakages at all stages even though many teachers still remain off-payroll

<sup>22</sup> 2012/2013 EMIS data indicates that 81 percent of private institutions are in urban areas.

<sup>23</sup> Source: EMIS 2012/2013

<sup>24</sup> The ASSONEPA represents the interests and concerns of the private sector at the national level, while providing a platform for the private education providers to continually improve on quality of education provided, as was the focus of their latest general assembly in October 2014

Figure 6: Enrollment by school type (left) and by level of education (right)



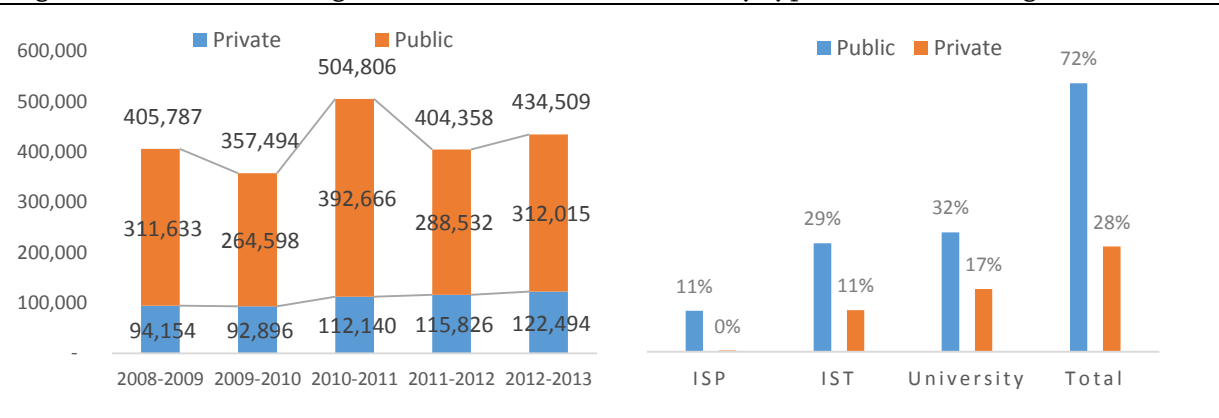
Source: Authors' calculations from EMIS database and Annual Statistics EPSP 2008-2012

61. As indicated earlier, all public universities, higher pedagogical institutes (ISP) and higher technological institutes (IST), fall under the authority of the MESU. Each type of higher institution is represented by an administrative council within the ministry and each council<sup>25</sup> is in charge of establishing the policy and objectives for that type of institution as well as regulating the courses and programs offered in their respective establishments. In addition to regulating the activities and operating guidelines of the institutions, the central government is in charge of appointing the head of the higher education establishments- rectors at universities and Directeur Général for institutes. The ministry is also in charge of quality control, ensuring students are eligible to obtain their degree before they can graduate. Establishments must also obtain the consent of the Ministry in order to approve any new courses or programs as well as any new institution construction project.

62. **The private sector plays an important part in the provision of higher education in the DRC.** Enrollment in the private sector has increased by nearly 30 percent between 2008/2009 and 2012/2013, although the majority (72 percent) of students remain enrolled in public institutions (Figure 7). Private universities must be accredited by MESU under strict baseline standards, in accordance with the stipulations of the framework law.

<sup>25</sup> The councils are made up of appointed representatives from the higher education establishments, government and employers.

Figure 7: Enrollment in higher education- trend (left) and by type of institution (right, 2012).



Source: Authors' calculations from EMIS database and Annual Statistics EPSP 2008-2012

### Structure of the education system

63. **The DRC's education system follows a 6-2-4-3-2-4 structure** with 6 years of primary education, followed by 2 years of lower secondary and 4 years of upper secondary education. The students then complete the first two cycles of higher education in 3 years for the bachelor degree followed by 2 years for the masters and an additional 3-4 years for the doctorate, as per the new Bachelors-Masters-Doctorate (BMD) system adopted in the new 2014 framework law (Figure 8).

### Pre-primary education

64. **Under this system, the pre-primary cycle targets children aged 3-5 years old but remains non-compulsory and largely an urban phenomenon.** As mentioned earlier, it is also mostly provided through the private sector. The curriculum is focused on developing early childhood: basic psychomotor and learning skills, using the local language medium. Despite low participation, pre-primary education is an important part of the sector plan to increase enrollment, improve on-time entry, and increase readiness of the children to fully participate in the primary cycle.

### Primary education

65. **Schooling officially begins with the primary education cycle, which lasts 6 years for children aged between 6 and 11 and is compulsory.** This cycle is divided into three levels of two years each- elementary, middle and terminal. The end of the primary cycle is marked by a national examination, TENAFEP (Test national de fin d'études primaires), which is administered to all grade 6 students. The exam is designed by the education authorities at the province level and tests students on three disciplines: (i) mathematics, (ii) French and (iii) general culture<sup>26</sup>. The results from the TENAFEP examination are combined with the child's school grade to determine whether the child has satisfactorily completed the primary education level and can be issued the primary school leaving certificate (Certificat d'Études Primaires -CEP) and advance to lower secondary school. Obtaining the CEP, and therefore passing the examination, is a pre-requisite for transitioning into the next level of education.

<sup>26</sup> Given that the exams are designed at the province level, cross-province comparisons are not entirely accurate.

## Secondary education

66. **Secondary education targets the cohort of students aged 12-17 years old and can last up to 6 years, depending on the students' chosen academic path.** Secondary education consists of two main options: (i) the long cycle (cycle long) and (ii) the short cycle (cycle court). There are three streams<sup>27</sup> offered in the long cycle: (i) general education, (ii) pedagogical and (iii) technical. The first two years of secondary level (lower secondary) are common to all students, regardless of their chosen stream. At the end of the common core period of two years, students opt into their specialization within their chosen streams, which they complete over the next four years (upper secondary level). As with the primary level, the end of the secondary 'long cycle' is marked by a national examination (Examen d'État), which is prepared and administered by the National Examination office, the coordinating office under the MEPSP. The result from the examination is combined with the school grade to determine whether the student has successfully passed and can obtain their national certificate (Diplôme d'État). The short cycle, on the other hand, consists of a five-year vocational stream (two years of lower secondary followed by three years of vocational courses). Upon completion of the vocational stream, students obtain either a diploma BAP (Brevet d'aptitude professionnelle) or certificate CAP (Certificat d'aptitude professionnelle). There are also trade schools, which offer three years of artisanal training where students can obtain specific trade skills.

67. As mentioned above, each student specializes within his or her chosen stream. There are 26 different options to choose from within the general and pedagogical fields and 23 within the technical field. These options are very broad and further inspection of their relevance in the context of modern-day DRC is needed to adequately revise and update the curriculum. The vocational course program has already begun to streamline the courses offered to students down to 10 choices<sup>28</sup>.

## Tertiary education

68. **Access to higher education is conditional on having successfully obtained the national certificate (Diplôme d'État) at the end of the secondary cycle,** although some institutions also grant access to students if they pass the university's common entrance examination. As mentioned earlier, while the new structure of higher education was adopted in the framework law of 2014, the existing structure within universities at the time of this report still consisted of: the first cycle of 3 years, followed by the second cycle of 2 years for the license (the traditional basic undergraduate degree), and the third cycle of 2 years for the Diplôme d'études supérieures (DES/DEA – the first graduate degree). For medical doctors and veterinarians, the third cycle of higher education takes 3 years instead of 2. Doctorate degrees take between 3 to 4 years to complete after the license.

69. The new framework law for the education sector outlines fundamental legislative changes, leading to the adoption of the 'Bologna Process' which refers to the agreement first signed in that Italian city by the 30 member countries of the European Higher Education Area to harmonize the standards and quality of higher education provision across member states (see Annex D **Error! Reference source**

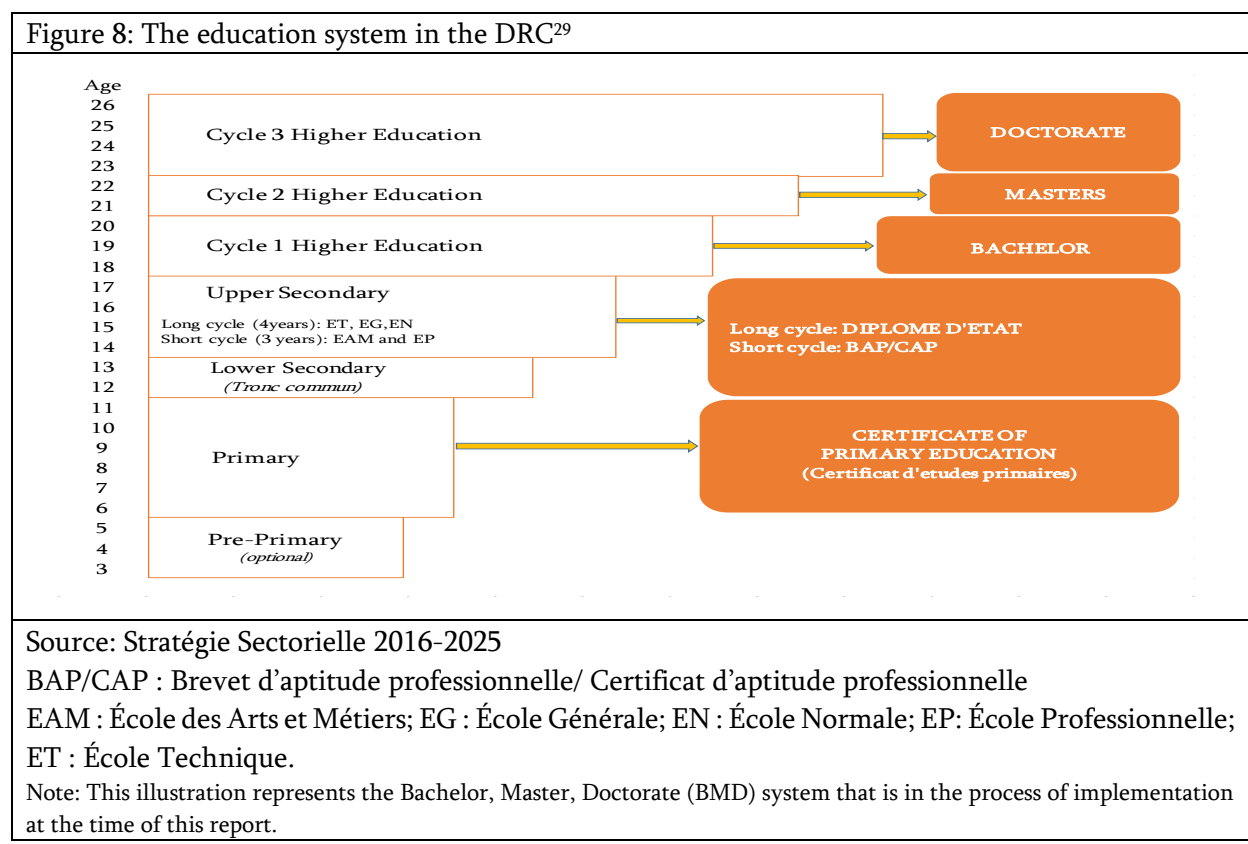
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<sup>27</sup> Students who have obtained the national diploma in the pedagogy stream of the long cycle are qualified to teach at the primary education level. While the general stream prepares students to go into higher education, the pedagogical stream provides the first phase of training of teachers and the technical stream focuses on specific trades and skills. Generally, all three streams are offered in the same secondary school.

<sup>28</sup> These include (i)construction, (ii)dressmaking, (iii)electricity, (iv)electronics, (v)esthetic, (vi)air conditioning and cooling, (vii)mechanics, (viii)carpentry, (ix)plumbing and (x)secretarial skills. It has been streamlined from a previous 33 categories in 2005.

ot found.). One of the goals of this process is to allow for increased mobility of the workforce through a harmonized higher education certification process. The adoption of these standards facilitates the mobility of educated members of the Congolese workforce through international recognition of their degree. At the same time the reform shortens the first and second cycles of higher education to more efficient durations. In fact, the new BMD (Bachelor’s- Master’s- Doctorate) system shortens the Bachelor’s degree to 3 years, from 5; it creates a 2 year Master’s program, and a doctorate lasting 3 – 4 years. This would shorten the first and second cycle of higher education by two years, allowing Congolese ‘licenciés’ (graduates of an undergraduate program) to join the labor market 2 years earlier than before.

70. As mentioned previously, there are three types of higher education institutions charged with providing tertiary education services: (i) universities, (ii) technological institutes (Instituts Supérieurs Techniques –IST) which train engineers and (iii) pedagogical institutes (Instituts Supérieurs Pédagogiques- ISP) in charge of training teachers. At the ISTs, it takes 3 years to be a technical engineer and an additional 2 years to become a full engineer. At the ISPs’ the first cycle (3 years) leads to a ‘graduat en pédagogie appliquée’ which qualifies them to teach the first four years of secondary school while the second cycle yields a ‘licence en pédagogie appliquée’ which qualifies students to teach the last two years of upper secondary.



<sup>29</sup> EAM: Écoles des Arts et Métiers (School of arts) ; EP: Écoles professionnelles (Secondary vocational education); ET : Écoles techniques (Technical education), EG : Écoles Générales (General education); EN : Écoles Normales (Teacher training centers).

## Evolution of sector goals and priorities- education sector strategy

71. Steering the education sector in the right direction in order to address its most pressing needs and plan for its development requires a clear understanding of the issues at hand, their causes and the most effective ways to respond. This vision is outlined in the government's sector strategy.

72. **In its 2010-2015 sub-sector plan, the MEPSP outlined three strategic objectives:** (i) improve access, affordability, equity and efficiency, (ii) improve quality of education and relevance of the educational program, and (iii) strengthen governance capabilities. The plan was implemented through the Plan Intérimaire de l'Education (PIE – interim education plan), which lays out the programmatic implementation of the sector strategy. The strategy calls for each education level to seek to improve its target indicators across all three objectives. A summary of targets and goals outlined in the 2010-2015 strategy is provided (Table 2).

73. **Pre-primary level:** The strategy aims to improve access to education, starting with increased participation in pre-primary education, which, in addition to improving the likelihood of on-time enrollment in primary, also increases preparedness for primary school, raising quality of the experience throughout the child's educational career. The target is to increase pre-school enrollment from 3 to 15 percent of children in 2015. The aim is to raise awareness of the benefits of pre-primary activities through community based early childhood centers and sensitization campaigns.

74. **Primary-level:** The primary education level has the most comprehensive and largest portion of the programmatic implementation of the sub-sector strategy. This is mostly driven by the emphasis on achieving universal primary education in line with the MDG goals. In particular, three priority axes have been identified to achieve this key target: (i) increasing affordability of education by ensuring the State provides for all school fees and charges that are currently being paid for by households (frais de motivation and frais de fonctionnement being the two main ones), (ii) integration of out-of-school children into the education system, and (iii) targeted support to girls to help increase their chances of completion of primary education level.

75. **The Free Primary Education policy (a.k.a. "La Gratuité") is one of the most recent flagship initiatives undertaken by the Government to help fulfill the 2006 constitutional provision under article 43 to this effect.** The flagship policy is geared towards alleviating the financial burden for households by having the state pay the school fees, which have been so far financed directly by households (see Annex Table 1 for detailed description of types of fees collected at school level). The policy was implemented in stages, first for grades 1-3 in 2010/2011, followed by grade 4 in 2011/2012, grade 5 in 2012/2013 and grade 6 in 2014/2015. Under a proviso of the law, this policy targets all fees and direct contributions made by parents that directly sustain the education system. This includes teacher bonus fees (frais de motivation) as well as administrative fees (frais de fonctionnement) among others. The frais de motivation represent the largest component of costs borne by the parents in the functioning of the education system. Article 76 of the 2014 framework law also stipulates that textbooks and school supplies are covered under the free education policy. It is important to note that the policy does not cover other associated education costs such as uniforms and shoes, which remain the responsibility of households.

76. With respect to **integrating out-of-school children** into the formal education system, the sector also made provision to increase its capacity. It includes the recruitment of additional teachers as well

as construction of additional classrooms, and provisions for other essential infrastructure such as desks, toilets, water points, and other necessary equipment.

77. **Other key measures** target the reduction of dropout rates through health screening tests and potential deworming combined with other health measures to address chronic illnesses that may be keeping children away from school. In addition, there is a notable effort to increase the quality of education with special emphasis on increasing reading levels. As such the sector strategy plans for the acquisition and distribution of textbooks in math and reading<sup>30</sup>.

78. **Secondary level:** At the secondary level, the sector strategy makes provision for construction of additional classrooms along with other key infrastructure such as toilets and equipment—facilities similar to the undertaking at the primary level. A second important component of the sector strategy involves the re-evaluation and revamping of the school curricula and programs to ensure coursework is up to date.

79. **Vocational:** The sector strategy at the vocational training level focuses on improving the curricula and school programs as well as an emphasis on adequate provision of laboratories and workshop space to carry out the practical part of the training. These are both essential in training the students in relevant fields and providing them with the best hands-on training to ensure their preparedness to join the workforce and labor market.

80. **A key cross-cutting component of the sector strategy for all levels of education involves the regeneration of the teaching profession (revalorization de l'enseignement)** something that has been a key concern in the education sector and which feeds directly into the ultimate goal of improving quality of education. The strategy considers a holistic approach to improving the teaching profession including measures to implement higher and more punctual remuneration, strengthening of the teacher training educational programs as well as improving in-job training, and the establishment of a clear and more effective policy regarding the deployment of teachers. In the same vein, the strategy also discusses the uniform salary zoning policy, which has been an important issue at the center of discussions on how to improve quality of education. Prior to 2007, the DRC was divided into three salary zones, with Kinshasa and Katanga providing higher salaries than the rest of the provinces, which had been a source of tension and conflict among teacher unions. In 2007, the MEPSP reduced the salary zones to just 2 zones- Kinshasa and the rest of the provinces. Today although there is technically one salary zone, Kinshasa teachers still receive a transportation premium<sup>31</sup>.

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<sup>30</sup> The strategy is expected to provide 1 math and 1 reading textbook per 2 students for grades 1-4 and 1 math and 1 reading per student for grades 5 and 6. 1 science textbook will be made available per 2 students for grades 3-6.

<sup>31</sup> An additional provision in the strategy of MEPSP 2010-2015 is increasing SECOPE's budget from 0.1% of recurrent spending to 5%.

Education sector	Objective	Base 2007/2008	Target 2015
Pre-primary	Enrollment rate	3%	15 %
Primary	Gross enrollment rate	82%	118 %
	Gender parity index	0.84	1
	Primary completion rate	43%	83%
	Promotion rate	78%	88% (2013-2014)
	Repetition rate	15%	7% (2013-2014)
	Dropout rate	8%	5% (2013-2014)
	Proportion of female teachers	27.1% (2010)	35%
	School fee contributions/student/year	\$15.60	\$0
	Investment in regeneration of teaching profession (% of wage bill, per year)		5%
	Textbooks per child (reading and math)		2/3
	Teaching guides and textbook for teachers (reading and math; per teacher)		2
	Secondary	Survival rate	75%
Repetition rate		16%	10% (2013-2014)
Investment in regeneration of teaching profession (% of wage bill, per year)			5%
Primary and Secondary	Renovation of classrooms in both primary and secondary per year		3%
	Percentage of double shift classes and multigrades	0.1%	5% (2013-2014)
	Onboarding of all teachers on payroll- 'Mécanisation'		100%
Vocational	Renovation of classrooms for technical secondary or vocational per year		3%
	Construction of specialized classrooms		120
	In-job training (% of secondary-level wage bill, per year)		4%

Source: Stratégie pour le développement du sous-secteur de l'EPSP, 2010/2011- 2015/2016

81. **The 2016-2025 horizon sector strategy developed programmatic measures designed to achieve its new targets, and also discusses important institutional changes to the education landscape of the country.** In particular, as already mentioned, there are now four instead of three ministries responsible for the education system in DRC but this restructuring has not taken full effect at the time of this report.

82. **The main areas in the evolution of targets for key indicators** of education access and quality between the 2010-2015 and the 2016-2025 strategies, are presented below in Table 3. The comparisons



indicate that some indicators have been reassessed higher—such as the primary completion rate, while others have stagnated—such as the gross enrollment rate into pre-school.

Indicator	Target for 2016	Target for 2025
Gross enrolment rate in preschool	15 %	15.2 %
Gross enrolment rate in primary education	118 %	120%
Primary education completion rate	83 %	100%
Gender parity index in primary education	1	0.96

Source: Sector strategy documents 2010-2015 and preliminary 2016-2025.

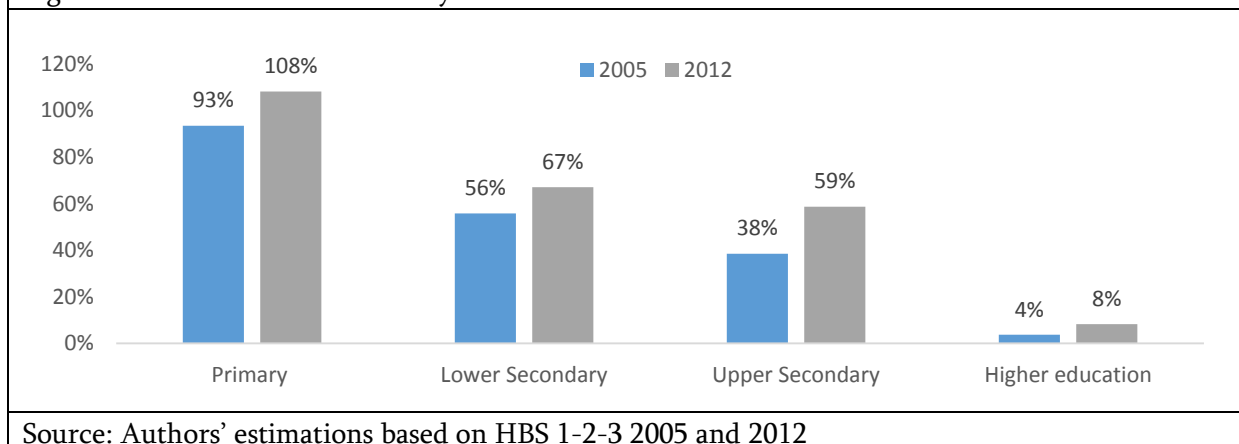
#### IV. Education Sector Performance

83. This chapter provides a broad analysis of the education sector performance in the DRC including external efficiency and human capital prospects. This diagnostic of the education sector performance centers on six main areas: (i) access (enrollment and out-of-school), (ii), progress towards achieving MDGs in education (iii) internal efficiency--dropout, repetition, delayed entry, (iv), equity based on socio-economic status, (v) learning outcomes and (vi), external efficiency. The section also examines returns to education and future human capital needs to assess whether there is a clear justification for investment on education. This highlights key labor supply and demand prospects, which may help policy makers to see future implications of current education sector spending.

##### Access (enrollment and out-of-school)

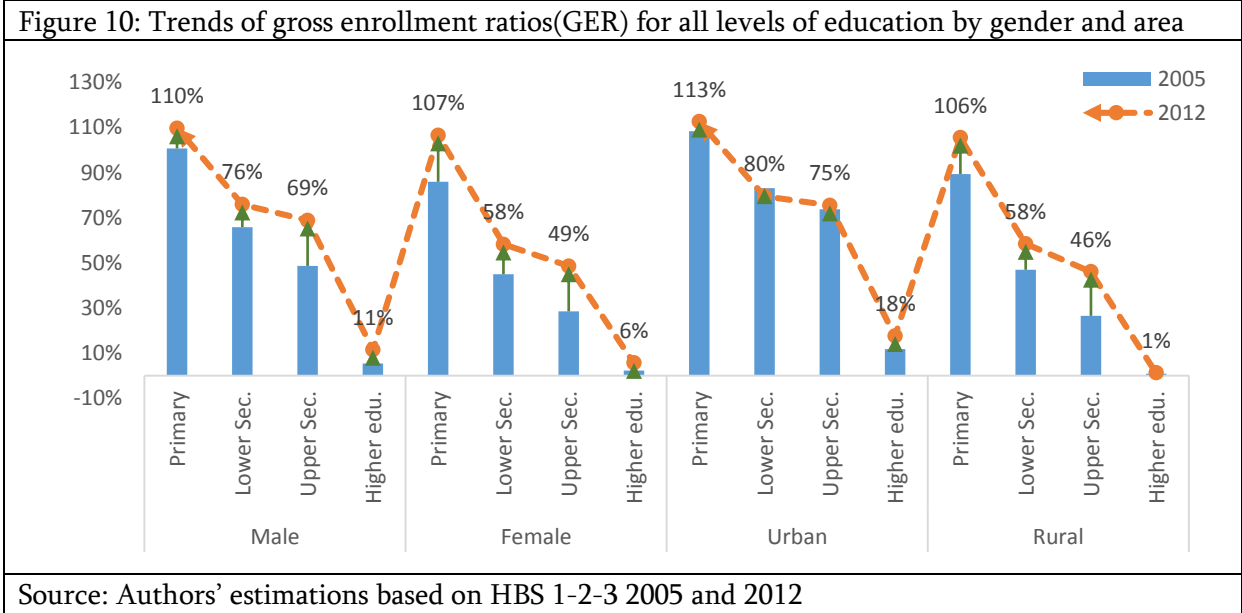
84. **The education sector in the DRC has shown consistent improvement in most of its national level education outcome indicators between 2005 and 2012.** In particular, access to education as measured by gross enrollment ratios (GER) has increased across all levels of education. At the primary level, the GER increased from 93 to 108 percent between 2005 and 2012. Although access rates are lower in both lower and upper secondary, their respective GERs have still increased from 56 to 67 percent and from 38 to 59 percent over the same period. In higher education, access rates increased from 4 to 8 percent. (Figure 9).

Figure 9: Gross enrollment rates by education level



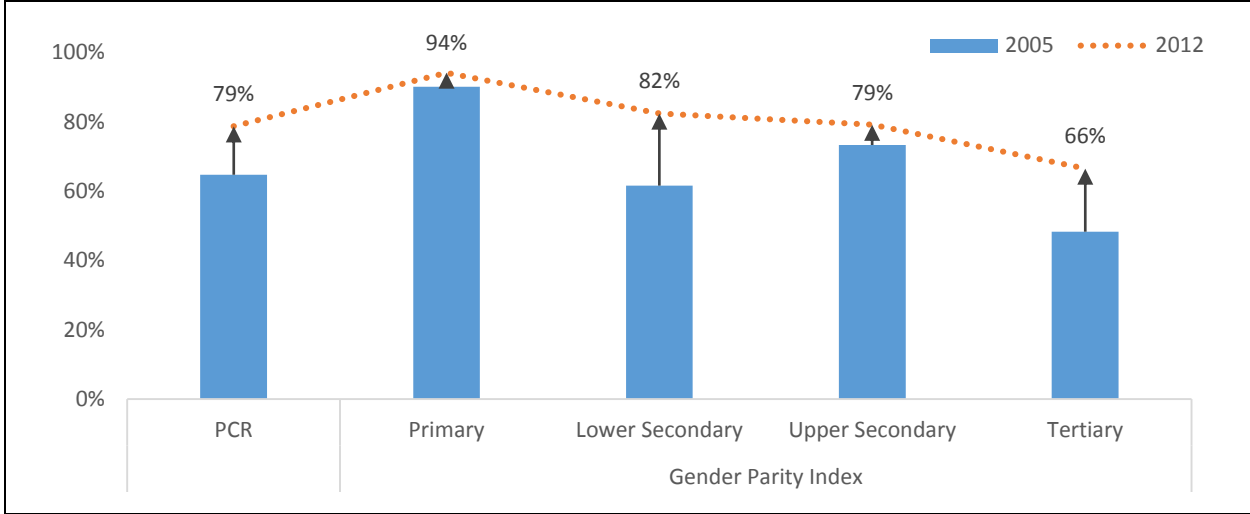
85. **Discrepancies in access by gender persisted in 2012, although the gap has narrowed significantly at the primary level** where female enrollment increased by 21 percentage points compare to only 9 percentage points for male enrollment (Figure 10). However, enrollment in lower and upper secondary, as well as in higher education reveals that the gender gap at those levels has either only marginally decreased or stagnated. For example in the lower secondary level, the gap between male and female enrollment decreased from 21 to 18 percentage points while at the upper secondary level the gap between male and female enrollment decreased from 21 to 20 percent between 2005 and 2012.

86. **The urban-rural discrepancy in GER also persisted in 2012 with rural areas still lagging behind, although the gap has been closing over time.** At the primary school level the gap closed from a 19 percentage point differential to 7 percentage points between 2005 and 2012. The urban-rural gap in GER also improved at the lower secondary and upper secondary levels, although the rural areas still remain much below the urban in GER. For example in 2012, the GER gap decreased from 36 to 21 percent in lower secondary and 47 to 29 percent in upper secondary.



87. **Primary school completion rates (PCR) have improved in tandem with gross enrollment rates, implying that students are not only enrolling more in primary school but they also tend to stay in school longer and complete the primary cycle, even though the DRC is still lagging in this MDG goals—primary completion rate and gender parity in all levels of education.** In 2012 the primary completion rate reached 79 percent, a 14 percentage point increase since 2005 (Figure 11). Most of the improvement are observed in rural areas and girls although the gap persists (Annex Figure 1). This puts the DRC at just below the average level for the SSA region which stands at 80 percent in PCR.

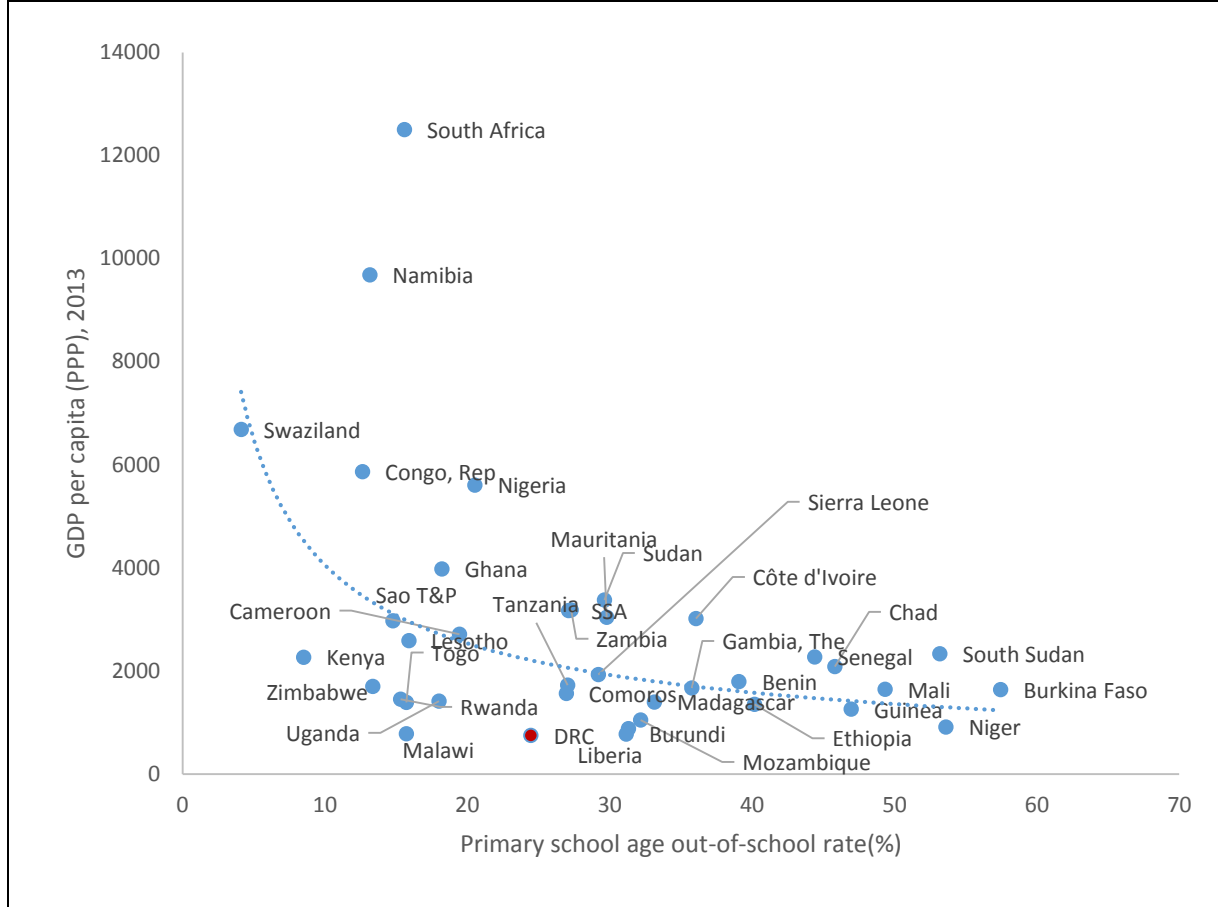
Figure 11: Trends of primary completion rate and gender parity index



Source: Authors' estimations based on HBS 1-2-3 2005 and 2012

88. **The DRC has made significant progress overall in its education goals but the large number of out-of-school children remains one of the most pressing issues facing the education sector.** Despite achieving a reduction in the out-of-school rate from 39.1 percent in 2005 to 24.8 percent in 2012, the proportion of school age children not in school is still significant. There are an estimated 19.2 million school aged children (6-17 years old) in 2012, of which about 25 percent were out-of-school, where out-of-school children are defined as children who have never been in school or who have dropped out of school. In terms of comparisons of the out-of-school rate with other SSA countries, the DRC is just below the SSA average of 27 percent and is comparatively better than many of the low income SSA countries (Figure 12). However, given that it has the third largest population in SSA, the out-of-school issue affects about 4.9 million children and is therefore still a significant problem.

Figure 12: Out-of-school rate for children of age (6-17) (%)



Source: Authors' estimations based on HBS 1-2-3 2012 for DRC out-of-school rate, and similar surveys for the rest<sup>32</sup> and GDP per capita (PPP) from WDI.

89. **Being out-of-school is predominantly an issue affecting rural areas and girls, although it has improved since 2005.** In 2012, rural areas registered 30.2 percent children out-of-school compared to 16.2 percent in urban areas, with 27.2 percent among females in DRC out-of-school compared to 22.5 percent among males (Annex Figure 2). The improvement is mainly driven by females in rural areas even though it remains still high, at 33.7 percent in 2012. About 70 percent of out-of-school children, or 17.3 percent out of the 25 percent in 2012, had never been in school at all. This was especially the case for rural school girls, 25.5 percent of whom had never been to school. In contrast about 20 percent of rural out-of-school males had never been to school. The incidence of out-of-school status is also subject to regional variations in the DRC. In particular, Annex Figure 3: Out-of-school rate for children

<sup>32</sup> Benin (2010), Burkina Faso (2010), Burundi (2010), Cameroon (2011), Chad (2011), Cote d'Ivoire (2011), Comoros (2004), DRC (2012), Ethiopia (2011), Gabon (2011), Gambia (2010), Ghana (2010), Guinea (2012), Kenya (2008), Lesotho (2011), Liberia (2010), Madagascar (2010), Malawi (2010), Mali (2010), Mauritania (2008), Mozambique (2009), Namibia (2010), Niger (2011), Nigeria (2010), Rwanda (2010), Sao T&P (2010), Sierra Leone (2011), Senegal (2011), South Africa (2012), South Sudan (2009), Sudan (2009), Swaziland (2010), Tanzania (2010), Togo (2011), Uganda (2010), and Zambia (2010), and Zimbabwe (2011)

of age (6-17) (%) by province shows that Katanga and Nord-Kivu registered the highest rates while, Maniema and Kinshasa had the lowest rate. The issue of out-of-school children in the DRC is further analyzed in later sections of this report.

### Internal efficiency

90. **As indicated, the DRC has made some important progress in its education outcomes, especially in terms of GER and PCR, but there still are important sources of inefficiencies within the system.** Dropout, repetition, delayed entry and overage rates heavily influence the sector’s inefficiencies on top of already limited fiscal space. There is huge difficulties in retaining students from beginning to end of the school year at all three education levels but about 17 percent of dropouts of primary school age re-enter the education system the following year, but a much larger portion—78 percent—tend to re-enter school at some point in their lifetime. Although preferred to dropping out of school altogether, repetition is an additional inefficiency in the system, which impacts the student’s ability to complete his or her education cycle on time, increasing the likelihood of dropping out and delaying their ability to join the labor market, and therefore reducing their lifetime potential earnings. The repetition rate in the DRC is especially high in the primary level of education, at 10.7 percent, followed by 5.9 percent in lower secondary and 6.8 percent in upper secondary (Table 4). The issue of delayed entry coupled with high repetition rates results in an average of 3.2 years wasted for the average student in the DRC (Annex Figure 4).

	Dropout (%)			Repetition (%)		
	Primary	Lower Secondary	Upper Secondary	Primary	Lower Secondary	Upper Secondary
Male	3.8	3.4	5.4	10.2	6.6	6.2
Female	3.5	3.7	3.5	11.2	5.0	7.6
Urban	3.3	3.8	5.7	9.3	6.2	6.3
Rural	3.9	3.2	3.2	11.6	5.7	7.3
Total	3.7	3.5	4.6	10.7	5.9	6.8

Source: Authors’ estimations based on HBS 1-2-3 2005 and 2012

### Equity

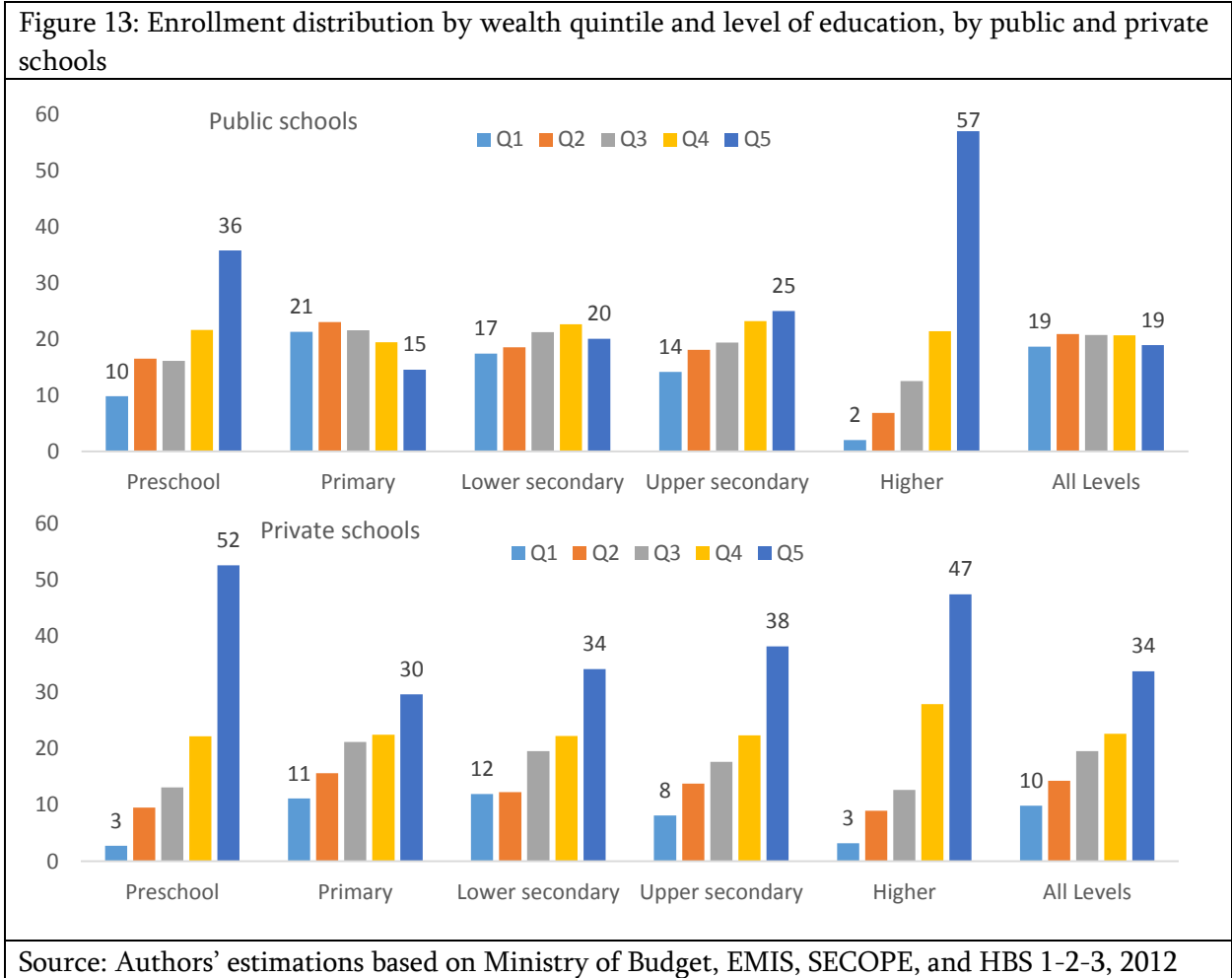
91. The analysis of enrollment by level of education, type of school and by wealth quintile<sup>33</sup> gives the opportunity to investigate the disparities in access to education across the wealth levels of the population.

92. **The poorest households are clearly disadvantaged in terms of access to education, especially private education.** Ensuring equal access to education is a key component in the education sector strategy of the DRC, in particular given education’s fundamental role in reducing poverty and inequality. Enrollment in the public school system by wealth quintile shows that pre-primary and post-primary levels are dominated by children from wealthier families. Enrollment at the primary level

<sup>33</sup> The households are classified into five different quintiles based on the household consumption levels. The 20 percent poorest in the population lies in the first quintile while the fifth quintile includes the 20 percent richest in the population.

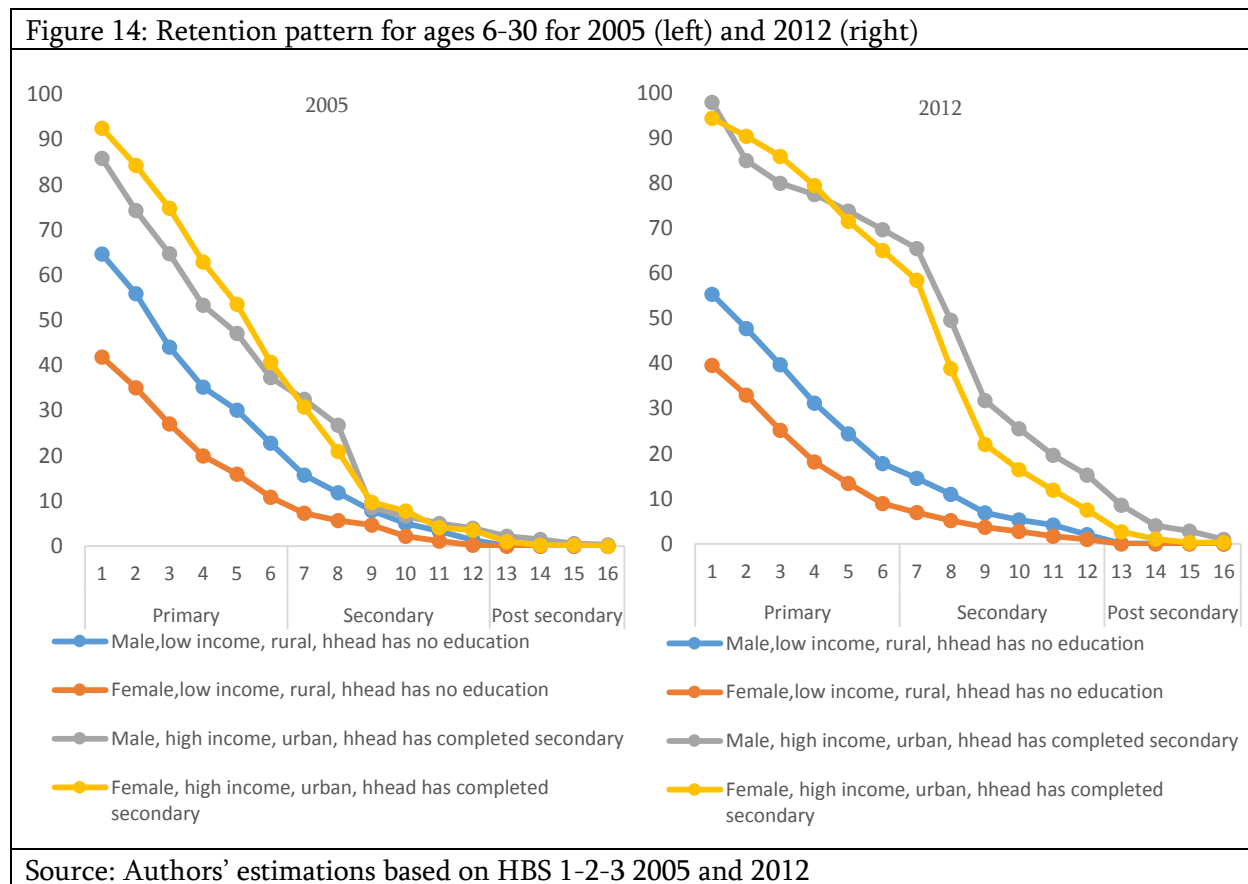
accommodates marginally more children from poor families than enrollment in other levels. (The bottom three quintiles: Q1, Q2 and Q3, are below the poverty line; 63.5 percent of the population in DRC lives below this line). In contrast, private schools favor enrollment of children from affluent families at all levels of education. This is not particularly surprising, especially given the high unit costs in private institutions at all levels of education.

93. **At the higher levels, the differences in terms of access to education across quintiles become starker.** The access to public and private higher education is the level with the greatest disparity; only 2 percent of students in public higher education, and 3 percent in private institutions are from the poorest households, while the corresponding figures from richest quintile are 57 percent and 47 percent, respectively. As expected, the private education system is a good alternative for wealthier families while the public sector remains the most viable option for the poor.



94. **The retention pattern through the education system improved between 2005 and 2012, with gains accruing mainly to the cohort of students from advantaged socio-economic backgrounds.** The analysis shown in Figure 14 compares the survival through the education system of four different cohorts from different socio-economic backgrounds, comprising specifically of male and female 6-30 year olds respectively, from the poorest wealth quintile in rural areas with a household head who has no formal education and male and female 6-30 year olds, from the wealthiest quintile in urban areas

whose household head has completed secondary education. The left figure indicates trends in 2005 and the right shows the progression to 2012. Female students from socio-economically disadvantaged backgrounds have the lowest participation and survival rate through all levels of education, tending to drop out of the system altogether by secondary school. It also shows that the situation has stagnated for females from the low cohort and regressed for males from the low cohort between 2005 and 2012. The socio-economically advantaged groups fared much better. Survival rates are the highest for these cohorts and they have improved significantly over the 2005 and 2012 period for both male and female who are equally represented at all levels of education. The improvement is especially important at grade 6 (end of primary cycle) and grade 8 (end of lower secondary cycle) indicating that these cohorts are able to stay in school longer ever than before.



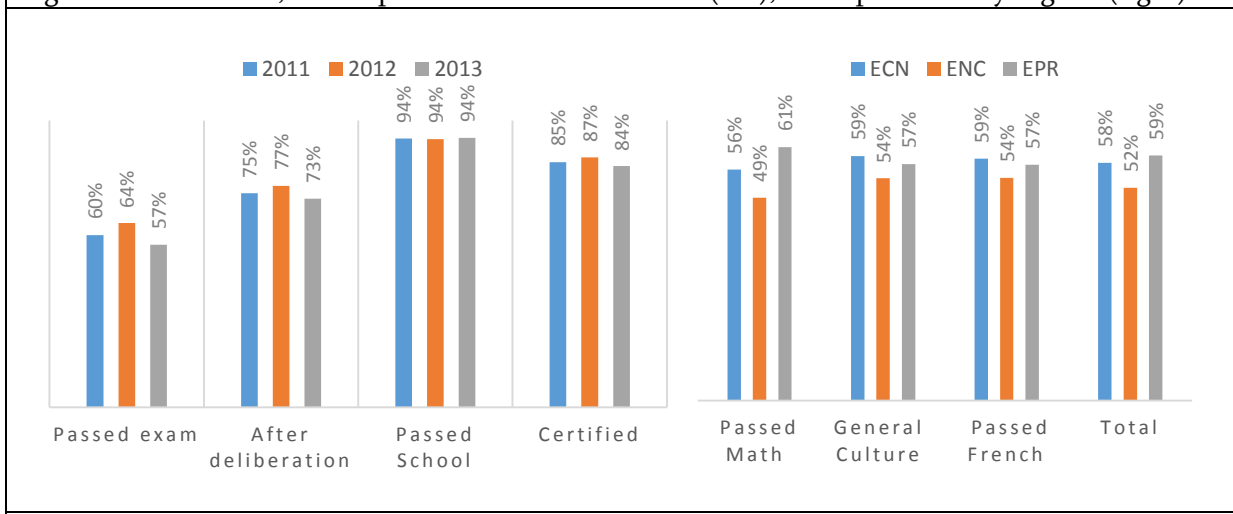
### Learning outcomes

95. **Pass rates for examinations marking the end of primary and secondary levels indicate that performance has stagnated or decreased; it also reveals variations in performance across the types of schools.** As explained in chapter III above, the end of the primary cycle is marked by the TENAFEP examination, which is administered to all grade 6 students while the Examen d'État is given at the end of upper secondary.

## Primary examination- TENAFEP

96. The performance of students on the exam at the end of primary level at the “pre-deliberation” stage shows a slight decrease in pass rates between 2011 and 2013. (After students take the TENAFEP exam, a deliberation panel examines and adjusts the final scores). In 2013, 1.12 million<sup>34</sup> children took part in the TENAFEP examination, 44 percent of whom were girls. About 57 percent passed (pre-deliberation), the lowest rate since 2011, although post-deliberation, the pass rate increased to 73 percent. Trends show that post-deliberation pass rates tend to be between 13-16 percentage points higher than pre-deliberation levels. In contrast, the school passing rate was on average about 94 percent and in 2013, 84 percent of students obtained their CEP (the primary school leaving certificate; Figure 15). The disparity between the examination pass rates (pre- and post-deliberation) and the share of students obtaining their primary level certification raises concerns about the readiness of students to successfully transition into the lower secondary level of education, as it may not reflect the child’s actual knowledge base. Performance on the exam tends to be better among male students and in rural areas pre-deliberation although urban areas make up the gap in post-deliberation (see Annex Table 2). The TENAFEP results by type of school, that is public conventionné, public non-conventionné and private, indicate that overall, private schools tend to perform marginally better and that between the two public school regimes, the conventionné schools tend to outperform the non-conventionné. (Figure 15).

Figure 15: TENAFEP, school pass rates and certification (left); exam pass rates by regime (right)



Source: Authors’ estimations based on TENAFEP

## Secondary examination- Examen d’État

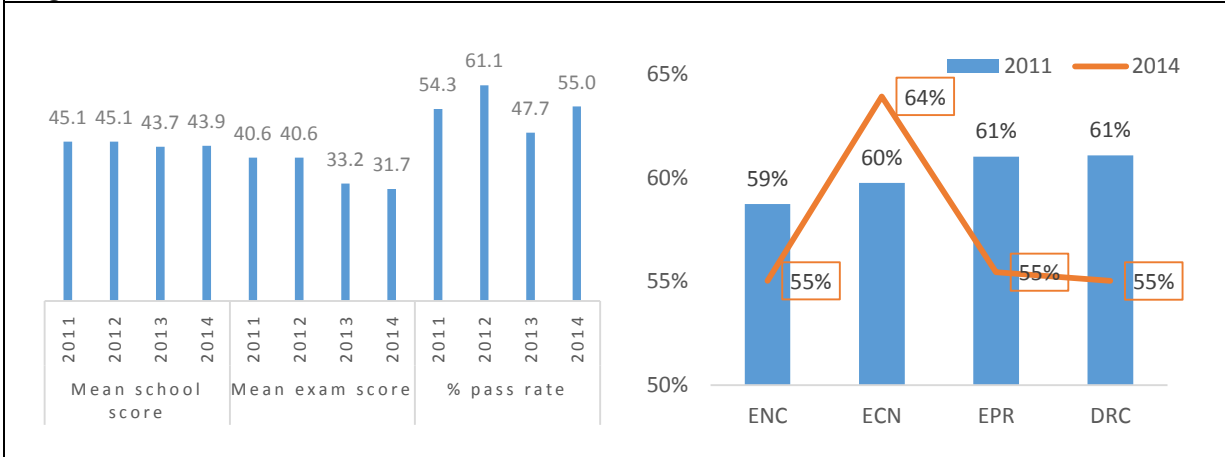
97. At the secondary level, the overall mean exam score and school score were on the decline between 2011 and 2014, with only the conventionné schools registering an increase. In 2014, there were 612,515 participants in the examination of which 35 percent are female, and with an overall pass rate of 55 percent. There are variations in the difficulty of the examination each year and the pass rate tends to fluctuate between 47 and 61 percent. In fact, the pass rate fell by nearly 6 percent since 2012,

<sup>34</sup> 1.3 million students are expected to have participated in the 2014 TENAFEP.



to 55 percent in 2014. The mean exam score has also followed suit, dropping from 40.6 to 31.7 during the same period, although the mean school score remains relatively unchanged (Figure 16).

Figure 16: Mean school score, mean exam score, and pass rate (left); pass rate by type of school (right)

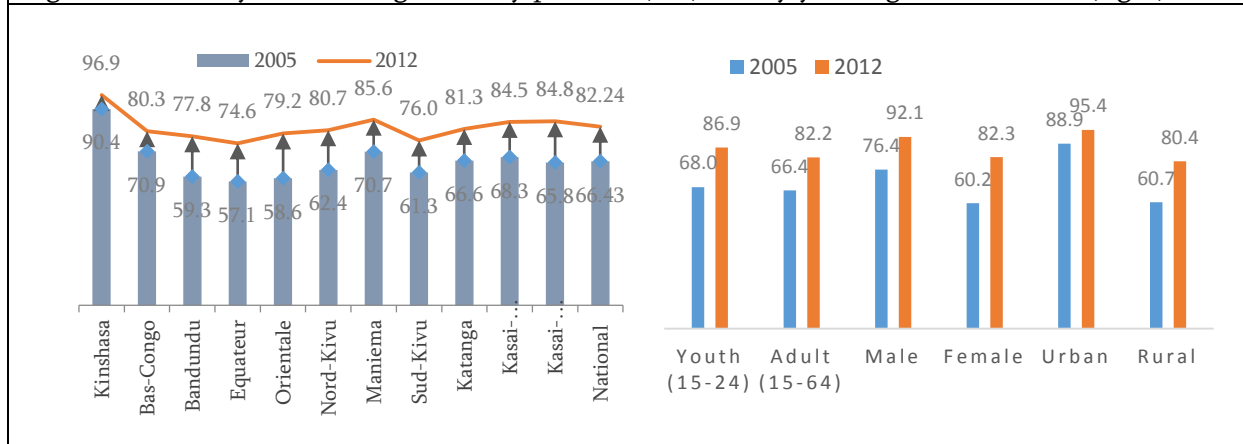


Source: Authors' calculations based on Examen d'État result from MEPSP, 2011 to 2014

### Literacy, and current educational attainment of the population

98. **The current educational composition of the working age population indicates that the quality of labor supply has improved over time.** Figure 17 shows trends in literacy rates by province as well as by age, gender and area. The figures show that there have been positive trends in literacy rates in the DRC, increasing from 66.4 to 82.2 between 2005 and 2012. These gains have been observed across all provinces, with literacy rates in 2012 ranging between 75 percent in Equateur to 97 percent in Kinshasa. The literacy trend has also improved for youths (15-24 years old) reaching 87 percent in 2012 and in rural areas where it has increased by 20 percent between 2005 and 2012. The gender gap in literacy is also closing with female literacy reaching 82 percent in 2012, and reducing the gap from 16 to 10 percent. In addition to improved literacy skills across provinces, gender and areas, the average number of years of education of the working age population also increased over time (Annex Figure 5).

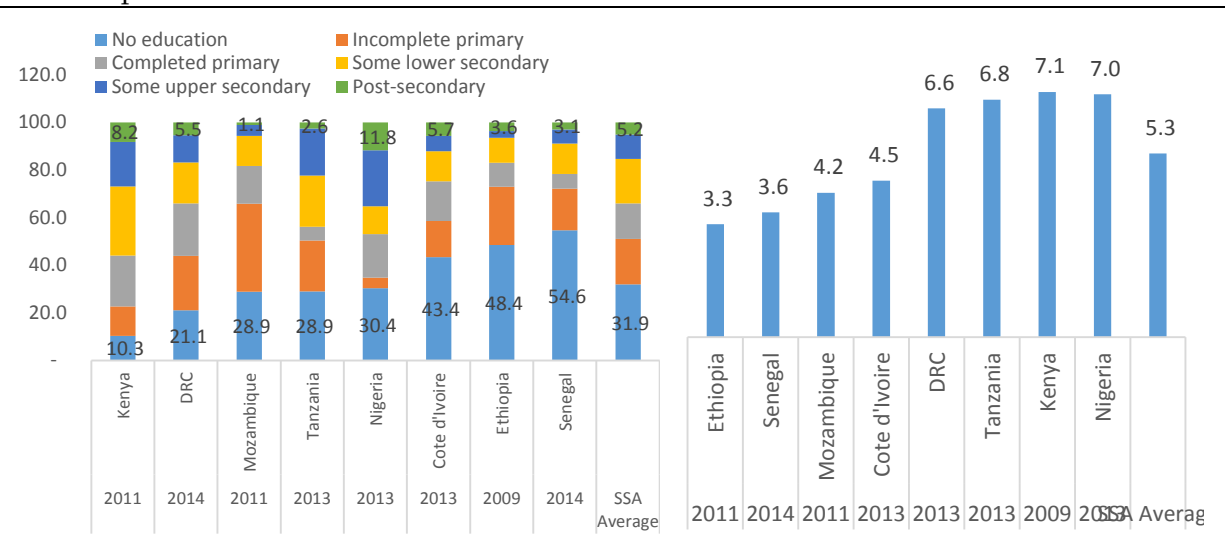
Figure 17: Literacy rates among adults by province(left) and by youth, gender, and area(right)



Source: Authors' estimations based on HBS 1-2-3 2005 and 2012

99. In terms of international comparisons<sup>35</sup>, the DRC's working population performs relatively well with an average number of years of education of 6.6, and only about 21.1 percent of the working age population with no education. In comparison, the SSA average stands at 5.3 years and 31.9 percent respectively. However, despite this relatively better educational attainment of the DRC, there are still concerns about the ability of the labor supply to meet the needs of the labor market.

Figure 18: Educational attainment by level of education (left) and average years of education (right)-SSA comparison



Source: Authors' estimations based on HBS 1-2-3, 2012 for DRC, GHS 2012 for Nigeria, DHS 2011 for Ethiopia, EMP 2013 for Cote d'Ivoire, GHS 2011 for Tanzania, and DHS 2009 for Kenya

## Returns to education

100. While earnings increase with higher levels of education, private, social and public rates<sup>36</sup> of returns reveals that different levels of education are associated with different rates of benefits. In order to provide some insight on the external efficiency of the Congolese education system, we estimate the private, public and social benefits generated by education, as well as other intermediate benefits of education that can lead to better social and economic rates of return<sup>37</sup>. In particular, although positive externalities to education investment is large, we used public and private per student cost (unit cost) and the tax structure by income to generate the respective economic benefits while the social rate of

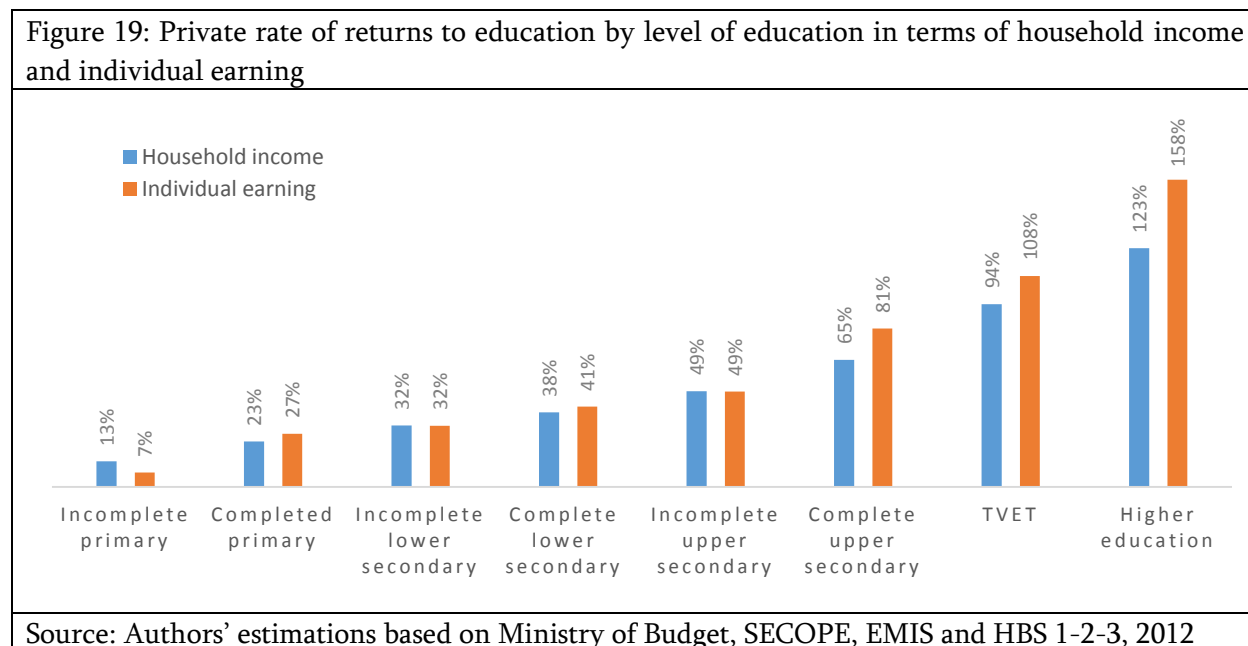
<sup>35</sup> Countries chosen based on availability of data.

<sup>36</sup> The private rate of return is the return to education for the particular individual in the form of the wage or earnings given their investment, i.e. the household spending on education; the public rate of return is the increase in revenues (generated from increased tax revenues on incomes) given the public budget expenditure on education; and lastly the social return to education captures both the private and the public returns combined. The Mincer regression model was used to estimate earning increases associated with additional years of education as well as the different levels of schools. A logistic regression was used to estimate the role of education in job choices based on security and returns differentials

<sup>37</sup> The net benefits of different levels of education are associated with unit cost differentials of the levels of education. Given that the estimated returns to education based on the Mincerian regression only infers the incremental effect of an additional year of schooling on earnings, we used an alternative way of measuring the value of education which is to calculate its internal rate of return to inform whether education is a good investment given its costs and benefits.

return is the combination of the two (public and private) benefits<sup>38</sup> (see methodological note 4 for technical details)<sup>39</sup>.

101. **Overall, an additional one year of education is associated with an average increase of 9.1 percent in monthly earnings.** As shown in Figure 19 additional education is associated with better earnings and household income at all education levels. The fact that each additional level of education is associated with better earnings is a clear indication that the additional level of education is worth investing in. In particular, with government increasing investment and enrollment increasing at each level of education, the unit cost would be expected to fall leading to better returns on investment in education.



102. **Education is not only associated with higher wage earning but also increases the chances of employment in a sector with higher returns and employment by contract which offers greater stability.** Annex Table 3 shows that, higher educational attainment is associated with better employment arrangements including wage employment in the industry and service sectors. A series of multinomial logit regressions, controlling for the main observable characteristics, confirm the importance of education in determining the sector and status of employment. With farming as the base category, the likelihood of working in wage employment and a household enterprise is 38 percent and 12 percent,

<sup>38</sup> Research evidence both in advanced and developing countries has shown the positive impact of education on individuals' earnings and productivity (See Almeida et al. (2012), and furthermore on economic growth (See Hanushek and Wobmann (2010),) for instance.

<sup>39</sup> In the Mincerian regression, although almost all of the employed population reported their earnings, which is rarely available from other developing country surveys, we extended the estimation using household consumption to evaluate the robustness of education benefits<sup>39</sup>. The results show that higher education is associated with better investment return for private and social while primary education benefits the public the most. The relatively high public benefits at each level of education is a reflection of low investment on education relative to household investment. The estimation is based on the tax rate and the margin of benefits depends on the government's ability to enforce tax collection rules. As tax collection from the informal sector may affect the tax collection effort, we based our estimation on wage employees alone

respectively. Similarly with agriculture as the base category, the likelihood of working in the services and industry sectors is 20 percent and 16 percent respectively. **Overall, there is a large transition from the agricultural sector employment to non-agricultural sector between 2005 and 2012 (73 percent in 2005 to 59 percent in 2012).** The probability of obtaining wage employment with a postsecondary education degree increases from 61 percent in 2005 to 73 percent in 2012.

### **Human capital development**

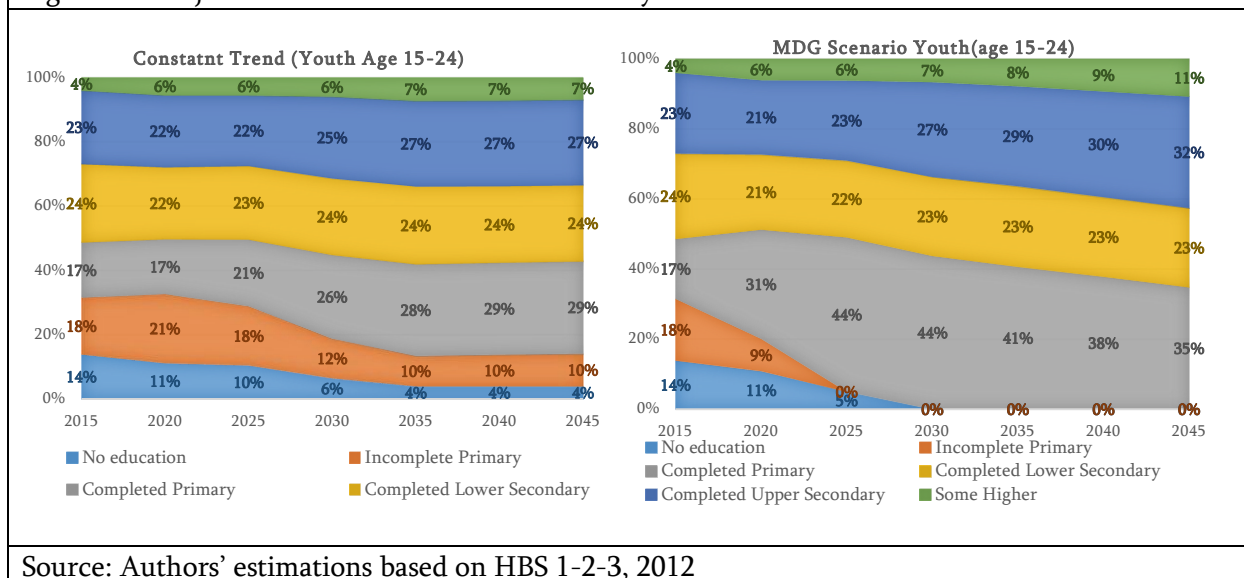
103. On the basis of the education sector performance and the labor market trends between 2005 and 2012, it is possible to perform projections of key labor market indicators. Based on a set of hypotheses (described in the methodological note 5) a forecast of the human capital and the labor market trends is proposed in order to identify further issues related to the adequacy of the education system to meet the needs of the labor market. This projection analysis is particularly important for the elaboration of coordinated policies targeting the education sector and in the labor market.

104. **The human capital projection shows that achieving universal primary education (MDG Goal 2), will reduce the risk of youth entering the labor market without having completed the primary cycle by 18 percent.** Forecasting human capital trends is an especially important tool for instituting more efficient and targeted education policy and for setting a prioritized and informed education agenda for the government. In particular, human capital projections in the short to medium term (5 to 10 year horizon) can provide guidance to the government on how best to allocate resources based on changing socio-demographic and economic conditions. While proper projection of human capital requires both demand and supply side information in the context of the macroeconomic framework (FDI, GDP etc.), the main focus of this projection exercise is to show how the achievement of the MDG goal 2 will change the labor market conditions in terms of educational attainment by 2030. In order to show this, the size of the labor force by education level is simulated considering two alternative scenarios: (i) the trend of dropout and retention remains the same until 2045; and (ii) the MDG of universal primary education is achieved by 2020 (detailed assumptions used in the procedure are presented the methodological note 5). The first scenario assumes that no major investment or reform takes place to change the trend of the current retention rates at all levels of the education cycle; the second is the more ambitious yet achievable assumption that the MDG is met by 2020 with major investments and reforms in education.<sup>40</sup> While detail cost estimate is available in later chapter, accommodating out-of-school children and retaining in the system would be suffice to achieve MDG by 2020 but cost is not the only factor. These projections highlight how the composition of the workforce can be modified dramatically if major investments and reforms are undertaken. For instance, if the current trend persists, about 18 percent of youth, aged 15-24, enter labor market without completing primary by 2030 (Figure 20). But achievement of MDG Goal 2 by 2020 will ensure that all youth at labor market entry age have completed primary education. While this illustrates the evolution of labor supply, it is very important to integrate and align supply side policy to the demand side for labor.

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<sup>40</sup> The first scenario assumes that the transition rates between two five-year consecutive levels of education remain constant over time; and the second scenario assumes universal primary education by 2020 by improving access and retention rates.

Figure 20: Projection of educational attainment of youth under constant trend and MDG scenario



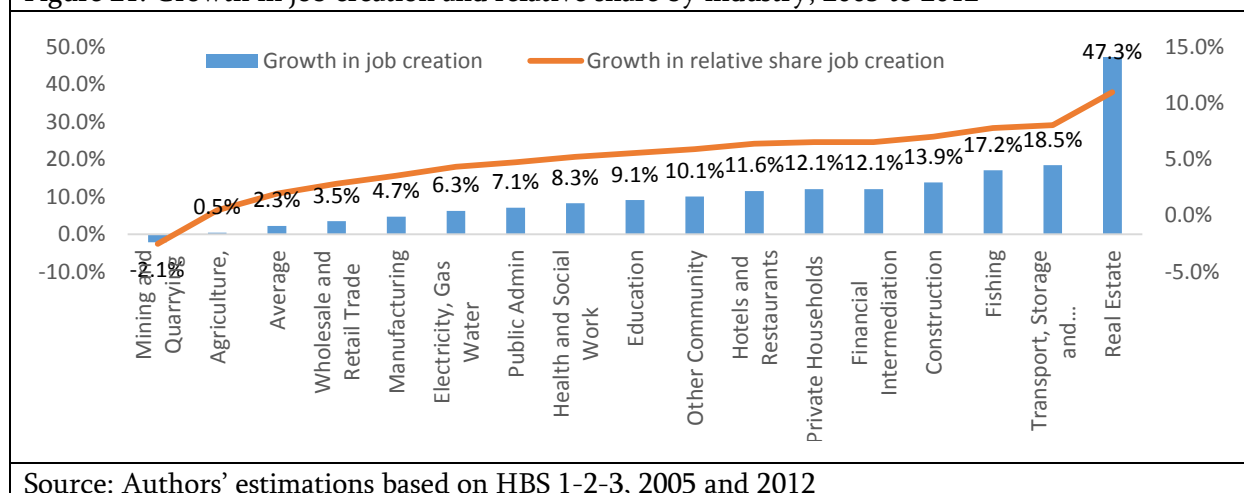
105. **Projection of employment and occupations reveals a disconnection between labor supply and demand indicators in the DRC.** Given that wage employment is still low, although growing very fast, detailed analysis of human capital prospects including information on where individuals work, where jobs are created, and how education affects them is highly recommended so that policy makers can forecast medium to long term human capital needs and make appropriate investments on time. In order to determine the structure of the labor market we took the following steps: (i) estimated number of employed by industry (16 major industries) and occupation (24 occupations), (ii) estimated earning and skills requirement (years of schooling) for both occupation and industry categories, (iii) estimated associated level of education and average years of schooling and growth over time, and (iv) projected educational attainment and employment share for both categories (occupation and industry) for 2030. Table 5 shows the comparison of educational attainment projected for the employed population and demand based on current trends of supply projection. The results show that while the pattern of projected labor supply and demand are similar, some levels of education are not in proportion to the labor market's need. For example, the employed workforce is heavily represented in secondary level education while the workforce education attainment shows a flat transition throughout all levels of education. Similarly, the labor demand for higher education is projected to growth to 7.0 percent while the labor supply growth projects 9.8 percent. Overall, the employed population educational attainment shows that the sectoral requirement remains steady while the population projection by educational attainment shows a slight improvement overtime, which implies that the two systems are not aligned.

	No education	Incomplete Primary	Completed Primary	Completed Lower Secondary	Completed Upper Secondary	Some Higher
Labor demand trend						
2015	32.1%	14.7%	7.55%	9.93%	28.9%	6.81%
2020	32.7%	14.1%	7.37%	9.81%	29.1%	6.89%
2025	33.4%	13.5%	7.19%	9.70%	29.2%	6.97%
2030	34.0%	13.0%	7.01%	9.58%	29.4%	7.04%
Labor supply trend						
2015	22.2%	17.4%	14.9%	15.8%	22.7%	7.03%
2020	19.5%	18.1%	15.5%	15.7%	22.9%	8.30%
2025	17.1%	17.7%	17.2%	15.7%	23.5%	8.82%
2030	14.1%	16.1%	19.5%	15.9%	24.6%	9.77%

Source: Authors' estimations based on HBS 1-2-3, 2012

106. **Patterns of employment by industry and occupation type reveals that high growth sectors are not linked to high skills growth and productivity.** Key industries with high job creation tend to be associated with low educational attainment. For example, real estate and transportation, storage and communication industries show the highest job creation both in terms of growth of employment and relative share of the employed work force (Figure 21) but they are associated with lower productivity (Annex Figure 6). Results from the occupational analysis (Annex Table 7, Annex Table 8 and Annex Table 9), shows that some occupations were on a declining trend both in terms of earning (productivity) and job creation. For example, machine operators and assemblers employment creation dropped by 4 percent annually and share by 5.4 percent. Although the education requirement is increasing, the earnings dropped at an annual rate of 3 percent for this sector. Low productivity in growing industries and occupations in general implies that either there is a skills mismatch in the labor market, making it hard for skilled people to move to high paying jobs or that the labor market has not developed enough to attract skilled works in the newly expanding industries. As expected, employment in the agricultural sector is shrinking overtime but the gain in employment seem to be spread across sectors leading to transition from one low skills to the other low skills requirement sector (Annex Figure 7). This requires integrating planning for labor supply.

Figure 21: Growth in job creation and relative share by industry, 2005 to 2012



Source: Authors' estimations based on HBS 1-2-3, 2005 and 2012

107. **Conclusions- key implications of this section include:**

- i. The key access indicators show that, overall, the DRC has improved significantly between 2005 and 2012 across all levels of education, especially among girls and in rural areas. In particular, the overall GER increased from 93 percent to 108 percent at the primary school level, from 56 to 67 percent in lower secondary, and from 38 to 59 percent in upper secondary.
- ii. Despite the significant improvement in access to education, the DRC will fail to meet its 2015 MDG goals in education. Although the country has committed to achieving the MDGs and despite international partners' focus on this goal, the DRC is still lagging behind.
- iii. Despite having committed to achieving the MDGs, this commitment is not clearly reflected as a priority in the DRC's education sector strategy, resulting in misaligned sector policy and sector goals. The public school management system at the primary and secondary levels faces particular issues stemming from the nature of the fragmented management system between conventionné and non-conventionné schools.
- iv. An analysis of the returns to education clearly indicates that there is a strong rationale for investment in education both in terms of private and public returns.
- v. The DRC is striving to achieve its education sector goals, which has been highlighted as a priority area for the government, but given the current trends, these goals will not be achieved. Three main observations are made from the HCP analysis: (a), If there are no changes to current trends, the human capital projection suggests that by 2030, 18 percent of young people will enter the labor market without primary education. However, by simply achieving its MDGs in education, the same projection shows that, by 2030, there will not be any new entrants in the labor market with no education, (b), The projection of job creation and destruction by occupation and industry shows that the skills needed are not available from labor supply, (c), While there is an important shift in the occupation and industry composition of labor demand, current trends indicate no such adjustment in the labor supply, and (d), This suggests and integration of the demand and supply side analysis of the labor market needs to develop a human capital agenda.

## V. Education Sector Financing

108. **The purpose of this section is to further investigate and assess the financing of the education sector in the DRC.** The analysis identifies the major actors in the financing of the sector, assesses how much is spent, and considers the implications of the financing system on education outcomes. If specific inclusion policies are not adopted, the current pattern of public education spending may reinforce inequalities in access among the population, shutting the poor out from the education system altogether. More specifically, this section tries to answer the following questions: (i) who are a key players in the education budget process?, (ii) what are the main bottlenecks in the budgetary planning and process phases, (iiiiv), what share of total education costs is financed respectively by the government, households, and donors, and how much does it cost to educate a child in the DRC? (iv) is public funding enough? (v) are there alternatives which would help address the main education sector financing issues? (vi) does public finance protect equity? and (viii) is education viable for the poorest?

### Budget planning and execution process

109. **The budget of the education sector in the DRC is defined by concurrent and exclusive responsibilities between the central and provincial levels.** Most of the funding is provided by the central authorities, and much of the execution is, in practice, centralized in higher education, but decentralized at the primary and secondary levels. As indicated earlier, up to the reform of the ministerial structure, scheduled for January 2015 but in fact delayed, the education sector at the central level was divided into two main ministries: (i) MEPSP and (ii) MESU. While the higher education sector, including the budget process, is largely centralized as per the education framework laws of 1986 and 2014, the MEPSP (primary, secondary and TVET) decentralized operations across the provinces. The MEPSP has 30 “educational provinces” (these are special areas created under the PROVED structure, not to be confused with the country’s 11 administrative provinces), which are in turn further divided into 258 sub-educational provinces (Sous-PROVED). Each educational province and sub-province is headed by a director who reports back to the funding agency—the central ministry, even though the PROVED and Sous-PROVED offices are under the administrative control of the local Governor. In fact, according to the MEPSP, the PROVED is largely autonomous from the central administration.

110. **Each administrative organization or unit can either be exclusively under the jurisdiction of the central government, exclusively under the jurisdiction of the provincial government or be under concurrent jurisdiction of both authorities** (see Annex D Box 3). The central government is responsible for payment of teaching and non-teaching staff salaries<sup>41</sup>.

111. **In addition to the central and provincial government, the decentralized territorial entities<sup>42</sup> (each of the 11 provinces is subdivided into DTEs) are also, in principal, participants in educational matters.** In particular, DTEs may participate in matters regarding the creation of pre-primary, primary, secondary, and vocational schools, as well as the renovation and construction of buildings and school

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<sup>41</sup> Article 101 of “Loi-Cadre No. 86-0005 du 22 Septembre de l’Enseignement National” and Article 171 of « Loi-cadre N ° 14/004 du 11 Février 2014 DE L’ENSEIGNEMENT NATIONAL »

<sup>42</sup> Decentralized territorial entities (DTEs) are conferred their own legal status and are autonomous in their decision making with regards to financial management of own economic, human, financial and technical resources. DTEs include cities, communes, chiefdoms and sectors.



equipment. They are also involved in adult literacy programs and the creation of cultural centers and libraries.

112. **At the provincial level, the budget, including the budget plan for the education sector, is determined by the provincial government** and submitted to and approved by the provincial assembly before promulgation by the governor of the province. The budget determination process at the province level follows the recommendations and prioritization laid out in the Priority Action Plan of the Government at the national level as well as the three-year Priority Action Plan at the Provincial Level. In accordance with the recommendations of the Budget Law (Loi des Finances Publiques-LOFIP), the provincial budget is in theory determined using the Medium-Term Expenditure Framework (MTEF<sup>43</sup>) which is itself aligned with the Priority Action Plan of the Government. This congruence in the budget determination is meant to ensure cohesive budget proposals.

113. **In parallel, each DTE establishes its own budget, which is approved by the head of the DTE and submitted for approval to the governor of the province.** Once both the provincial and DTE level budgets have been integrated and have obtained the approval of the governor, they are then transmitted to the central authorities, to the Direction de la préparation et du suivi du budget (DPSB), the agency responsible for the coordination of the budget process and which is part of the Cabinet of the Vice-Prime Minister and Budget Minister.

114. **The budget for the education sector at the central level is also determined based on the Priority Action Plan of the Government.** In 2012, the MEPSP set up the Comité Permanent de Préparation et de Suivi Budgétaire (CPPSB), an internal committee in charge of elaborating an education budget plan using the MTEF structure. The CPPSB is composed of a representative of the MEPSP cabinet, a representative of each strategic section and service within the ministry including the Direction des études et planification (DEP), Direction des infrastructures scolaires, services généraux, SECOPE, and the Service national de formation. It is under the management of the Cellule d'Appui Technique (CAT). Using the MTEF tool as guidance, the central ministry, just like the provincial and DTE authorities, submits its budget proposal to the DPSB.

115. **Budget plans are debated during the budget conferences-** at the DPSB for the central level, and at the provincial ministry of budget for the province and for the DTE. After review and approval by the Commission Economique, Financière et de Reconstruction (ECOFIRE), which ensures the feasibility of the budget proposal as well as its consistency within the Priority Budget Action Plan of the Government, the Ministry of the budget then presents the budget proposal to parliament for approval as part of the annual finance bill (Figure 22).

116. **While the education budget is implemented directly by the MESU at the higher education institutions, execution of the MEPSP budget involves several key players** (Figure 22). SECOPE (Service de Contrôle de la Paie des Enseignants<sup>44</sup>) is one of the central organizations in MEPSP's administration.

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<sup>43</sup> The World Bank Public Expenditure Framework Handbook characterizes the MTEF as a process for linking policy, planning and budgeting that provides ministers and line ministries with "greater responsibility for resource allocation decisions and resource use", consisting of a "top-down resource envelope, a bottom-up estimation of the current and medium-term costs of existing policy and, ultimately, the matching of these costs with available resources." (World Bank 1998)

<sup>44</sup> SECOPE has one national coordinating office in Kinshasa, 30 provincial offices, 419 satellite offices across the country, and employs over 7,600 agents.

Established in 1985<sup>45</sup>, SECOPE was intended as a separate administrative entity reporting directly to the Secretary General of the MEPSP and charged with streamlining payment of salaries to teachers. The scope of SECOPE's responsibilities has substantially evolved since its inception and it is today a key player in the daily operation of the education sector. Its main functions include: (i) the distribution of salaries to the teaching and administrative staff<sup>46</sup> of pre-primary, primary, secondary and vocational schools, (ii) distribution of operating costs (frais de fonctionnement) incurred by the schools and the local and provincial education offices (PROVED and Sous-PROVED), and also (iii) the management of an updated database of teaching and non-teaching staff. Database management and staff payroll are vital functions in the administration and management of the sector. To achieve this goal, SECOPE conducted a census of all teaching and administrative staff in the pre-primary, primary and secondary public education system with the aim of registering all personnel not currently accounted for in the system.<sup>47</sup> This process is still underway and it is estimated that in 2013 SECOPE accounted for only about 68 percent of all education staff. Only the 68 percent of teachers who have been registered by SECOPE are therefore on payroll. This implies that all teachers not on payroll are remunerated by households directly through payment of the frais de motivation fee to the school.

**117. In terms of capital spending for MEPSP, such as new school construction or rehabilitation of classrooms, the government channels most of its projects through the parastatal executing agency BCECO (the Bureau Central de la Coordination).** For example, the government's recent initiative of constructing 1000 schools was delegated to the BCECO agency for implementation. However, one should note that capital spending from internal resources has been relatively low and that recurrent expenditures still make up the majority of the education budget (Figure 22).

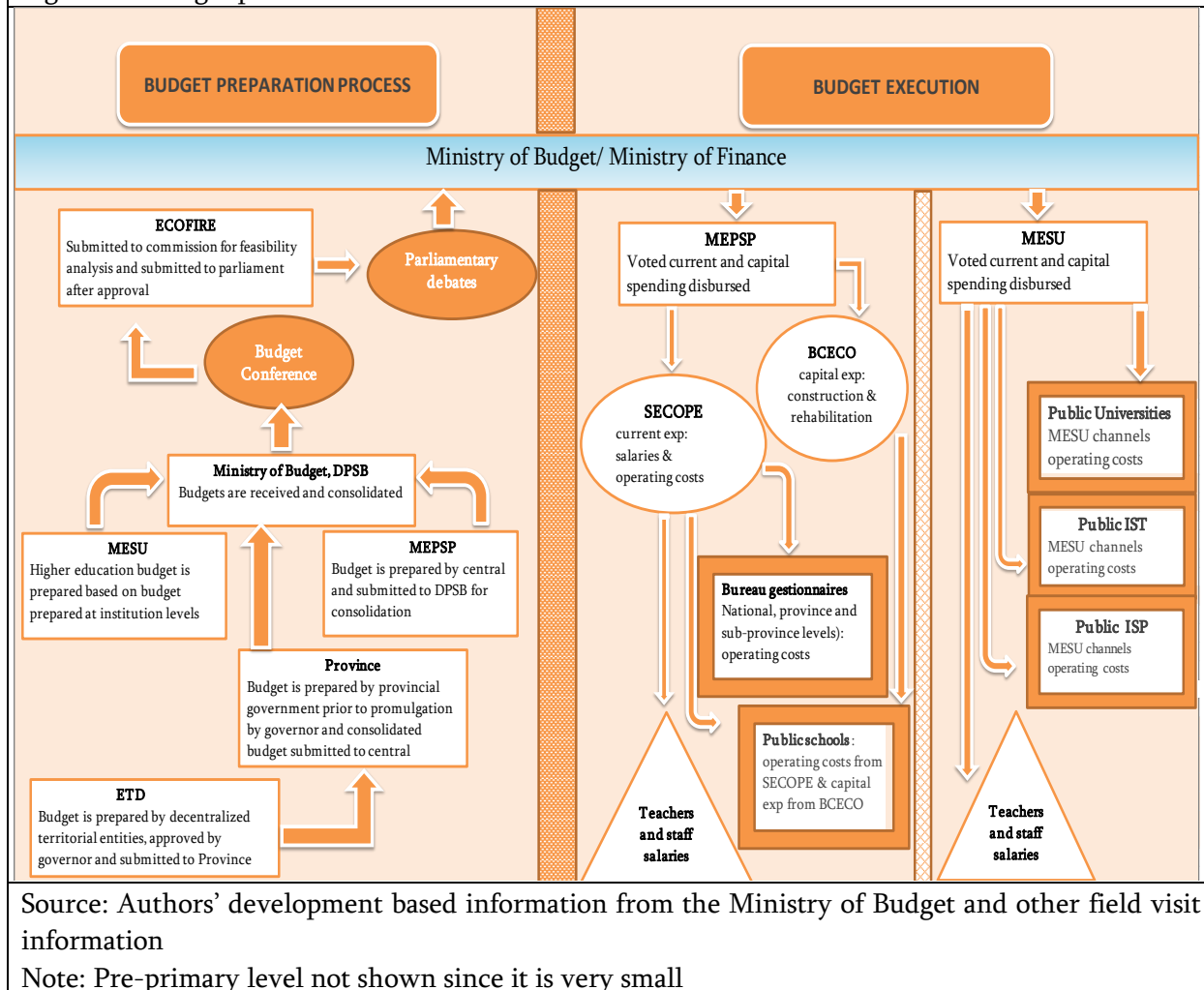
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<sup>45</sup> SECOPE was created through executive order N°DEPS/CCE/001/0121/85 on September 24 1985.

<sup>46</sup> Since 2013, salaries are sent directly to staff members' bank accounts (bancaisation) in an effort to promote on time payment and reduce leakages.

<sup>47</sup> Personnel are referred to as 'mécanisé' when they have been registered with SECOPE and issued their identification number and their salaries are paid by the government.

Figure 22: Budget process and flow



118. **The education sector is a priority area in the country's development program, as reflected in its DSCP, but the gaps and inefficiencies in the education budget elaboration process as well as in the execution, at both the central and provincial levels, are important hindrances in achieving the sectoral targets and directly impact sector performance.**

119. At the budget planning stage, although the education ministry prepares the budget using the MTEF process, which ensures alignment with the priorities laid out by the government in its Priority Action Plan and reiterated in the Letter of Orientation, **the budget conference held by the ministry of budget does not seem to take this into consideration when determining the budget allocations.** This leads to a mismatch between national priorities and budget allocations. This also renders the MTEF process an exercise in futility, which undermines the ability of the sector to meet its goals. This issue has been raised in the PEMFAR exercise which will be made available in 2015 as well as by the Direction d'études et de la Planification (DEP) in their review of the Plan Intérimaire de l'éducation (PIE) in late 2014.

120. **In addition, there is a lack of consistency in the nomenclature used during the elaboration of the budget, whether at DTE, province or central level, as well as a lack of clarity in the application of**

**standards.** This divergence in the budget elaboration at each level of budget preparation weakens the budget conference process and its ability to carry out adequate monitoring and evaluation. Specifically, it is not possible to isolate the budget allocation for each of the pre-primary, primary and secondary education levels separately.

121. The institutional weakness in the budget preparation level is further exemplified by the fact that the ministry of budget depends on the SECOPE data on actual salary disbursement to reconstitute the budget allocation to other budget categories in the education budget and to determine how much is spent by the MEPSP.

122. **At the budget planning stage, both the provinces and DTEs base their sector budgets on their forecasted revenue sources, but the disbursements from the central are often not released as planned.** The province and local government depend on local taxes and fees collected at the province and DTE levels as well as central government transfers (rétrocessions). The latter are a central feature of the decentralized system whereby 40 percent of the national revenues are allocated to the provinces based on the amount of central government taxes and duties collected in each province. The amount is withheld at the source and deposited with the provinces' accounts at the central bank. The amounts transferred to the provinces are then further distributed to the DTEs. However, the actual transfers to the provinces tend to be irregular and insufficient and other local sources of revenues are in many cases too small to finance the education sector budgets to the extent budgeted and planned. Therefore, despite operating within a decentralized framework, in fact, the financing of the education sector and therefore its development and growth remain both very centralized and precarious.

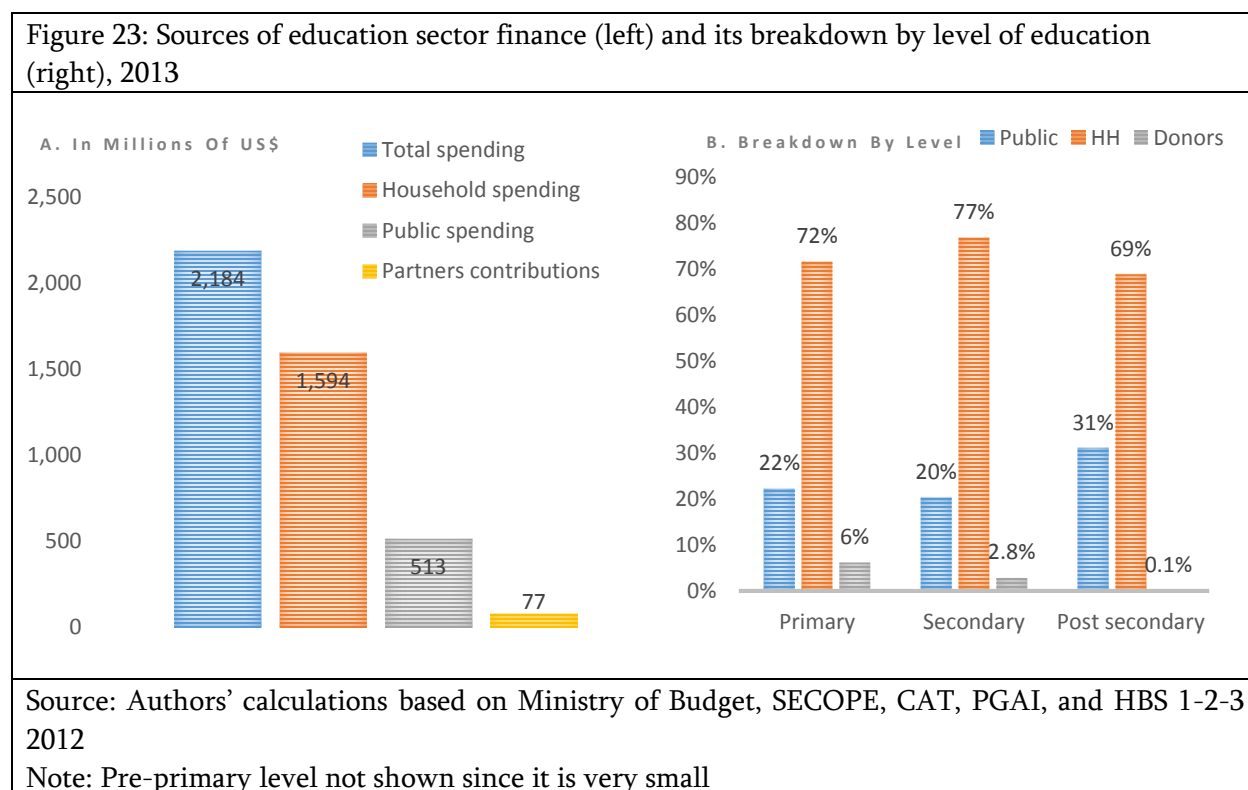
#### **Education sector funding sources and shares**

123. **Three-quarters of the total education spending in the DRC is funded by private households' out-of-pocket contributions, while the government and development partners finance only the remaining quarter.** Figure 23 presents the sources of finance and the breakdown by level of education. In 2013, the total cost of the education sector in the DRC amounted to 2,184 million USD (2,009 billion FC), with 73 percent (US\$1,594 million) of the contribution coming from households followed by 23 percent (US\$513 million) from the government and the remaining 4 percent (US\$77 million) from development partners. Public expenditure on education captures spending from 14 different ministries in the DRC, although most of this spending is channeled through the MEPSP and MESU and only about 1.5 percent of the total education budget is channeled through the other ministries (see Annex Table 10).

124. **Households' share of the financing of the education sector has decreased since 2008, although this does not reflect an actual reduction in the burden to the households.** Compared with the estimate of the previous PER (2008), the contribution of household expenditure to total education spending dropped from 90 percent to 73 percent. However this drop does not entail reduced payments for households. Rather, the decrease in the household share is explained to a large extent by the significant increase in total education spending by the government. This is further explored in the section below. In terms of contribution from development partners, during the five years between 2009 and 2013 covered by this PER analysis, contributions accumulated to a total of about US\$ 400 million. The main

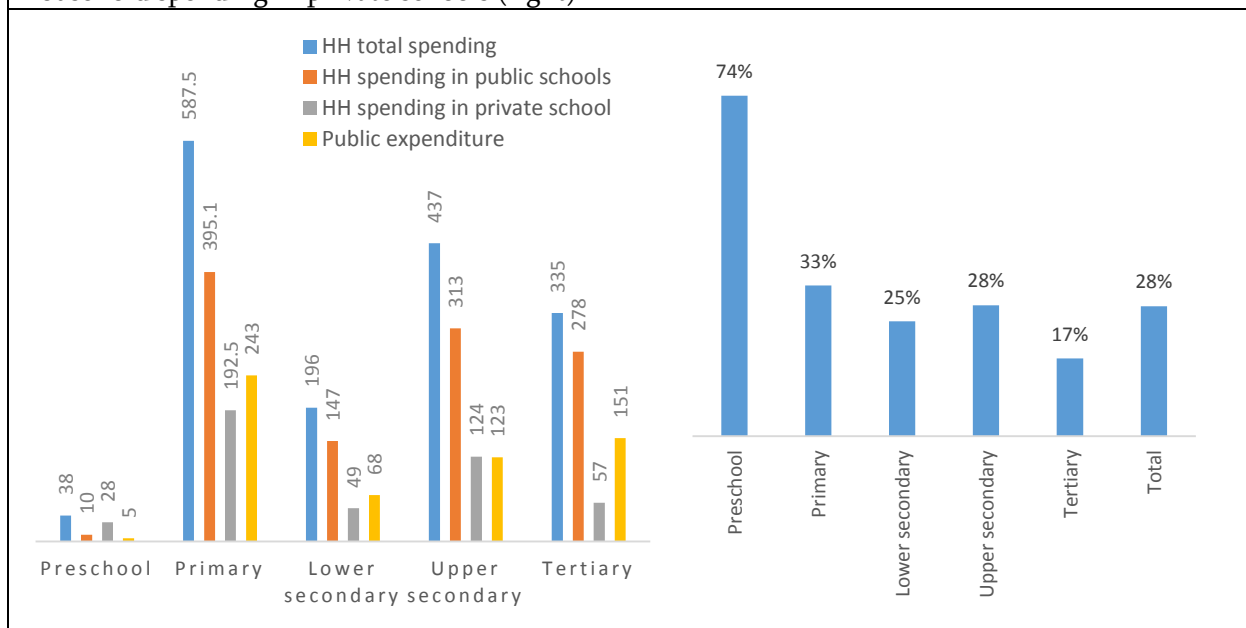
donor partners contributing to the education sector are: the World Bank Group (45 percent), Belgium (17 percent), and the USA (16 percent) (Annex Figure 8).

125. **Government funding efforts focus on higher education while donors concentrate on primary education.** The breakdown by level of education shows that the government’s contribution within higher education spending was higher than within the primary or secondary levels, while households and donors directed their support to the primary and secondary levels of education (Figure 23). While households contributed the highest share within each level of education, its highest contribution was at the secondary education level with 77 percent compared to 72 percent in primary and 69 percent in higher education. Similarly, 22 percent of primary education is funded by the Government and the corresponding contribution to secondary and higher education are 20 percent and 31 percent, respectively. As expected, most of the resources from development partners are focused at the primary level due to universal primary education initiative and their commitment to help the country achieve its targets by 2015.



126. **Households contribute US\$588 million to the primary level of which US\$395 million goes to public school while the remaining US\$192 million goes to private schools** (Figure 24). In public higher education, the relative share of household payment is high; of a total of US\$335 in total household spending on higher education, only US\$57 goes to private establishments. Figure 24 shows that although private schools at all levels account for 14 percent of total enrollment, households pay 28 percent of the total education spending to private schools. Spending share by level of education shows households spend the highest share in private pre-primary schools (74 percent), followed by primary schools (33 percent).

Figure 24: Total spending of household by school type, total public spending (left) and share of household spending in private schools (right)



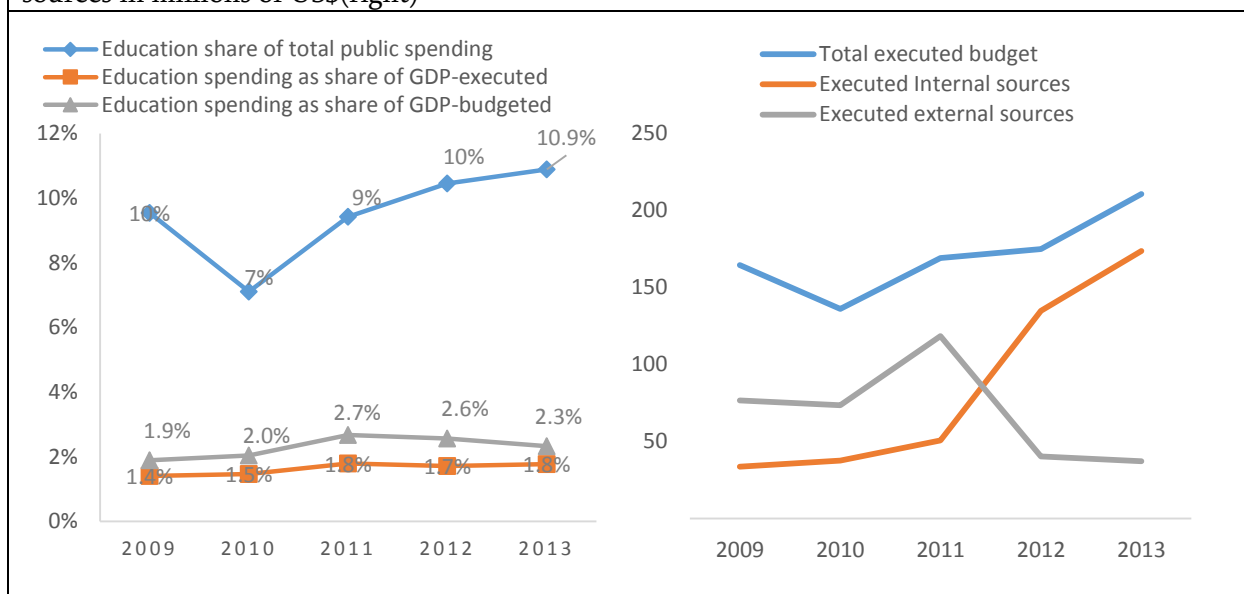
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

127. **Although the education sector is one of the five top priority sectors in the DRC<sup>48</sup>, the low budget allocation to the sector undermines this policy goal.** Only 2.3 percent of GDP was budgeted for the sector and only 10.9 percent of total executed public spending went to education in 2013. In addition, Figure 25 shows that the allocated education budget as a share of GDP has been on a declining trend since 2011.

128. **Total government funding to the education sector has been on an increasing trend since 2011 but the education sector remains underfunded.** Although education sector spending over the past years has been dominated by non-public sources (mainly households), the government has recently begun to assume more ownership as evidenced by the increase in the real total government spending. For example, the executed budget increased by about 6 percent on average per year, from US\$164 million in 2009 to US\$210 million in 2013 (2005 constant prices). When compared with the 7.5 percent average growth in the real GDP during this period, however, it was evident that the growth dividend did not benefit the education sector, as per the recommendation of the MTEF. This means that, although the actual spending on education is on an increasing trend, it is not increasing in parallel with GDP growth, leaving the education sector highly underfunded. For example, the executed share of public education as a percentage of GDP remained constant, hovering around 1.8 percent, between 2011 and 2013. Overall, the trend in education funding is on the increase in real terms but suffers from some stagnation in terms of its share of GDP. A detailed analysis will follow to investigate whether this spending trend is enough in the context of growing enrollment, addressing input requirements, and financing key programs to improve education.

<sup>48</sup> The five priority sectors outlined in the Programme d'Actions Prioritaires Renforcées 2012-2016 are: 1. Sovereignty, Defense and Security ; 2. Economic and Administrative Governance ; 3. Infrastructure ; 4. Production and Commerce ; and 5. Social sectors- Education and Health.

Figure 25: Trends of public spending on education and share of GDP(left), and executed budget by sources in millions of US\$(right)

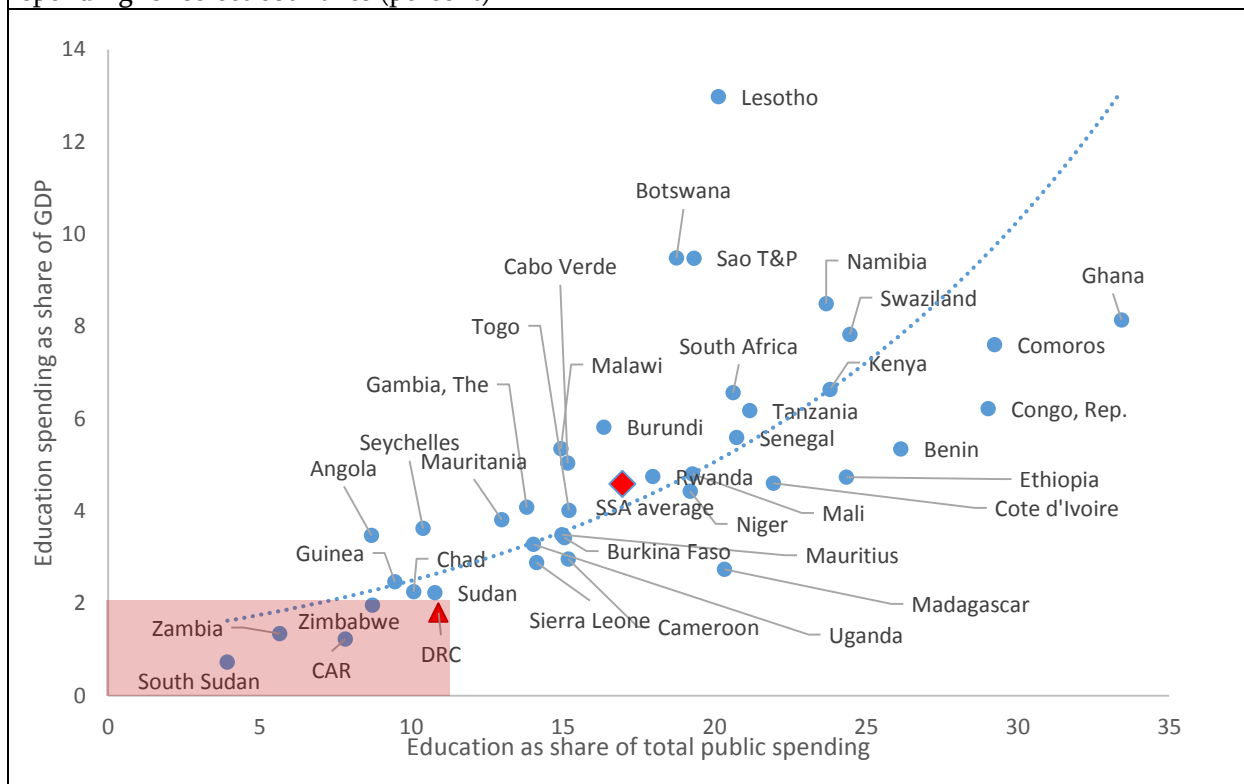


Source: Authors' calculations based on Ministry of Budget

129. **The DRC government spends less on education than other SSA countries.** International comparison shows that the DRC's spending on education as a share of GDP (1.8 percent), is inadequate and lagging. Figure 26 shows public education expenditure as a share of GDP and as a share of total public expenditure for 40 SSA countries<sup>49</sup>. DRC is the fourth lowest among the 40 SSA countries in terms of public education expenditures as a share of the GDP. Its GDP share is lower than the benchmark target set in the GPE's Education Sector Plan 2010-20, as well as the Global Partnership for Education recommendation of 4.1 percent and the SSA average of 4.6 percent. As indicated earlier, public education expenditures as a share of total expenditures is 10.9 percent, which is also below the SSA average of 17 percent. Again this figure is much below GPE's recommended good practice benchmark for developing countries, which is set at 20 percent of total public spending. Given the lags identified in the education sector performance in chapter 3, the low budget allocation to the education sector is insufficient to truly reform the education sector and meet the country's human capital needs.

<sup>49</sup> These 40 countries were selected because of availability of data.

Figure 26: Comparison of public expenditure on education as share of GDP and total public spending for select countries (percent)



Source: Authors' calculation based on Ministry of Budget for DRC and The World Bank Group and UIS for comparison countries, 2011 or latest and 2013 for DRC

130. **Public spending allocation by level of education fell below GPE's recommended share and is biased in favor of post-primary education.** Figure 27 shows the enrollment distribution of students across all education levels and the corresponding funding allocation by level of education. The functional allocation of education spending reveals that 42 percent of public spending is allocated to pre-primary and primary education, followed by 32 percent to secondary and 26 to higher education. In parallel, household spending on pre-primary and primary education is almost equal to household spending on secondary education (about 40 percent each). In contrast, almost all funds from donors are allocated to the pre-primary and primary levels. Overall, about 40 percent of total education spending goes to pre-primary and primary followed by 38 percent to secondary and 22 percent to higher education.

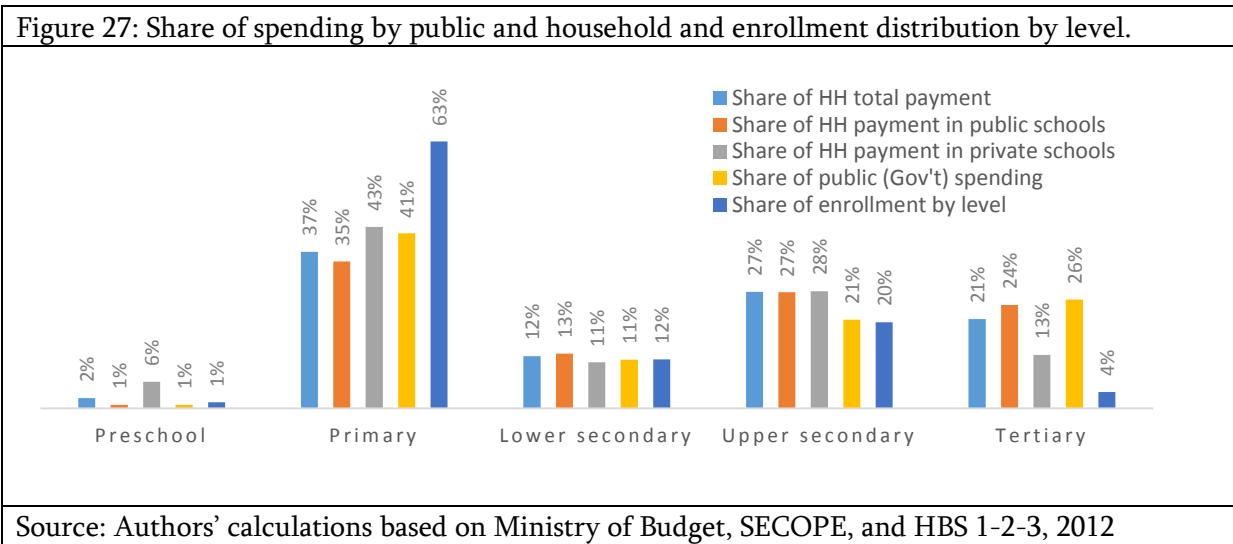
131. **The public spending pattern indicates a focus on the non-primary education levels, which undermines the country's ability to achieve its MDG targets related to universal primary education.** DRC has unfortunately already missed the opportunity to achieve universal primary education by 2015 and it is crucial for the government to focus on achieving the MDGs sooner rather than later. This suggests having a stronger commitment to the primary education level. Currently, the share of public spending in education going to primary education stands at 41 percent,<sup>50</sup> which is below the recommended good practice benchmark of 50 percent. Overall, the primary education level receives less than 45 percent of funding from all sources- even though it accommodates about 63 percent of the

<sup>50</sup> This includes donor external resources



total enrollment. In particular, the share of public expenditure channeled into higher education is disproportionate to the share of enrolled students at that level, especially in contrast to the primary education sector. Indeed, while primary education accounted for 41 percent of total public education expenditure despite 63 percent of student enrollment, higher education accounted for 26 percent of total public education expenditure with only 4 percent of student enrollment.

132. **Early child development (ECD) received the lowest funding share from all sources of funds and enrollment in this level of education is below 1 percent.** Although the post conflict nature of the country may weaken the strategic planning of the sector, the limited access to early child development (ECD) and budget allocated to this level undermines the essence of the three tenets of education investment: invest early, invest smartly, and invest for all. Research shows that proper investment and participation in ECD greatly improves the major causes of internal inefficiency such as repetition, dropout, delayed entry, and low rates of on-time completion. It also has strong implications for external efficiency by potentially increasing engagement and participation in the labor market as well as ensuring adequate social, technical and behavioral skills, which contribute to increasing human capital<sup>51</sup>.



133. **The DRC spends relatively more on higher education compared to other SSA countries, which reflects a need for better sectoral prioritization.** International comparisons also highlight that DRC's intra-sectoral allocation favors higher education over primary education. As shown in Figure 28, only 6 of the 36 SSA countries<sup>52</sup> spend relatively more on higher education than the DRC<sup>53</sup>. In fact, the part of the DRC's education budget allocated to higher education (26 percent) is higher than the SSA average (19 percent) and the DRC's share of public expenditure going to primary education (41 percent), is also lower than the SSA average (44 percent). Although the main issue remains the inadequacy of funding allocation to the education sector, this clearly reflects a lack of prioritization within the education

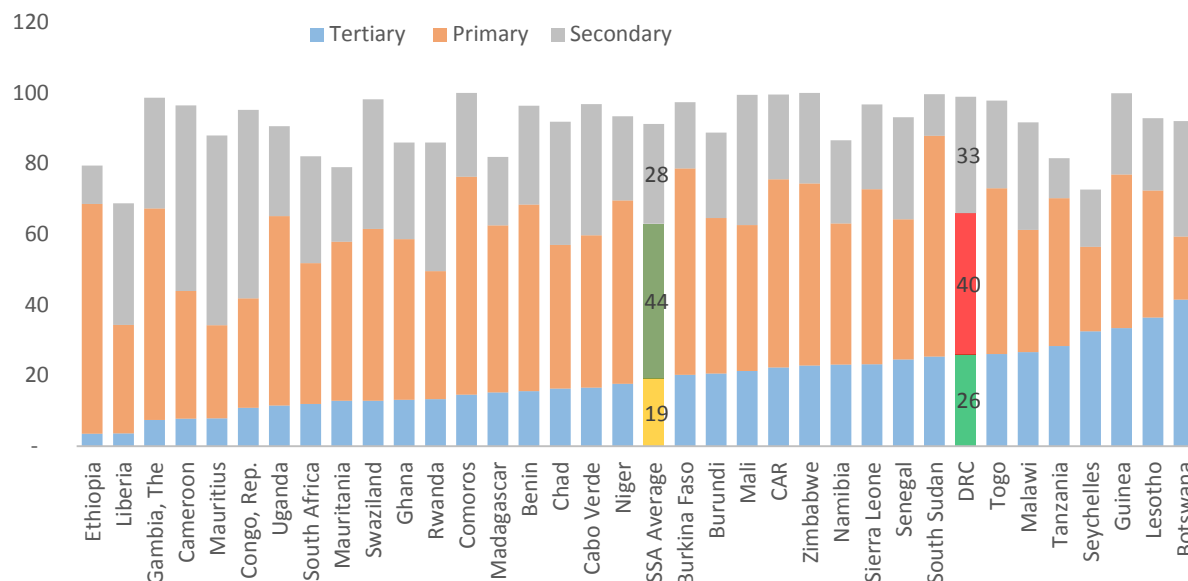
<sup>51</sup> During their early years, children go through critical stages of development, and consistent, high-quality early childhood education can have long-lasting, beneficial effects on the overall development of children (El-Kogali, Krafft, 2015).

<sup>52</sup> The 36 SSA countries were included based on the data availability.

<sup>53</sup> These countries are: Botswana, Lesotho, Seychelles, Malawi, Tanzania and Guinea.

sector. In general, countries with a low access rate at the primary education level tend to respond by allocating a larger share of their education budget to the primary education sector.

Figure 28: Share of public expenditure for primary and tertiary education (percent of public education expenditure)



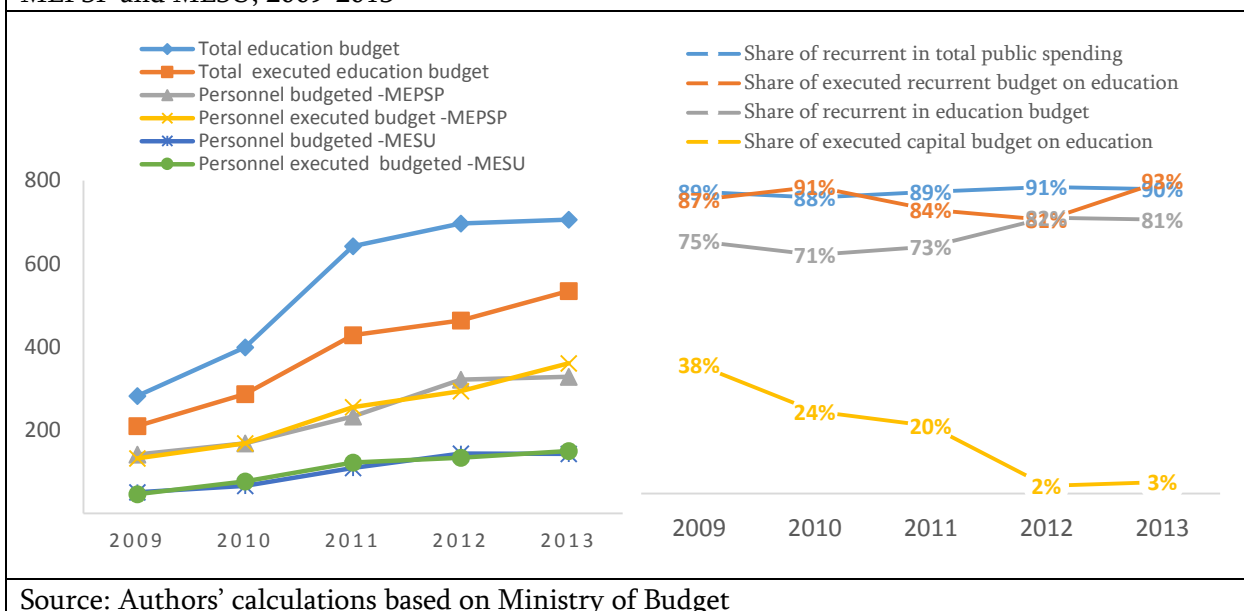
Source: Authors' calculation based on Ministry of Budget for DRC and The World Bank Group and UIS for comparison countries, 2011 or latest and 2013 for DRC.

Note: Some countries do not add up to 100 percent due to other forms of education other than the three presented above such as non-formal education or pre-primary school not under primary.

### Budget allocation and execution

134. **There are large discrepancies between the allocated (voted) budget and the executed budget, especially for capital expenditures.** Figure 29 below shows trends in budget allocation and execution rates by category and for the two main ministries- MEPSP and MESU. This figure shows that: (i), the share of recurrent spending on education, as a part of the total education budget, increased from 75 percent in 2009 to 81 percent in 2013, with an execution rate close to 90 percent, on average, throughout the period, (ii), while allocation to capital spending has been above or close to 20 percent of the adopted budget, execution rate is extremely low and has been decreasing. The execution rate of capital spending dropped from 38 percent in 2009 to 3 percent in 2013, (iii), and execution rate for personnel spending for both ministries hovered around 100 percent. This suggests that the low levels of budget execution are almost solely due to the poor execution rates of the capital spending category.

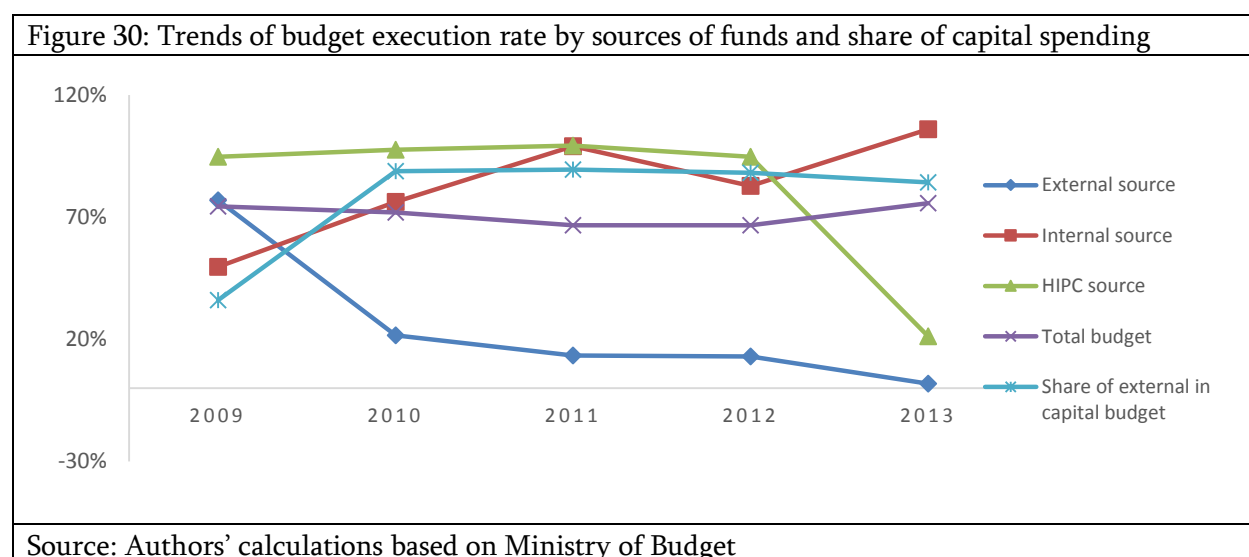
Figure 29: Trends of budget allocation and execution rates--total budget vs. personnel for the MEPSP and MESU, 2009-2013



135. **In spite of the very low execution rate of public capital expenses, the government has recently launched new initiatives aimed at strengthening education infrastructures.** Although their efforts have encountered some hurdles, it also worth mentioning that the government has had a great interest in expanding access to education in rural and remote areas but the lack of adequate information on where teachers and other resources are needed has caused delays in its implementation. For example, the government embarked on an ambitious school construction and rehabilitation project (Projet de Rehabilitation et de Reconstruction des Infrastructures Scolaires- PRRIS) which is administered by a parastatal entity Bureau Central de Coordination (BCECO) (See Annex D Box 4). The BCECO, through the procurement process, was charged with the construction of 1,000 schools ever year for five years starting in 2011 but the start of its implementation was delayed to 2013 and as of the end of 2014, about 600 schools had been constructed. The Ministry of Education has also taken stronger ownership as demonstrated by its efforts to set priorities for capital spending in the education sector. It has also developed standard guidelines for school construction and maintenance.

136. **The reliance on external financial resources regarding capital expenditures is one of the reasons for the low execution rate of the education budget.** Heavy reliance on external sources of funding aligned with capital investment undermines the overall budget framework of the country, leading to large discrepancies between allocated and executed budget. While the two main ministries in education-MEPSP and MESU- have taken stronger ownership of personnel costs, which come from internal resources and are fully executed, capital investment in the education sector over the past five years has been dominated by donors (Figure 30) and has suffered from very low execution rates. Although the budget allocations for capital spending from external resources have been steady, varying between 84-88 percent of the total capital budget between 2010 and 2013, it has also been characterized by a very low realization rate (Figure 30 and Table 6). The execution rate of capital spending from external resources has been declining to near zero, reaching as low as 2 percent in 2013 (Figure 30). A closer look at the trends reveals that the share of capital spending budgeted from external resources has been increasing, while the share of execution of these external resources has been on the decline, in

clearly diverging paths. Given the post conflict status of the country, it is expected that donors will play the main role in capital spending as the country rebuilds its infrastructure network. However, this has not been realized in the past 4 years, and it will be a significant concern going forward especially given that the government has no control over the execution of funds from external sources. Qualitative information gathered on this matter suggests that international partners require donor funding to be included officially in the budget, although even when this is done, it has not resulted in greater execution rates. As stated above, although the financing of the education sector relies mostly on households, this unrealized budget could affect the planning and management of the education sector.



**Table 6: Trends of budget by sources and share of unexecuted budget 2009-2014**

	2009	2010	2011	2012	2013	2014
Share of education budget (%)						
External source	9	26	38	24	23	26
Internal source	41	29	22	68	70	49
HIPC source	50	45	40	7	7	25
Share of budget unexecuted (%)						
External source	8.1	71.1	98.5	63.6	93.0	75.2
Internal source	81.6	25.0	0.7	35.3	-17.0	17.6
HIPC source	10.3	4.0	0.9	1.2	24.0	7.2

Source: Authors' calculations based on Ministry of Budget

137. **Allocation and execution of non-personnel expenditures are low.** As highlighted earlier and reiterated in the functional allocation and execution budget table below (Table 7), the budget execution rate for the personnel allocation is close to 100 percent, which is very much in line with the standard personnel execution rates. On the other hand the execution rate for goods and services fluctuates greatly, from a low of 8 percent in 2013 to a high of 592 percent in 2012. The other budget categories are under-executed. For example, according to SECOPE guidelines, all public schools are eligible for a monthly transfer of 45,000 FC which is equivalent to about 8 percent of recurrent spending in primary education. However, the execution rate of transfers reaches 22 percent at its highest.

138. **The low execution levels of non-personnel spending adversely affects the schools' ability to finance non-personnel costs, which can be expected to negatively affect education outcomes.** Since most funds are allocated to salaries and capital spending, this leaves little room for operating costs. A complete assessment of the financial needs of the education sector, in terms of operating costs, is not altogether clear especially given the structure of the school management system in the DRC, where public schools are able to tap households and/or networks to cover these types of expenditures. This clearly undermines the credibility of the budget process in assessing the needs and associated costs of the sector. Table 7 shows that personnel costs hovers around 68 percent of total recurrent spending between 2009 and 2013 while goods and services accounted for less than 2 percent throughout the same period. This means that school inputs<sup>54</sup> such as learning materials and other operating cost are adversely affected. Indeed research shows that there is a strong correlation between provisions of school inputs and learning outcomes<sup>55</sup>.

Budget allocation by function (%)	2009	2010	2011	2012	2013
Personnel	68.3	58.4	68.0	67.9	67.7
Goods and services	0.3	0.3	0.3	0.5	1.8
Benefits	0.7	1.1	1.5	3.2	4.9
Transfers	5.6	10.9	3.4	10.2	6.9
Equipment	11.8	16.9	9.0	17.5	18.0
Construction	13.4	12.3	17.8	0.7	0.7
<b>Execution rate (%)</b>					
Personnel	94	106	89	92	108
Good and services	16	125	68	592	8
Benefits	16	37	31	10	8
Transfers	13	13	14	7	22
Equipment	60	19	47	1	3
Construction	19	31	6	26	4
Overall	75	72	67	67	76

Source: Authors' calculations based on Ministry of Budget

### Analysis of budget allocation and execution at province level.

139. Inconsistencies between the budget allocation to the education sector and its associated execution levels, makes it very difficult to use budgetary data to conduct a provincial-level analysis of the credibility and effectiveness of the budgeting system. However, given that SECOPE manages school funds for the MEPSP, it is possible to use SECOPE figures to conduct a provincial analysis for budget

<sup>54</sup> In higher education such costs are channeled through transfers but are still low as shown on the budget allocation and execution table.

<sup>55</sup> For example, Glewwe et al. (2002) conducted an impact evaluation in Kenya on a program providing among other things, uniforms and textbooks, to select schools. Dropout rates fell considerably in treatment schools. The program also had long term impacts where, after 5 years, those enrolled in treatment schools had completed about 15% more schooling. In addition, there was some degree of negative spillover effects with many students from nearby schools transferring into the treatment schools, raising class size by 50%. Also, see Glewwe et al (1998).

allocations. This also gives a unique opportunity for detailed analysis of budget execution at a very small administrative unit level as shown in the analysis below

140. **A large proportion of the DRC's total budget is allocated to the central services at the expense of the provinces.** Yet, according to the law<sup>56</sup>each province is entitled to receive back 40 percent of the federal revenue generated in that province (rétrocessions). Table 8 shows the total and education budget allocations as well as the theoretical 40 percent rétrocessions to provinces. So, about 70 percent of the overall public budget is allocated to the Services Centraux (central services) and multi-provinces categories. The remaining 30 percent is (theoretically) allocated among the 11 provinces. These rétrocession payments theoretically amounted to about 50 percent on average of the budget allocation from the center to the provinces, although the share varies from province to province- from a low of 26 percent in Bas-Congo to a high of 77 percent in Maniema. These rétrocession payments should theoretically account for about 15 percent the central government's total budget. But in practice, this formula remains theoretical and only a small share is actually sent to the provinces.

141. **The 40% rétrocessions play an important role in the provincial education budgets.** It is interesting to note that budget allocation to the provinces' respective education sectors depends on the 40 percent rétrocessions. Overall, the education share of the 40 percent provincial reimbursement accounts for about 25 percent of total education budget. However, for the education sectors, especially from MEPSP, all figures shown as provincial allocations are theoretical since the budget execution differs from the planned budget.

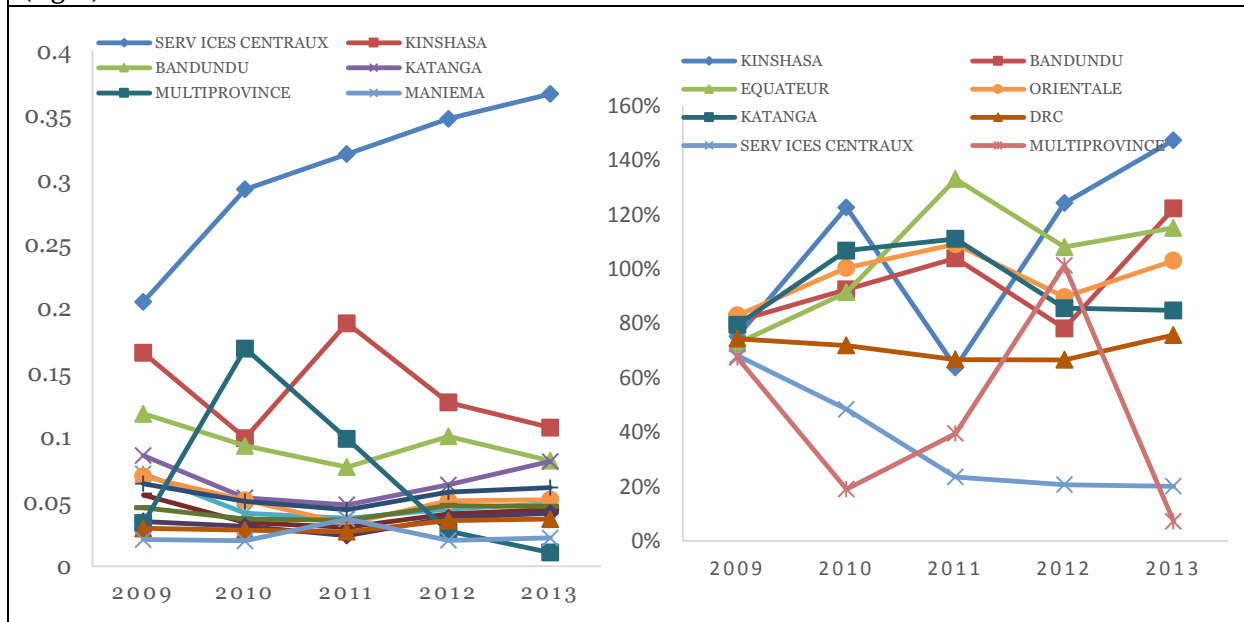
	All Budget		Education	
	Share of total DRC federal budget (%)	of 40 %	Share of allocation (%)	of 40 %
Bandundu	2	34	6	6
Bas-Congo	6	26	8	25
Equateur	2	59	5	22
Kasaï-Occidental	1	39	3	16
Kasai-Oriental	1	64	3	17
Katanga	6	68	19	27
Kinshasa	4	49	9	32
Maniema	1	77	3	28
Nord-Kivu	2	56	7	20
Orientale	3	44	7	21
Sud-Kivu	2	65	4	30
Central Services	66		23	
Multi province	4		3	
Total(in billions of FC)	7,449	1,096	1,076	270

Source: Authors' calculations based on Ministry of Budget

<sup>56</sup> Article 175, Constitution de la Republique Democratique du Congo in conjunction with Loi n°08/012 portant principes fondamentaux relatifs à la libre administration des provinces-31 juillet 2008

142. **The budget allocation does not necessary reflect the true apportionment of funds between the central services and the provinces.** Trends in budget allocation reveal that allocations to the Services Centraux (central services) are not only high but also increasing, while execution rates are very low and have been decreasing over time (Figure 31). In contrast, there are many provinces which have execution rates above 100 percent. This implies that resources may have been transferred from one province to another or from central services to provinces without these transfers being reflected in the original budget plan. This ambiguous roundabout budget allocation-execution pattern could be the source of budget leakages and undermine the credibility of provincial budget allocation.

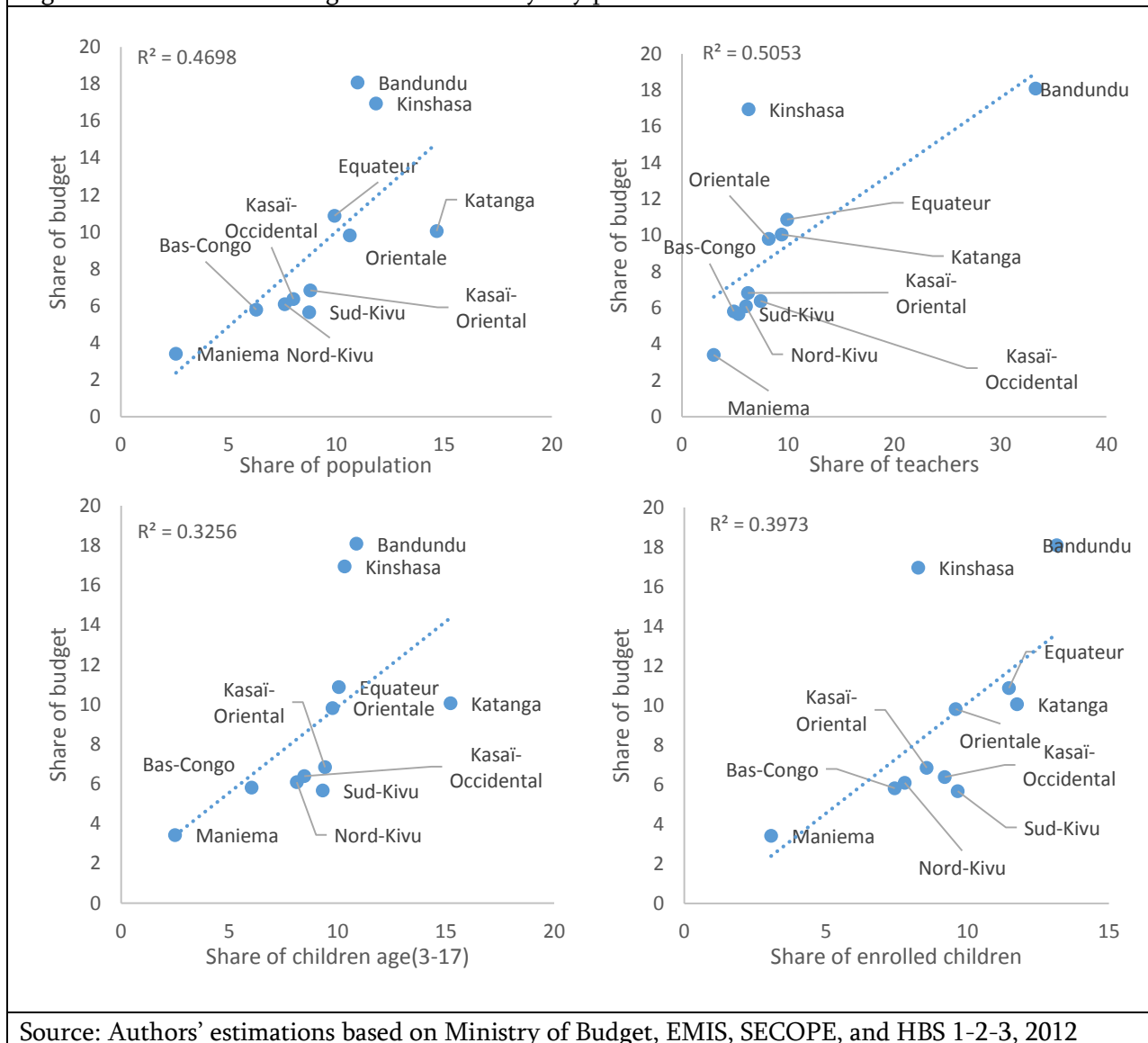
Figure 31: Trends of budget allocation by province (left), and execution rates in select provinces (right), MEPSP



Source: Authors' calculations based on Ministry of Budget for MEPSP

143. **There appears to be no standardized mechanism determining the education budget elaboration at provincial level.** Indeed, as shown in Figure 32, the budget allocation from the central government shows no particular relationship with various key budget distribution parameters such as population, school-age population, number of enrolled children and number of teachers. Therefore, in addition to the fact that the budget allocation by province does not materialize into actual disbursements, the allocated budget by province does not even reflect any of the factors that should in principle be taken into account at the budget elaboration stage. There is a weak correlation between a province's share of the national education budget, and the four typically-accepted determining factors that in theory should underlie the budget allocation process - (i) share of population, (ii) number of school age children, (iii) enrolled children, and (iv) total staff of the sector.

Figure 32: Correlates of budget distributions by key provincial factors



Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

### Role of government in protecting equity <sup>57</sup>

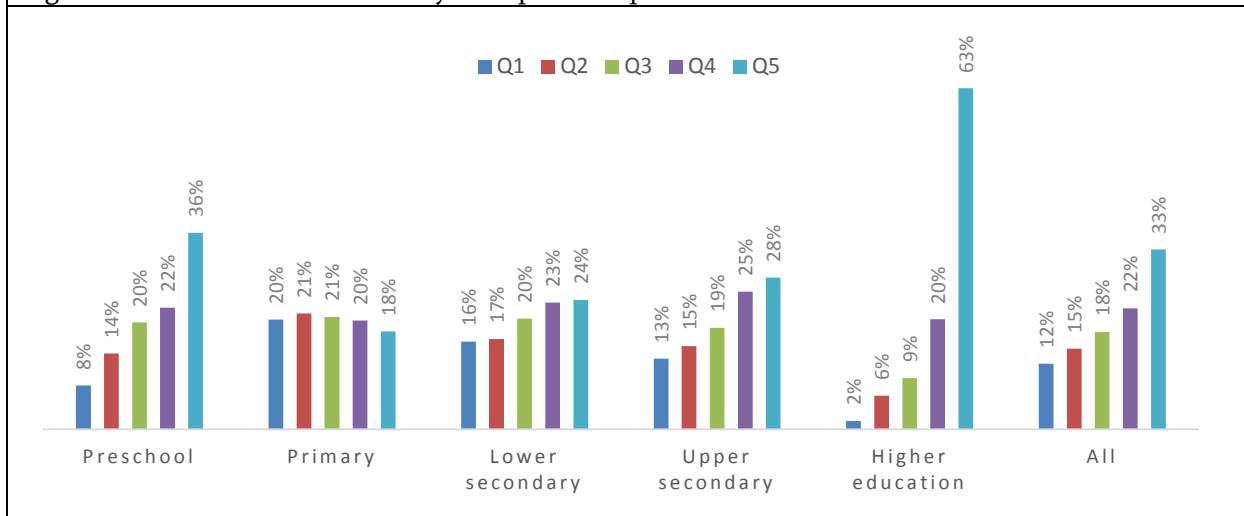
144. **Overall public spending on education in the DRC is biased towards the rich.** Figure 33 shows the distribution of public spending across quintiles within each level of education. The analysis of public spending across all education levels shows that the poorest quintile receives only 12 percent of the total education spending (8 percent less than its share in population) while the richest quintile receives 33 percent of the total benefits (13 percent more than its share in population) (Figure 33). At the primary level, public spending appears to be equitable in the sense that the poorest quintile receives the same share of public benefits (20 percent) as their population share while the richest receives 18

<sup>57</sup> The concept of benefit incidence analysis (BIA) originally pioneered by studies by Gillespie on Canada 1965, and extended to developing countries context by Meerman (1979) on Columbia, and Seloswski (1979) on Malaysia and in its modern stage by Need (1995), Selden and Wasylenko (1992), Sahn and Yonger (1999) on Africa, Demery (2000).



percent of the benefits (only 2 percent of less than their population share). The pro-rich nature of the public spending on education starts at the lower secondary level where enrollment from poor families starts declining. For example, for upper secondary and higher education, affluent households have a greater share in total enrollment as shown in Figure 33 above. Consequently, 28 percent of total spending in upper secondary education went to the richest quintile, compared to 13 percent for the poorest quintile. Similarly, at the higher education level, the poorest quintile receives only 2 percent of total spending while the richest quintile receives 63 percent of total spending in this sub-sector. Thus, education by level and quintile, shows that primary education expenditures are poverty neutral- where public spending in primary level is neither progressive nor regressive- while post-primary expenditures and pre-primary expenditures favor the non-poor and are therefore regressive. It is also apparent there is no pro-poor program in the country. However, demographic factors within the quintile should be considered to affirm the conclusion and these are explored below.

Figure 33: Benefits incidence analysis of public expenditure on education



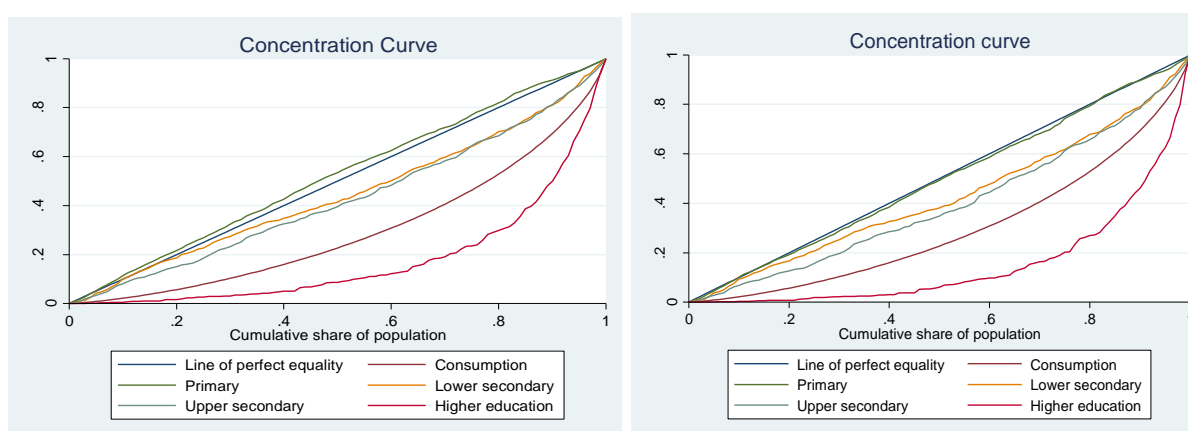
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

145. **The distribution of public expenditure in primary and secondary education is relatively more biased towards the poor than the distribution of income.** A BIA (Benefit Incidence Analysis) is presented in an alternative way using the concentration curve to evaluate the targeting of government subsidies. Figure 34(b), includes the consumption concentration curve which is a proxy for the general wealth and income inequality across quintiles. Compared to the consumption concentration curve, the expenditures on primary, lower secondary and upper secondary education are relatively more equitable than the general wealth distribution as indicated by the Figure 34<sup>58</sup>. Therefore, while public spending in primary and secondary education levels is not pro-poor per se, this is somewhat mitigated by the fact that the distribution of spending promotes greater equality than the general observed income inequality. In contrast, higher education is significantly not pro-poor and is regressive. Given that the richest quintile receives the most benefit from public spending- the distribution of public spending in higher education is in fact worse than the general wealth inequality.

<sup>58</sup> This can be observed from the concentration curves in primary, lower and upper secondary lying above that of the consumption curve, indicating that spending in these levels tend to be more equitable.

146. Even though public spending on education is less regressive than is income distribution, such spending nonetheless benefits the rich much more than the poor. Moreover, the inequality becomes higher at higher levels of education. Figure 34(a) presents the BIA without adjusting for demographic factors (similar to the analysis in the figures above) and Figure 34(b) presents the analysis taking into consideration demographic factors. In general, public spending on education is pro-poor if the concentration curve for the particular level of education is above the 45-degree line<sup>59</sup>. Figure 34(a) shows that the concentration curve for primary education spending is just above the line of perfect equity, while that of post-primary education spending is entirely below the line of equity. However, after adjusting the spending data in each quintile for variations in number of children by quintile, spending in all levels of education fall below the perfect equity line, including at the primary level. This suggests that public spending in education in the DRC favors the richer households at all levels of education since the poorest quintile receives lower shares of public spending. Because overall education spending in DCR is so low, a restructuring of spending away from higher education and toward primary education--where the poor are most represented-- cannot be recommended. But any increase in funding could be more heavily allocated to the primary level to support the MDG of universal primary education.

Figure 34: Lorenz Curve for Household consumption expenditure and public spending on education by level



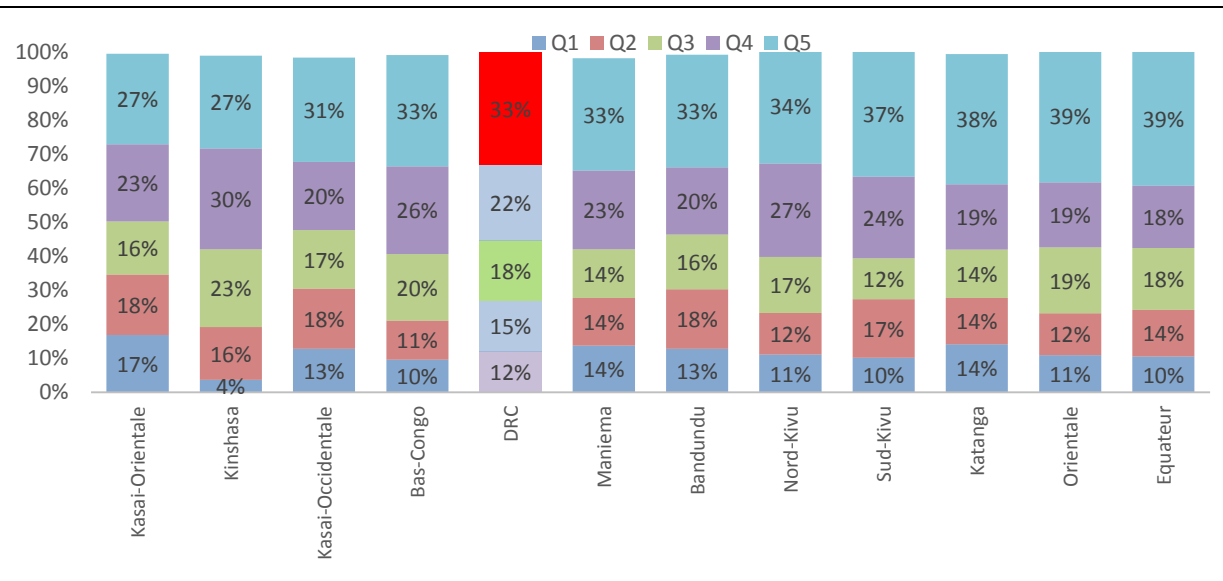
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

147. The provincial level BIA analysis reveals that public resource distribution across quintiles varies to some degree by province where Kasai Orientale appears to be the most equitable province while Equateur is the least equitable. Figure 35 depicts the overall distribution of public funds by

<sup>59</sup> The Lorenz curve is a graphical interpretation of the cumulative distribution of income on the vertical axis against the cumulative distribution of population on the horizontal axis. The progressivity of spending is pro-poor if the poor receive more of the program's benefits than the non-poor and more than their share of the population; graphically this line appears above the diagonal since the 45° line indicates that each quintile in the distribution is receiving the same share, or in other words, each quintile (which represents 20 percent of the population) would receive 20 percent of spending. Not-pro-poor but progressive" is if the non-poor receive more than the poor, but still the poor receive a share larger than their share of consumption; graphically this line appears below the diagonal but above the Lorenz. Not-pro-poor and regressive occurs if the non-poor receive more than the poor, and the share of the poor is less than their share of consumption; graphically this line appears below the diagonal and below the Lorenz.

quintile and province<sup>60</sup>. For example, about 27 percent of total public funding benefits the richest quintile in Kasai-Orientale while the lowest quintile receives about 17 percent (3 percent below their population share). The corresponding figures for Equateur are 39 percent and 10 percent, respectively. Results by level of education, (Annex Figure 9, Annex Figure 10, Annex Figure 11, Annex Figure 12 and Annex Figure 13), also show some variation. For example, in Katanga, about 82 percent of higher education spending benefits the richest quintile, making the province the most unequal in distribution of public funding for this sub-sector.

Figure 35: Provincial level benefits incidence analysis of public expenditure on education-all levels of education



Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

## Unit cost analysis

148. **The cost structure of the DRC school system includes five categories of expenses:** (i) operating cost of the provincial and local education bureaux, (ii) operating cost of schools, (iii) salary of bureaux personnel, (iv) administrative school staff salary and (v) teachers' salary. The total operating cost at school and at bureaux level is called non-salary spending while the three different categories of salaries are called salary spending. The total costs of the operating cost plus the salary of the bureaux is designated as non- school personnel spending.

149. **The cost of education in the DRC depends on a number of factors including the type of school regime the student attends.** In fact, the unit cost analysis of education in the DRC is subject to particular considerations given the unusual structure and administration of the education system. In particular, the three school management types: (i) public conventionné schools, (ii) public non-conventionné schools, and (iii) private schools, all depend to varying extents on contributions from the household to finance the education system. This is not particularly surprising for private schools, which are established, financed and operated by private institutions, given that the latter are for-profit entities

<sup>60</sup> The annex section Annex Figure 9, Annex Figure 10, Annex Figure 11, Annex Figure 12, Annex Figure 13, present provincial distribution of funds by level of education and wealth quintile.

and do not receive funding by the government. Yet contributions from households remain an important source for both types of public institutions too, even though the government is theoretically responsible for salary as well as non-salary expenses.

150. **In the case of the public conventionné and non- conventionné schools, in addition to receiving funds from the government, the schools also charge households several school fees.** These include fees that contribute to teachers' salaries as well as to non-salary operating costs (see Annex Table 1). The fee structure is set at the province level by the governor prior to the start of each academic year. Household contributions remain therefore integral components of financing of the public education sector. These key elements are important in generating the unit cost.

151. **Public resource allocation to non-salary spending on the two types of public schools are unequal.** The database from SECOPE enabled a detailed disaggregation of school-level information in both financial and human resources management, which allows us to disaggregate unit cost for the two types of public schools. A detailed analysis of how the public funds are used in the two types of public schools is proposed in this section. Table 9 presents key features of financing within the two public schools systems (see note for details of the table descriptions). Public non-conventionné schools receive more than twice the amount received by conventionné schools for non-salary expenses, even though the conventionné schools account for over 75 percent of public enrollment and represent about 67 percent of all primary and secondary schools.

152. **The network of PROVED and Sous-PROVED bureaux that supervise the public non-conventionné schools is supported by the ministry,** with funds from SECOPE. But few of the bureaux supervising the public conventionné schools receive state support. Only 28 percent of these bureaux, on average, receive some public funding, although the rate ranges from 16 percent in Kasai Oriental to 43 percent for Sud-Kivu. Moreover, although they supervise more schools, the bureaux in the conventionné network get only 22 percent of the total funding supporting all bureau across the country, (though the range varies from 14 percent to 36 percent from one province to another). In addition, the conventionné schools receive only 2 FC for every 3 FC received by non-conventionné schools (i.e. the average per bureau receiving support for the conventionné schools is 193,474 FC compared to 307,724 FC for non-conventionné schools). This implies that conventionné schools may compensate for this discrepancy either through supplementary funds directly from their respective network<sup>61</sup> to cover some of the expenses or pass on the costs to households.

153. **Discrepancies in terms of funding between the two types of schools have important implications for the unit cost estimation of non-salary spending.** The unit cost of non-salary spending is 63 times higher for non-conventionné schools. For example, the unit cost (monthly spending divided by enrollment) at the national level is 21 FC per student for the non-conventionné compared with only 0.33 FC in conventionné schools. There are also important variations across provinces in unit costs by type of public school, with the highest gap observed in Maniema province. This could be explained by the fact that this province has been trailing behind in its education outcomes and that additional funding could have been poured into the non-conventionné school system to help redress the situation.

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<sup>61</sup> The Catholic school network tends to have better resource access than other religious networks although the extent of these additional resources remains unclear.

	Bureau paid (%)	of schools	of bureau on budget	of school on budget	Ave. bureau cost of Con	Ave. bureau cost of non-con	Unit cost Non-convent ionné	Unit cost of conventio nné
Bandundu	30	72	27	72	193,790	453,750	12.26	0.24
Bas - Congo	31	83	24	83	193,125	232,642	28.90	0.29
Equateur	21	70	16	70	196,250	372,904	12.39	0.25
Kasai-Occidental	31	77	27	77	197,727	353,750	15.83	0.29
Kasai-Oriental	16	66	14	66	198,409	306,316	13.41	0.30
Katanga	24	80	18	79	193,636	256,840	16.04	0.19
Kinshasa	34	61	24	30	181,250	23,929	3.23	0.43
Maniema	36	75	27	76	197,308	495,000	87.18	0.80
Nord - Kivu	29	84	20	84	190,588	362,195	25.93	0.31
Prov. Orientale	30	83	23	82	197,791	232,598	8.26	0.30
Sud - Kivu	43	91	36	91	189,000	226,364	9.10	0.27
DRC	28	77	22	76	193,474	307,724	21.14	0.33

Source: Authors' estimations based on SECOPE

Note:

Column 1: shows share of conventiionné school bureaux on SECOPE payroll (number of bureaux))

Column 2: shows share of total schools managed by conventiionné schools

Column 3: shows % of bureau expenses went to public conventiionné schools( share of bureau spending)

Column 4: shows share of conventiionné s schools on SECOPE budget(note that SECOPE is yet to mechanize all school in public schools

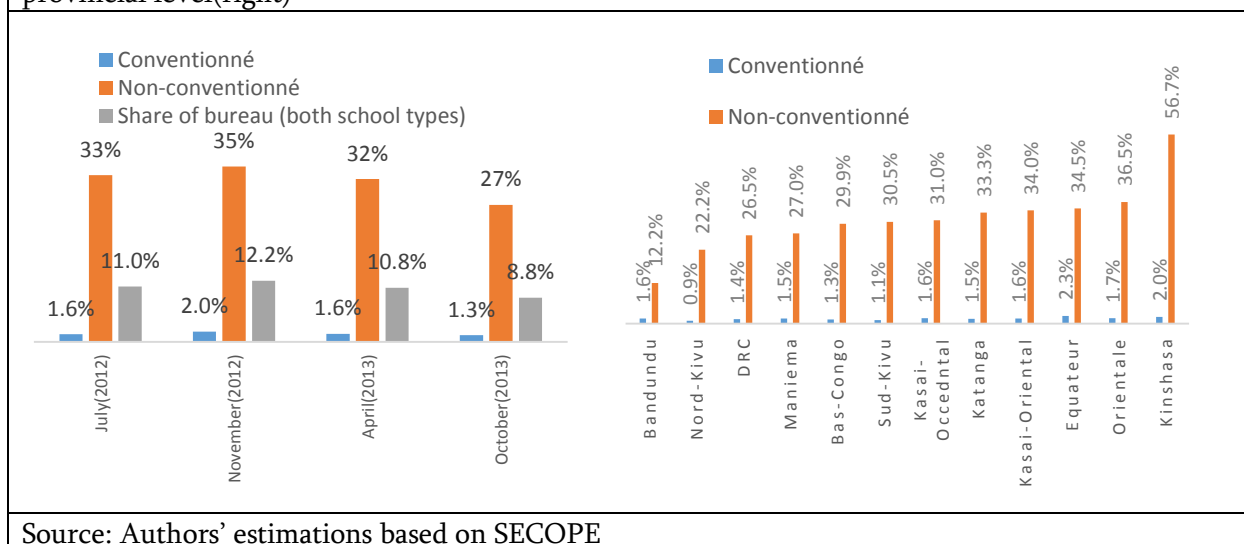
Column 4 and 5: shows average bureau spending for conventiionné and non-conventiionné schools respectively

Column, 6 & 7: shows average unit cost of bureau cost (per student), for non-conventiionné and conventiionné schools, respectively

154. **Total non-salary spending as a share of total recurrent education spending is about 20 times higher in non-conventiionné public schools than in conventiionné public schools.** Figure 36 shows the non-salary spending as share of total recurrent spending for MEPSP for the two school types by province. The data was obtained from SECOPE monthly transfers across four months between 2012 and 2013 to determine the robustness of this share. At the national level, non-conventiionné schools' share of non-salary constitutes about a third of total recurrent education spending compared with less than 2 percent for conventiionné schools. The difference clearly demonstrates that the two types of schools do not receive equivalent support from the government.

155. **Comparison of provinces shows great variations in the share of non-salary spending to the total recurrent education spending in non-conventiionné schools and almost the same variation in conventiionné schools.** It appears that the non-salary spending in conventiionné schools by provinces may be centrally managed and equal distributed while the variations in the non-conventiionné schools could be associated with inefficient allocation of resources.

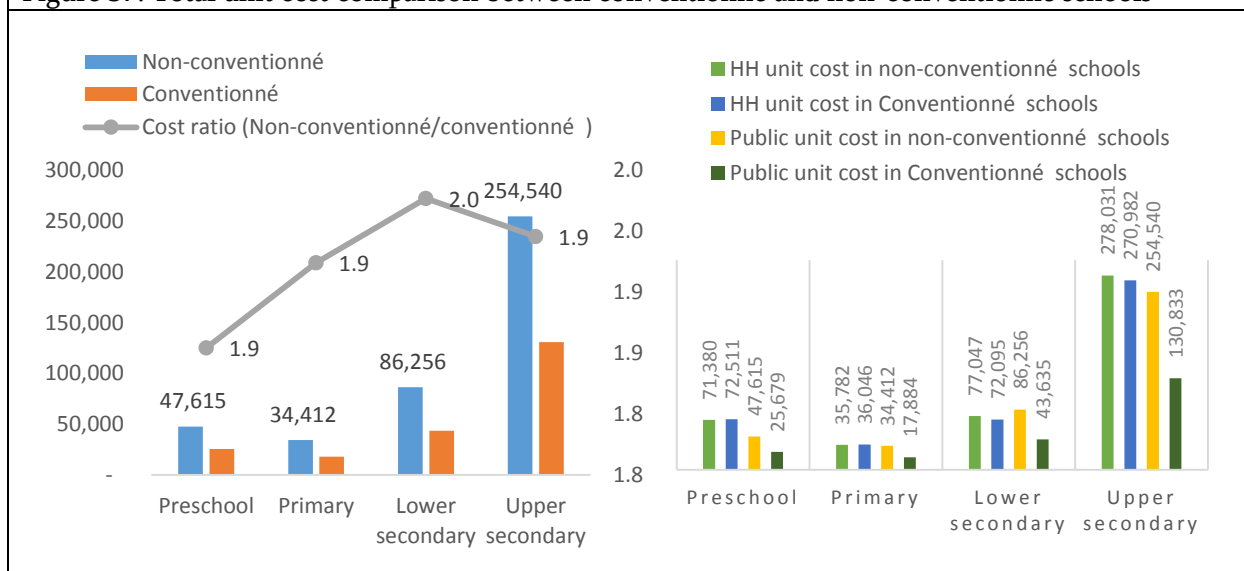
Figure 36: Trends of share of bureau spending by school types (left) and between the two schools at provincial level (right)



Source: Authors' estimations based on SECOPE

156. **High non-salary spending in non-conventionné schools contributes to higher total unit costs for these types of schools.** Household contributions and public spending on salaries are added to determine the total unit cost in the two types of public schools (in the case of the conventionné schools, support from their respective religious networks may also play a role, but data on such support was not available at the time this report was prepared). Figure 37 (a) shows the total unit cost comparison between public conventionné and public non-conventionné schools. Figure 37 (b) shows the breakdown of household and public unit cost by the two types of public schools. The result shows that non-conventionné schools are almost twice as expensive as conventionné schools at all levels of education. However, as shown on Figure 37 (b), private out-of-pocket unit cost shows very minor variations across regimes showing that public unit cost is the main driver of the total unit cost difference between the conventionné and the non-conventionné schools.

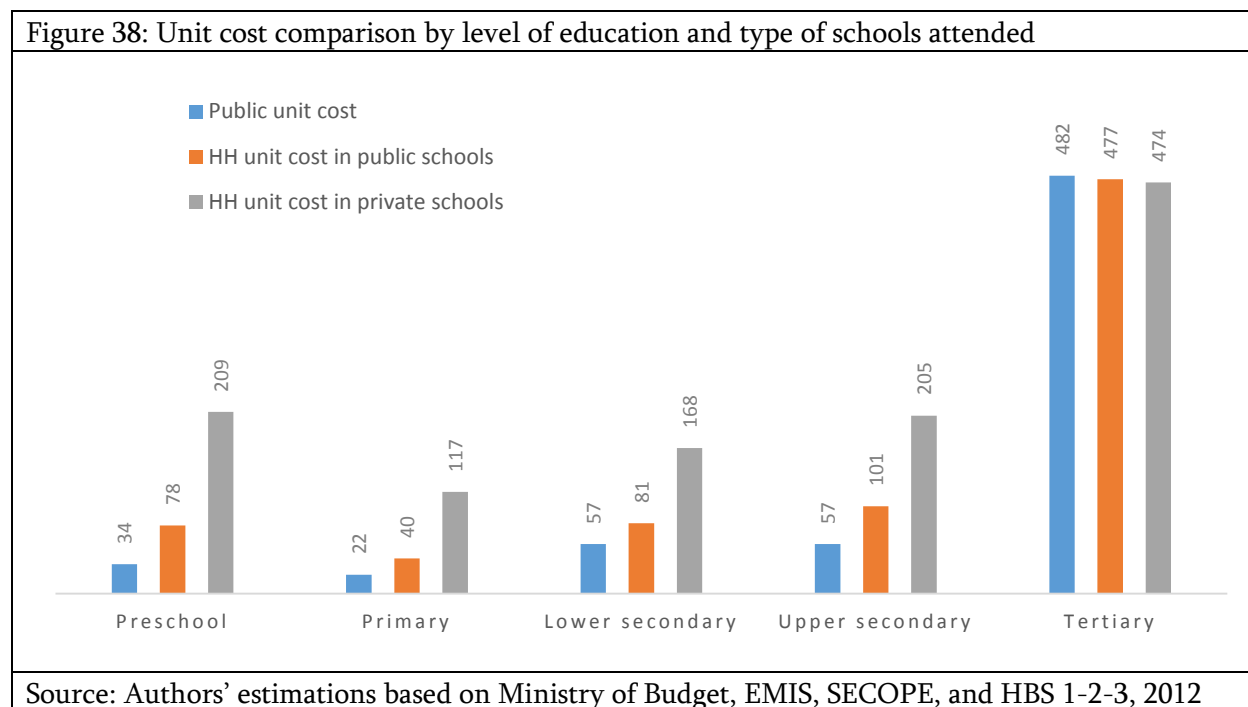
Figure 37: Total unit cost comparison between conventionné and non-conventionné schools



Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

157. **Turning to a cost comparison of public and private education**, Figure 38 shows the public unit cost (total public expenditure/ total number of students at each education level) and household unit cost by level of education (total household spending on education / total number of students in each education level) and the breakdown of the household unit cost based on whether they are paid into public or private schools. Unit cost comparisons show that households spend more in preschool, primary and secondary education while the government spends slightly more in higher education. Per student cost in preschool, primary and secondary education is lower in public schools than it is in private schools. However, per-student cost in public higher education is more than double that of its private counterpart. Educating a child in pre-primary costs US\$112 in public schools (US\$34 cost to public funding and US\$78 cost to households), compared with US\$209 in private schools (where the cost is paid entirely by households). Similarly, a child in private primary school costs US\$55 more than a child in public primary school. The corresponding figures for lower secondary and upper secondary show that private education is US\$30 and US\$43 respectively more expensive in private education than in public education. In higher education, per student cost is US\$959 in public institutions, which is more than twice what it costs in private establishments (US\$474).

158. **The unit cost analysis suggests that private higher education is more efficient than public higher education but this could mask differences in the quality of education.** The high unit cost of private general education (preschool, primary and secondary education) suggests a higher quality of education and services provided; indeed participation in the private schools indicates households' willingness to pay for higher quality service. However, in higher education the relatively lower unit cost of private institutions could be driven by lower quality of teaching staff. Qualitative information collected suggests that those teaching in private institutions tend to be less qualified or teaching on a part-time basis and are therefore remunerated at a lower level than those in public institutions.



159. **There is a significant variation in the total unit cost across provinces within each level of education.** Table 10 shows provincial level unit cost- the latter has been divided into (i) unit costs to

public funding, and (ii) unit costs to households. The table also shows the breakdown of the household unit cost by school type, i.e. whether payment is going into the public school system or the private school system. The provincial analysis of unit cost is particularly important for two reasons: (i) living standards vary across provinces, but the teachers' salary scales do not make any adjustments to account for the living cost differences by provinces except in Kinshasa, and (ii), budget distribution by provinces is not determined by the head count of the student population. While the difference in unit cost by province may be driven in part by variations in the quality of education, it also may be that in provinces which receive relatively low funds, schools pass the costs onto parents, leading to high household unit cost for those in school or even causing students to drop out.

160. **At the primary level, Katanga has the lowest public unit cost (US\$17), while Kinshasa has the highest (US\$45) followed by Bandundu (US\$26).** The high public unit cost for Kinshasa is associated with a higher salary scale. On the other hand, Katanga's low public unit cost results in a high cost to families. Households there pay on average US\$59 for primary school, compared with the national average of US\$40. This high household cost is associated with a 9.9 percent dropout rate for children within the official school age. However, since the combined unit cost (US\$17 and US\$59) is still below the private schools cost (US\$109), parents are still better off sending their children to public schools, and the society as a whole gets a better deal from public schools. In the case of Bandundu, the opposite can be observed; its relatively high primary unit cost from the public budget is associated with one of the lowest dropout rates in the country (3.9 percent), and household out-of-pocket payment is also the least (only US\$18 compared to the national average of US\$40).

161. Unlike the general education level, access to higher education is open to all regardless of the province of residence. As such, variation in the unit cost could be attributed to the variation in fields of study and programs offered by the higher education institutions. Furthermore, since public higher education is managed at the central level and the institutions charge sizable fees, budget allocation may not have big equity implications. And given that some budgets are allocated by name of the institution, issues similar to the ones faced at the general education level may not come up.



Public	Preschool	Primary	Lower secondary	Upper secondary	Higher
Kinshasa	66	45	105	105	500
Bas-Congo	31	24	60	60	753
Bandundu	33	26	74	74	528
Equateur	39	24	65	65	871
Orientale	73	19	54	54	729
Nord-Kivu	33	21	39	39	246
Maniema	68	23	62	62	642
Sud-Kivu	9	18	37	37	558
Katanga	13	17	34	34	272
Kasai-Orientale	6	19	51	51	497
Kasai-Occidental	71	18	39	39	546
DRC	34	22	57	57	482
Household in public school					
Kinshasa	232	194	226	288	583
Bas-Congo	68	48	94	118	431
Bandundu	10	18	49	60	292
Equateur	24	26	51	56	363
Orientale	66	36	82	80	393
Nord-Kivu	58	40	94	98	398
Maniema	5	22	45	53	561
Sud-Kivu	50	36	77	82	413
Katanga	88	59	89	126	437
Kasai-Orientale	12	14	36	52	546
Kasai-Occidental	11	14	42	54	366
DRC	78	40	81	101	477
Household in private schools					
Kinshasa	281	189	233	297	679
Bas-Congo	162	158	146	169	247
Bandundu	6	47	75	93	186
Equateur	70	50	45	62	355
Orientale	38	106	260	149	462
Nord-Kivu	164	110	147	171	303
Maniema	6	81	81	114	519
Sud-Kivu	34	58	82	96	214
Katanga	203	109	191	201	590
Kasai-Orientale	18	35	51	75	153
Kasai-Occidental	74	41	76	108	380
DRC	209	117	168	205	474

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

162. **Although at the national level, household-out-of-pocket contributions stand at 73 percent of total education spending, the shares vary greatly by level of education and by province.** Table 11 shows the share of household spending out of the total education expenditure, by level of education and by province. The lowest share of household payment is observed in Bandundu (42 percent), while the highest share is observed in Kinshasa (87 percent). A high level of dependence on government contributions may also be a reflection of the poverty status within the province. For example the headcount poverty rate for Bandundu is the highest in the country with 79 percent of population living

below the poverty line<sup>62</sup> while the lowest rate observed is in Kinshasa with only 31 percent living below the poverty line.

	Pre-school	Primary	Lower secondary	Upper secondary	Higher	All
Total cost in millions of US\$						
Kinshasa	25.2	228.0	75.3	199.6	224.5	752.7
Bas-Congo	1.5	59.1	18.0	37.1	14.3	130.0
Bandundu	1.5	67.8	25.4	68.3	22.2	185.3
Equateur	1.4	65.6	18.9	36.1	22.5	144.5
Orientale	1.7	71.2	20.5	34.7	46.6	174.6
Nord-Kivu	0.7	56.4	20.2	33.4	21.2	131.8
Maniema	0.2	17.2	6.1	9.2	9.5	42.2
Sud-Kivu	0.8	57.8	19.0	32.3	29.7	139.6
Katanga	8.5	131.5	35.7	63.8	58.1	297.6
Kasai-Orientale	0.2	40.0	12.8	22.7	18.2	94.0
Kasai-Occidental	1.1	36.3	12.1	23.1	19.5	92.0
DRC	43	831	264	560	486	2184
Percentage of household payment						
Kinshasa	98	91	88	90	77	87
Bas-Congo	94	75	74	78	55	74
Bandundu	10	36	44	49	42	42
Equateur	38	51	59	62	57	56
Orientale	61	64	74	74	63	67
Nord-Kivu	83	65	78	79	77	73
Maniema	6	49	50	54	59	52
Sud-Kivu	91	74	82	84	66	76
Katanga	99	80	83	88	68	80
Kasai-Orientale	44	52	58	68	55	57
Kasai-Occidental	55	49	63	70	62	59
DRC	89	71	74	78	69	73

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

163. **The per student public spending as a share of the GDP per capita is low in the DRC, especially in primary and secondary education, when compared to other SSA countries.** Figure 39 shows the per student public spending as a share of the GDP per capita for 13 countries and the SSA average for all three levels of education<sup>63</sup>. While efficient resource utilization could be an important factor, Figure 39 clearly shows that government spending on education in DRC is not only low in terms of actual spending but also low relatively to other SSA countries especially in primary and in secondary education. Given that the poorest households benefit more from public education spending at the primary level, this implies that the public education spending system in DRC tends to be regressive.

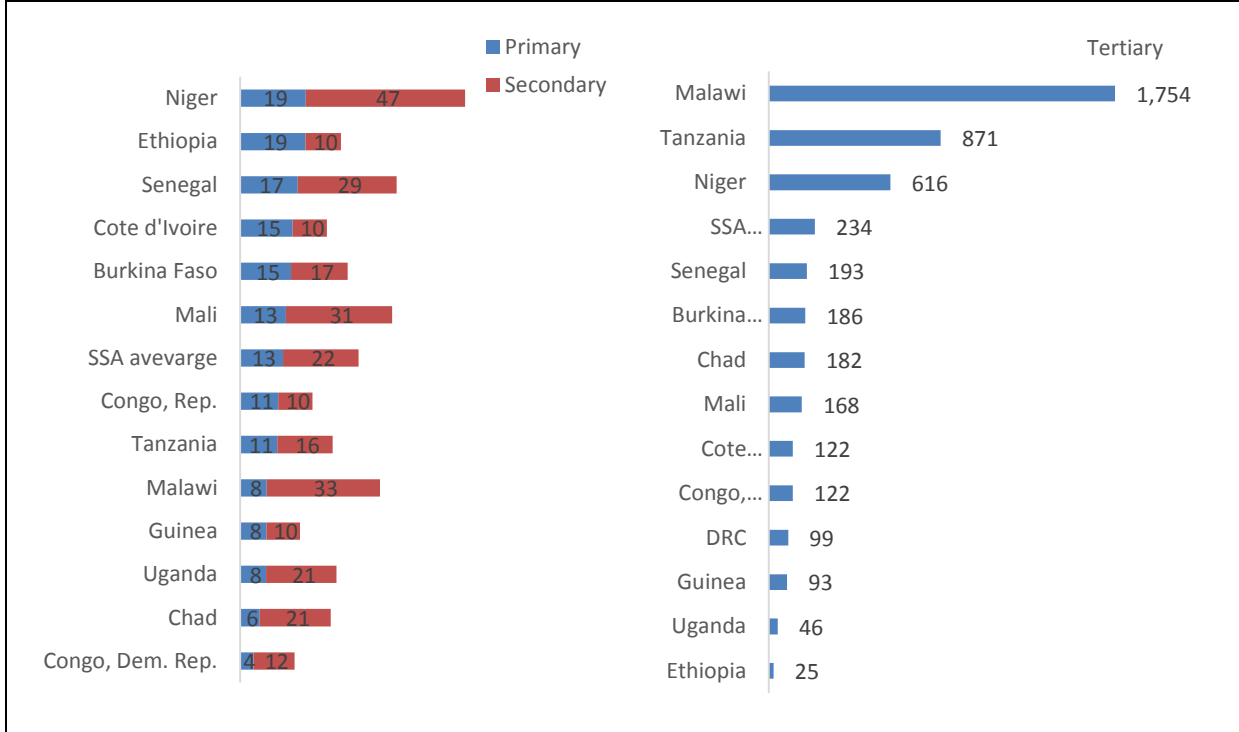
164. **The issue of inequality in public education spending could remain even after the mécanisation of all teachers (putting them all on the public payrolls).** The per student public spending as a share of the GDP per capita remains low in primary and secondary education even after accounting for the

<sup>62</sup> Poverty line and poverty estimates based on 1-2-3 HBS survey 2012/13.

<sup>63</sup> Public expenditure per student is the public current spending on education divided by the total number of students by level, as a percentage of GDP per capita. Public expenditure (current and capital) includes government spending on educational institutions (both public and private), education administration, and subsidies for private entities (students/households and other private entities).

mécanisation of all teachers. When accounting for the mécanisation of all teachers (estimated at US\$276.5 million), the estimated per student public spending as a share of the GDP per capita increases from 4 percent to only 6.9 percent in primary education and from 12.0 percent to 19.4 percent in secondary education. These figures still remain well below the SSA average of 13 percent at primary and 23 percent at secondary levels.

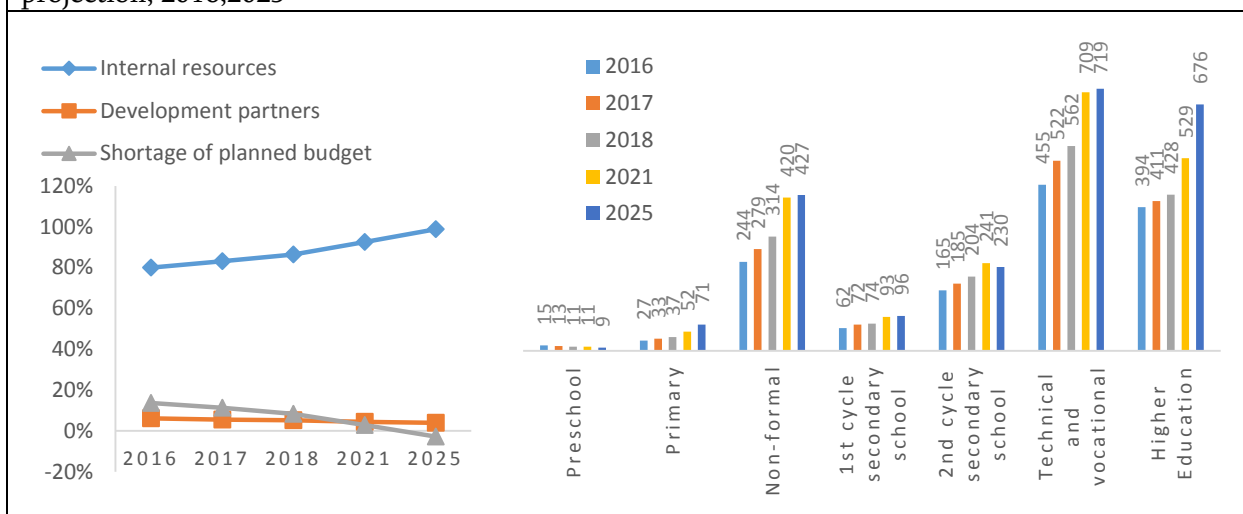
Figure 39: Per student public spending, an international comparison (% of GDP per capita)



Source: Authors' calculation based on Ministry of Budget for DRC and The World Bank Group and UIS for comparison countries, 2011 or latest and 2013 for DRC.

165. **The medium-term outlook of the education sector strategy does not address the current challenges arising from the financing of the education sector.** From the recently adopted 2016-2025 sector strategy, the projected budget still shows high dependence on donors. It was also planned with a significant financing gap, which has not been addressed. However, the projection of the costs based on the new sector strategy reveals both good and bad news. The good news is that the functional classification by level of education is well-crafted which is very promising for sectorial analysis at the monitoring and evaluation stages. And the strategy planning is based on the focused and measurable targets, which is also important. On the negative side, there are three core areas of concern: (i) the ministry of budget needs to establish a clear budget line for each level of education and properly plan according to the budget lines- the lack of clear and consistent budget nomenclature is one of the drawbacks for this analysis, (ii), the projected strategy has not taken private provision of schooling into account both in terms of cost and the human resources needs, and (iii), projected scenarios are missing the demographic aspect of the unit cost, which currently is projected to increase over time in US dollars. The unit cost calculation is also based on the expected funds from outside resources, which may or may not be realized.

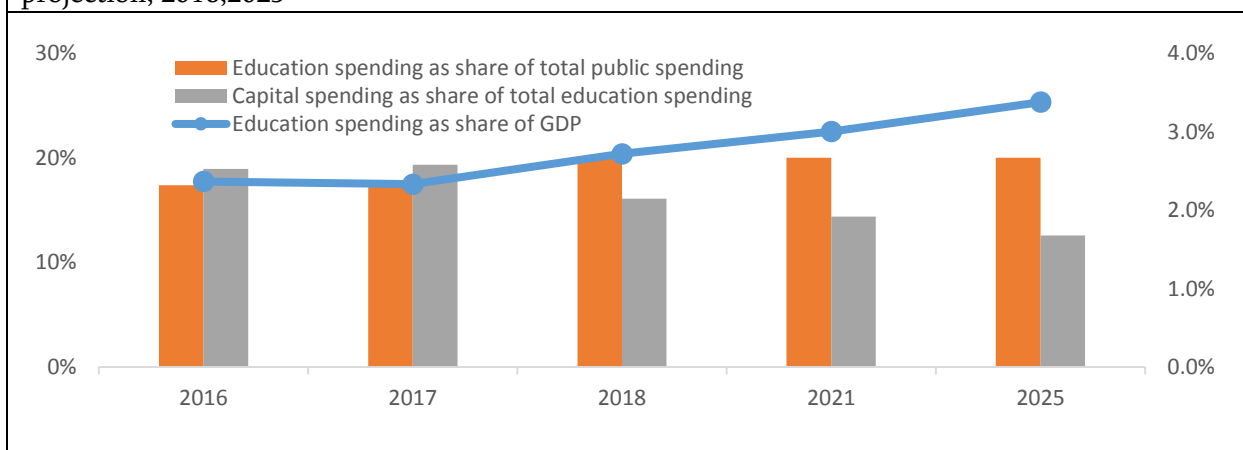
Figure 40: Medium-term outlook of public spending on education by sources and unit cost projection, 2016,2025



Source: Education Sector Strategy, 2016-2025, January 2015

166. Based on the projected GDP growth, the government could afford to increase the budget for the education sector especially given that education is one of the top five priority sectors designated by the authorities. Education spending as share of GDP is projected to reach only 3.4 percent by 2025 (Figure 41) which is still below the current SSA average (5.0 percent) and the minimum suggested rate of 4.7 percent. Just as with the unit cost analysis performed in the last sector strategy, the main concern with the projected estimate for the new sector strategy is that the capital spending still heavily depends on external sources (about 44 percent annually) especially given the recent history of low execution rate for external resources.

Figure 41: Medium-term outlook of public spending on education by sources and unit cost projection, 2016,2025



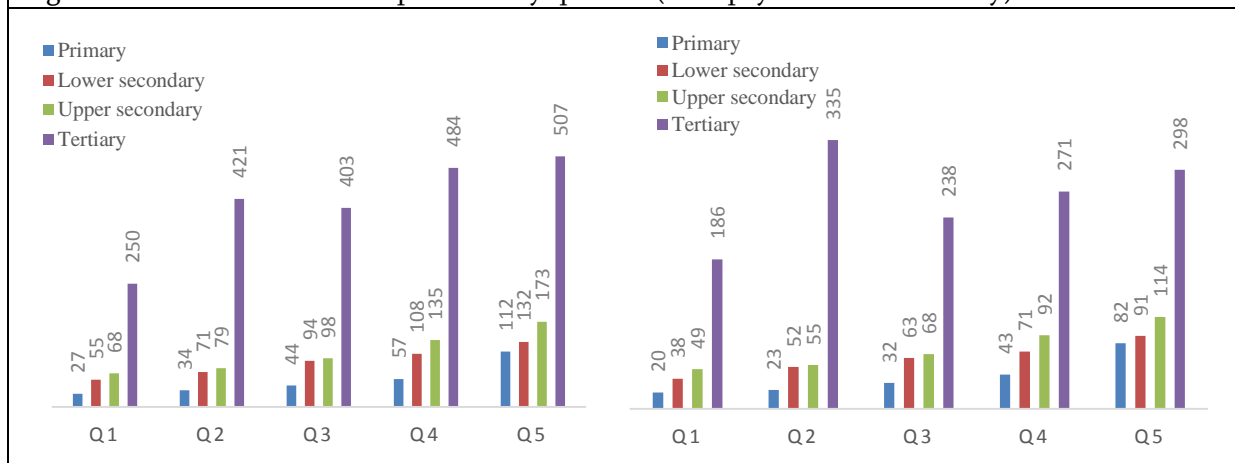
Source : Education Sector Strategy, 2016-2025, January 2015

## Affordability of schools and role of households

167. **Children from the poorest households face more difficulties in affording post-primary education given the high cost barrier.** Children from the poorest households face a significant resource shortage compared with children from affluent families. Figure 42 presents the estimates of household education spending per student (total spending (a) and fees only (b)) by quintile. This shows that in both cases, available resources per student increase with each quintile. This means that two children, from two different income quintiles, both enrolled in the same grade, have different levels of access to resources even though they are benefiting from equal access to public resources. (Children from richer quintiles may benefit from higher spending on uniforms, books, etc, and may attend better schools charging higher fees). To the extent that these inputs lead to better student learning and performance, the education outcomes of poor students would be expected to be worse than those of better-off students.

168. **The household unit cost in higher education is very high making higher education difficult for poor children to attend given the resources available.** The funds available per child for the poor (the first three quintiles, i.e. population below poverty line) is below the unit cost average for higher education in both public and private higher education institutions. For example, higher education unit cost is US\$474 in private school and US\$482 in public school but for the middle quintile, funds available per student averages only US\$403. As stated above, the cost of education is mostly driven by fees (right figures) and any intervention that reduces fees would create opportunities for the poor to access education services.

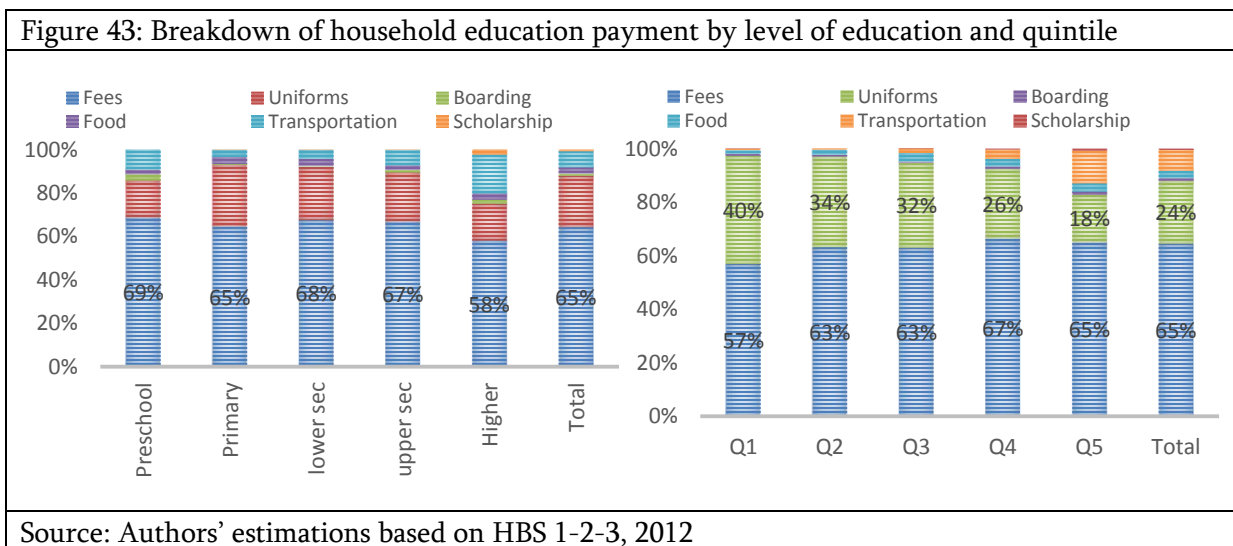
Figure 42: Available resources per child by quintile (total payment and fees only)



Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

169. **School fee payment constitutes the highest share of all school related charges for all levels of education, across all quintiles.** Figure 43 shows the breakdown of all school related charges by level of education and by quintile. The distribution of the fees also hints at other dynamics within education payments across different wealth quintiles. While the fees take the lion share of all spending in all education levels and wealth quintiles, transportation is the third largest household payment for the sub-sector and also for the richest quintile who mostly dominates the enrollment in higher education.

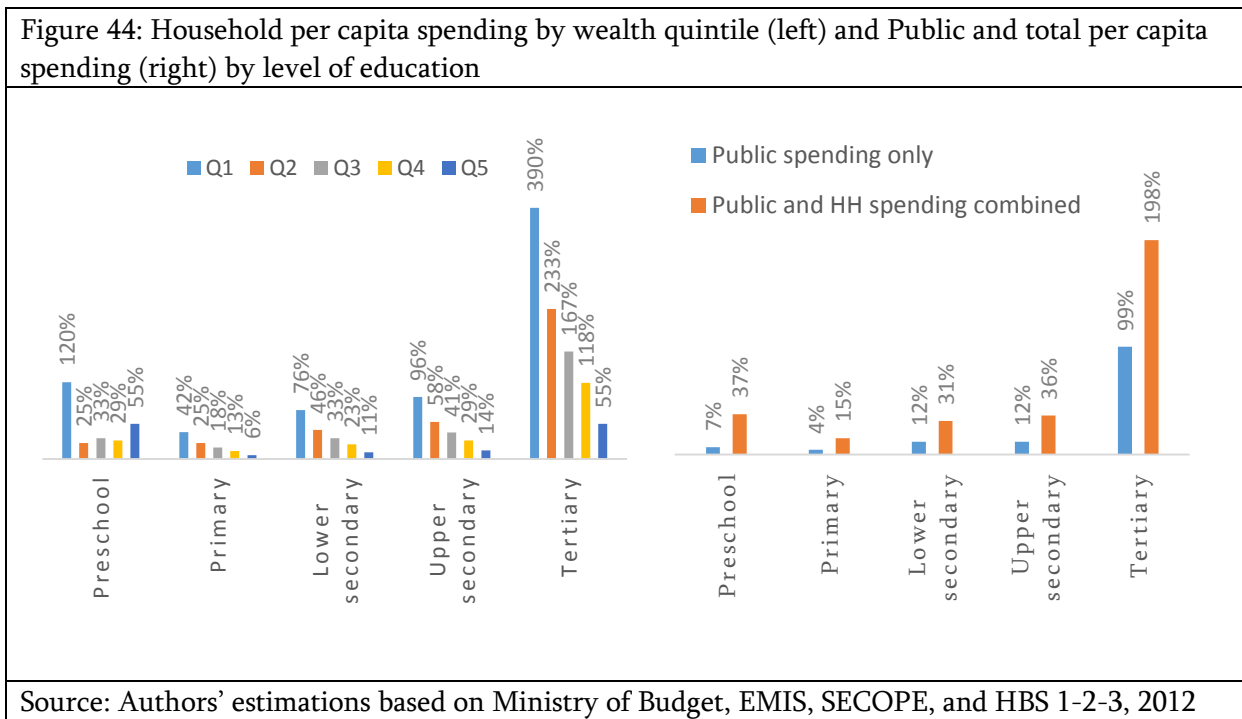
170. On average, school fees make up 65 percent of total household spending although this varies slightly by level of education and wealth quintile. In primary education, the share of school fees is marginally smaller compared with the secondary school level but it is impossible to tell whether this is organically due to the relative size of fees across levels or to the effects of the gratuité policy (free primary education policy). Similarly, the share of fees for the poorest quintile is relatively small but this can be explained by a lack of access to post-primary education where the unit cost including the school fees are generally higher than at the primary level. One policy option is to exempt school fees for the poor in post primary education levels and reinforce the school fee abolition policy at the primary level. Overall, these suggest that students belonging to poor households face disadvantages in access to essential school inputs and there is a rationale for public intervention to narrow the gap and foster inclusive growth.



171. The resilience of the Congolese household is unique in many ways and is exemplified by the premium placed on education, even by the poorest households. For example the latter spend a higher share of their average consumption on education than the richest quintiles. Figure 44 shows (a) per capita spending by level of education<sup>64</sup> by quintile and (b) per capita spending of public by level and by the total spending on education. Households from the poorest quintile spend more than six times more of their per capita consumption compared to households in the richest quintile. On average, households' per capita spending on education in the DRC is greater than the government per capita spending at all levels of education and the share is very high for the poorest quintile at all levels of education. For example, at the primary level, the poorest quintile pays 42 percent of their per-capita consumption while this share is only 6 percent for the richest quintile. This rate for the public budget is only 4 percent, i.e. per student spending at primary level is 4 percent of GDP per capita. At the higher education level, this rate is strikingly high, making it nearly impossible for the children for the poorest household to attend higher education. In this sub-sector, per student spending for the poorest is 390 percent of their per capita consumption while it is 55 percent for the richest quintile. For the public budget, tertiary education is very expensive as well (99 percent per student per capita) followed by

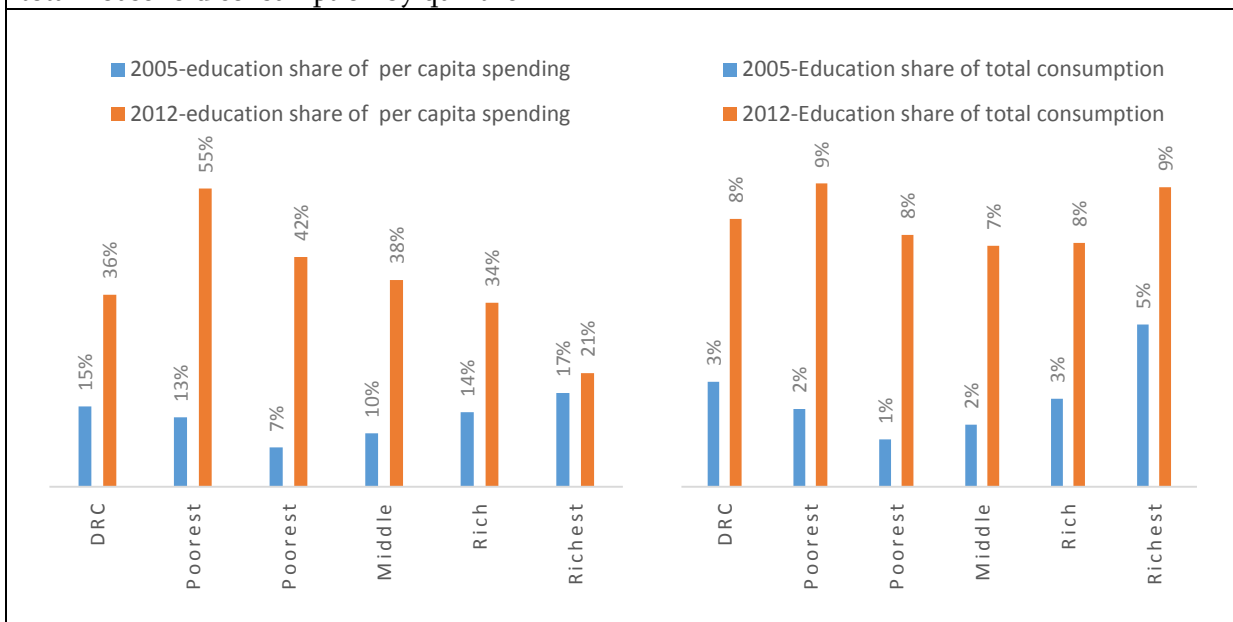
<sup>64</sup> The per capita spending (the per student spending as a share of the average household consumption or the per student payment divided by the average per capita consumption for households for each quintile) is very high for the poorest households at all levels of education, making education a significant financial burden on poorer households.

upper secondary education (12 percent). This implies that poor families in the DRC face a substantial challenge to educate their children relative to the top quintile, especially at the post-primary level. This finding strongly supports the rationale for an education subsidy specifically targeting the poor in post-primary education to equalize education opportunities.



172. **The trends in household spending on education clearly illustrate the particularly strong commitment to education from the poorest families.** Between 2005 and 2012, the poorest households increased spending on education by more than 4 fold relative to households in the richest quintile. For example, the poorest quintile increased per student per capita spending from 13 percent in 2005 to a remarkable 55 percent in 2012 compared to an increase from 17 percent in 2005 to 21 percent in 2012 for the richest quintile. This also indicates that the relatively wealthier families tend to invest early on education while the relative poorer households are catching up by tripling their spending level (Figure 45). However, although all parents in the DRC are willing to pay for their children's education, the burden on the poor is very high relative to their income. And given that the poorest quintiles have a larger number of children in the household, the share of per capita spending is much higher for them. This is a clear indication that poor households have no capacity or resources to invest in upper secondary and tertiary education where the unit costs are high. It is also worth noting that the share of household spending on education is four fold that of public spending as a share of GDP (8.2 percent for household total consumption compared to 2.3 percent of GDP for public). The trend indicates that parents are more committed than the government to furthering the education sector since government spending on education only increased from 1.8 percent of GDP in 2005 to 2.3 percent of GDP in 2013 while household spending increased from 3 percent of their income to 8 percent during the same time.

Figure 45: Trends household education per capita spending and education spending as share of total household consumption by quintile

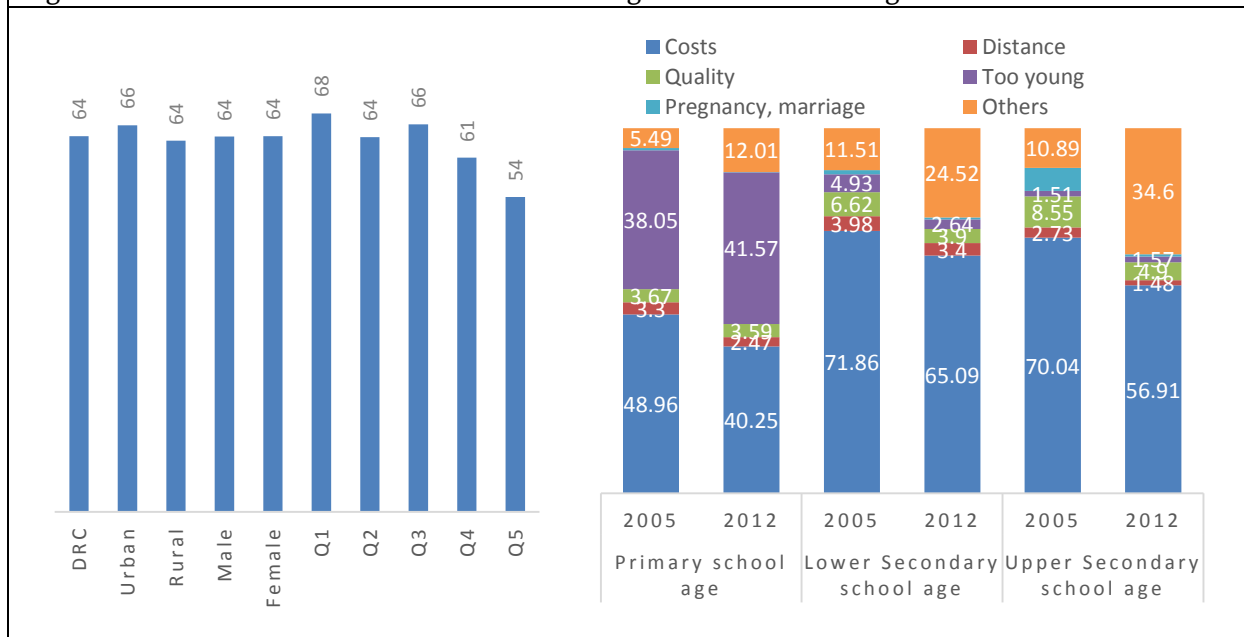


Source: Authors' estimations based on HBS 1-2-3, 2005 and 2012

173. **Despite households' strong commitment to educating their children, the financial burden still excludes many children from educational opportunities.** Financial constraints ranked the highest among the reasons listed for children being out-of-school at all levels of education, areas of residence, gender, and consumption quintiles in DRC (Figure 46). The detailed breakdown of reasons for out-of-school status by level of education shows financial reason is the highest at the marginal school attendance age (age 10-14). For primary school age children (age 6-11), being 'too young' represents a significant share of the reason for being out-of-school. However, this could also capture cross related factors associated with age. For example, distance to school: if the school is considered too far, younger children may not be able, or allowed, to walk to it. In similar fashion, stunted growth in early childhood may undermine proper development of the child and may affect his/her readiness for school. Such issues can be addressed by provision of early child development (ECD) programs in combination with other child development activities including nutrition programs. At the secondary school age, the main reason provided for being out-of-school was financial with 65 percent for lower secondary school age children (age 12-13) and 57 percent for upper secondary school age (age 14-17), although this presented a drop in the rate from 72 percent and 70 percent respectively in 2005.



Figure 46: School fees account for the most often given reason for being out-of-school.



Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

174. **The provincial analysis of household payment on education as a share of the total spending and per capita spending reveals disparities in the burden across the provinces.** Table 12 shows household education expenditure as share of total spending—and per student per capita spending—by quintile and province. In all provinces, the per student per capita share of education spending takes the highest share for the poorest quintile even though there is great variation in the share of spending by quintile from province to province. In terms of the share of spending, it ranges from a low of 6 percent in three provinces (Bandundu, Maniema and Province-Orientale) to a high of 14 percent in Kinshasa and there is variation in the share of spending by quintile within each of the provinces as well. For example, in Bas-Congo, Bandundu, and Nord-Kivu the poorest quintile's education spending takes the highest share while in Kinshasa, Province-Orientale and Kananga the richest quintile has the highest share of spending. For some provinces, such as Kinshasa and Katanga, per student per capita spending is especially high which has important implications on the household's ability to send their children to school. The two provinces use relatively more private school services, which are associated with high unit cost, which could be one of the explanations for what is observed there. For example, in Katanga, where the out-of-school rate is the highest in the country (34 percent or about a million children out of approximately 5 million out-of-school children nationwide in 2013). For Maniema, the poorest households pay almost the entire share of their per capita spending on education (96 percent). This means that family members who have children in school pay the entire amount of their per capita share on the particular child's education and share the remaining family income for the rest of their living needs.

	Share of spending						Per capita spending					
	All	Q1	Q2	Q3	Q4	Q5	All	Q1	Q2	Q3	Q4	Q5
Kinshasa	14%	12%	12%	13%	14%	16%	58%	80%	66%	66%	60%	30%
Bas-Congo	8%	10%	7%	7%	8%	9%	26%	51%	30%	26%	28%	14%
Bandundu	6%	9%	6%	6%	5%	6%	23%	49%	35%	26%	23%	11%
Equateur	7%	7%	7%	7%	6%	7%	26%	41%	38%	32%	22%	15%
Orientale	8%	8%	6%	7%	6%	11%	20%	33%	25%	24%	15%	13%
Nord-Kivu	8%	10%	7%	7%	7%	8%	25%	52%	31%	27%	24%	15%
Maniema	6%	9%	4%	5%	4%	8%	28%	96%	26%	21%	17%	19%
Sud-Kivu	8%	9%	9%	7%	8%	6%	36%	53%	53%	40%	44%	17%
Katanga	11%	13%	9%	9%	9%	15%	44%	44%	32%	34%	33%	35%
Kasai- Orientale	6%	8%	9%	6%	4%	6%	21%	44%	47%	22%	16%	10%
Kasai- Occidental	6%	7%	6%	4%	6%	5%	24%	50%	29%	24%	24%	13%
DRC	8%	9%	8%	7%	8%	9%	36%	55%	42%	38%	34%	21%

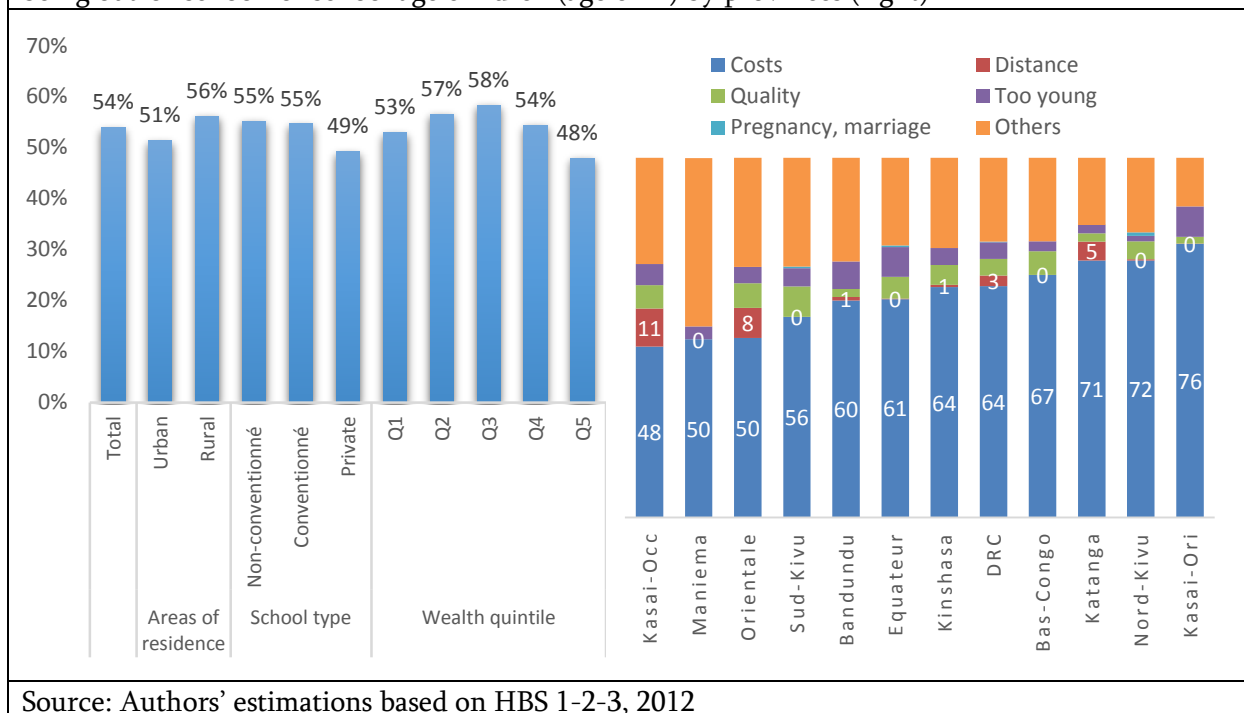
Source: Authors' estimations based on HBS 1-2-3, 2012

175. **When children are out-of-school, nearly two thirds of the time the main reason given is related to the prohibitive cost of school attendance, and more than half of parents are unsatisfied with the frequency of fees contributions.** Figure 47 shows the percentage of households that self-reported as dissatisfied with the frequency of fees collection by area of residence, school type and wealth quintile as well as the province level breakdown of reasons for being out-of-school. Although generally, conventionné schools are less expensive, the dissatisfaction rate was similar across all public schools (55 percent). And despite the fact that private schools charge more, households are relatively more satisfied with the frequency of fee collection there.

176. **The provincial analysis of the reasons of out-of-school status confirms that cost is the most important factor barring schooling for all children,** although its importance varies greatly from a low of 48 percent in Kasai-Occidental to a high of 76 percent in Kasai-Orientale. It is worth mentioning that even about half of the richest quintile reported dissatisfaction rate of fee collection, which is also the same as the dissatisfaction at private schools. Overall, all the evidence, including unit cost, share of households spending on fees, reasons for out-of-school status, and household satisfaction rate confirms that school fees are the main driver of high household expenditure on education and the exclusion of more than three million Congolese<sup>65</sup> children from the school system.

<sup>65</sup> It accounts for 64 percent of 4.9 million children.

Figure 47: Household dissatisfaction rate over frequency of fee contributions (left), and reasons for being out-of-school for school age children (age 6-17) by provinces (right)



Source: Authors' estimations based on HBS 1-2-3, 2012

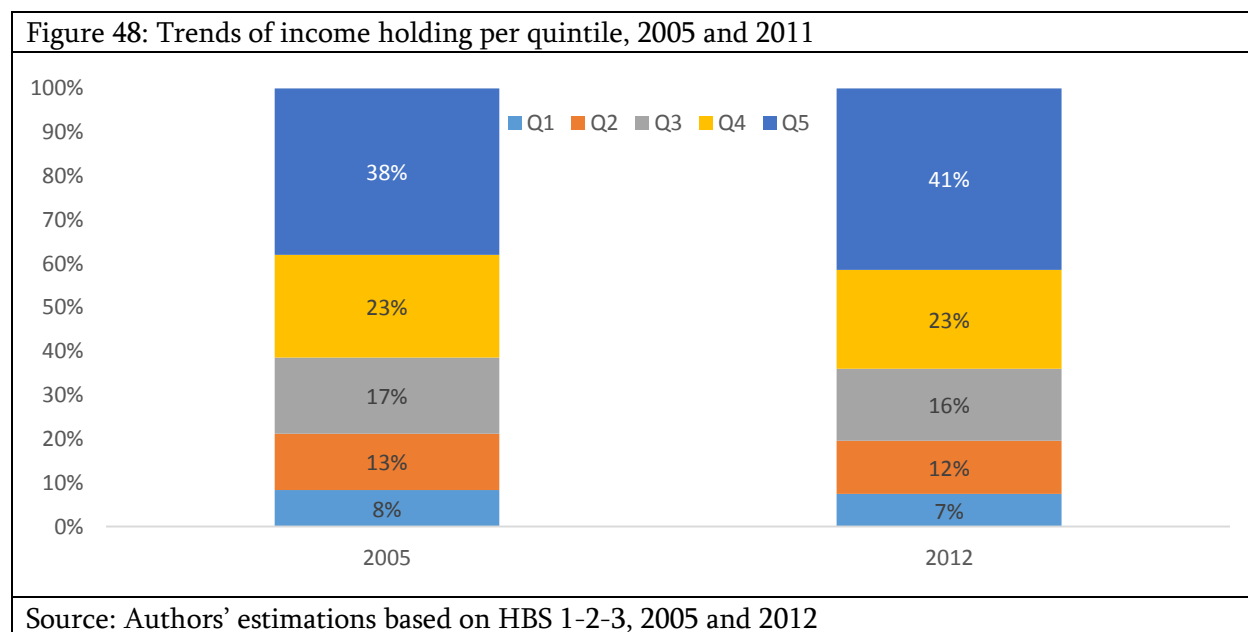
177. **Household wealth, distance to school and public education expenditures all determine to varying extents the likelihood of being out-of-school.** Multivariate regressions help to further explore the factors affecting the out-of-school rate in the DRC and to provide further evidence that household wealth, which is indicative of the households' ability to finance education, is a key factor. We also concentrate on two other explanatory factors: distance to school and public education expenditures<sup>66</sup>. In addition to the variables of interest, the availability of data allows us to consider other supply side factors (such as school facilities,) and demand side factors (such as students' personal characteristics and households' characteristics) as control variables. The results show that both supply and demand side factors significantly affect the likelihood of being out-of-school (Annex Table 11). In particular, the distance to primary and secondary schools has a positive influence on the probability of being out-of-school, while living in a household that belongs to the highest income quintile is associated with a lower probability of being out school. The probability of being out-of-school decreases with public education expenditures. However the effects of public education spending, distance and household wealth on out-of-school status vary across areas, provinces and levels of education (Annex Table 11, Annex Table 13, and Annex Table 14). Other factors of interest have also been teased out of this analysis such as the fact that being a female is associated with a higher probability of being out-of-school, while having a female as household head is negatively correlated with being out-of-school.

178. **Public expenditures in education also matter for dropout, pass rates, repetition, delayed entry and transition through the school system.** The results of the set of econometric regressions performed in Annex Table 15, Annex Table 16, Annex Table 17 and Annex Table 18, show that public education spending is an important determinant for dropout in secondary education and for pass as well as

<sup>66</sup> A more detailed discussion about the relationship between distance to school and school participation is proposed in section 6.4.2

repetition in primary and in upper secondary education. Higher public expenditures is also associated with a lower delayed entry incidence and a higher chance of succeeding transition to primary and to lower secondary education. Distance to schools is associated with a higher probability of dropping out of primary and upper secondary schools and a lower probability of successfully transitioning to primary and to lower secondary education. While household income level matters for delayed entry and transition until upper secondary education it does not have any effect on the dropout rate and the pass rate in primary and in lower secondary education.

179. **The trend in inequality in the DRC indicates that the income holding of the poor (the first three quintiles), diminished between 2005 and 2012, worsening the gap between the poor and wealthy.** Figure 48 shows the income distribution by quintile for 2005 and 2012. The increased inequality coupled with the huge burden of education costs on the poor, implies that the worsened wealth distribution may lead to further cyclical intergeneration inequality. The income holding of the poorest quintile is only 7 percent compared to their population share of 20 percent; and it declined by 1 percentage point since 2005. In contrast, the richest quintile's income holding increased by 3 percentage points from 38 percent in 2005 to 41 percent in 2012, which implies that the country is growing in a more inequitable pattern. Given that the high schooling costs in the DRC have already excluded many children from participating in the education system, it is very important for policy makers to institute pro-poor education policies to break the intergenerational poverty trap.



180. **A large share of teaching staff is not paid by the public budget and about 1 percent of the GDP is necessary to cover the unpaid teachers' salaries in the form of household payments.** Overall, of the total education sector employment under MEPSP, about 67 percent were paid from the public budget by SECOPE. (This was estimated from the EMIS database, which shows about 774,649 staff working in the education sector while the SECOPE salary roster shows 518,378 are paid by the public sector). The cost of unpaid teachers, estimated to be about 1 percent of GDP, is US\$ 276.5 million. This implies that if the government were ready to pay all teachers, it should increase the budget allocation to the education sector by 1.0 percent of GDP in order to cover the cost of teachers, at current salary levels, and honor the free fee education policy at primary schools. (This would not cover the added salary

costs of bringing all out-of-school children into the education system). In addition to this incomplete salary coverage for teaching staff, from a total of 37,191 primary schools captured in the EMIS database, only about 26,115 (70 percent) receive the 45,00FC monthly subsidy.

181. **The unpaid teachers issue causes an additional burden for households.** Using the average salary of current staff, the estimated value of unpaid staff is about US\$ 276.5 million which accounts for most of what parents pay in the form of fees (US\$291 million) (Table 13). According to the estimates, the fee subsidy amount transferred by the government is very small relative to what households pay in school fees and charges (equivalent to approx. 9 percent of total household fee payments). This implies that full payment of teachers' salaries is a prerequisite for a true and effective school fee abolition. While the government is still struggling to pay teachers in full, it is not possible to fully determine whether a teacher is in the system or not. There is only one discrepancy observed in Table 13, which is that more staff was reported in the SECOPE database for Kinshasa than in the EMIS database, and it is worthwhile to highlight this irregularity as a warning to accelerate systematic payroll onboarding. The ghost-teachers phenomenon has been a major issue in post-conflict countries such as Liberia and Guinea<sup>67</sup>, and this should be one of the key areas to be considered as the mécanisation efforts (bringing all public employees onto public payrolls) progress.

	Average salary(FC monthly)	Unpaid staff	Total cost of unpaid staffs (USD millions, annual)	Fees HH pays at primary schools (UDS millions)	Policy effect (% of free fee policy of total HH fee payment)
Kinshasa	98,116	(3,603)	-4.6	5	1.2
Bas - Congo	81,332	5,026	5.3	21	7.7
Bandundu	81,988	152,972	163.6	70	7.3
Equateur	76,275	12,457	12.4	12	31.8
Orientale	79,008	13,480	13.9	8	37.7
Nord - Kivu	76,508	8,675	8.7	53	3.9
Maniema	75,324	3,107	3.1	25	4.1
Sud-Kivu	76,591	12,897	12.9	8	21.7
Katanga	76,288	23,905	23.8	22	13.7
Kasai-Occidental	76,408	18,607	18.5	18	13.5
Kasai-Oriental	82,441	11,456	12.3	24	9.6
Grand Total	82,713	256,271	276.5	291	9.0

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

182. **The unit cost analysis shows that the government needs to increase education spending as a share of GDP by an additional 1.4 percent to accommodate the current out-of-school children.** As stated earlier, the government currently allocates about 2.3 percent of GDP (or 1.8 percent of GDP-executed) to education, which is very low compared to other SSA countries. Aside from the suggested additional 1 percent of GDP needed to pay current teachers in full, this would be a further 1.4 percent of GDP required to bring out-of-school children into school. The breakdown of the additional funding needed to accommodate out-of-school children includes 1 percent based on household contribution to education and 0.4 percent based on what the government currently pays per child. Since the main reason explaining the out-of-school rate is a financial one (the inability of poor households to pay

<sup>67</sup> PER 2012 for Liberia and PER 2015 for Guinea

school fees), and given that fees constitute the highest share of parents' contributions to education expenditures, the estimate assumes that parents of the out-of-school children are unable to pay school fees and that there is, therefore, a rationale for the government to intervene. In particular, this requires a 27 percent increase in spending in primary and secondary schools. The need varies by province depending on the unit cost per province and number of out-of-school children.

183. Overall, an increase in public spending from 2.3 to 4.7 percent of GDP is required to fully capture all teacher salary payments as well as accommodate the out-of-school children in the system. Table 14 shows how much is needed in millions of USD by province to cover the total costs of bringing out-of-school children into the education system and the share of current spending by households and the government in public schools. Further analysis in chapter 6 will examine the alternative measures that could help address these issues.

	Cost in millions of USD				Percentage of current spending			
	Primary	Lower secondary	Upper secondary	Total	Primary	Lower secondary	Upper secondary	Total
Based on current total spending (public and private)								
Kinshasa	44	10	49	103	19	13	25	20
Bas-Congo	10	3	9	22	16	16	24	19
Bandundu	17	4	8	28	25	14	12	18
Equateur	19	4	7	31	29	23	21	26
Orientale	18	8	15	41	26	37	44	33
Nord-Kivu	22	9	16	47	40	44	47	42
Maniema	3	0	2	5	15	7	19	14
Sud-Kivu	14	5	12	32	24	27	38	29
Katanga	49	16	33	99	38	46	52	43
Kasai-Oriental	12	3	9	24	29	27	40	32
Kasai-Occidental	9	2	5	16	24	18	23	23
DRC	216	65	166	447	26	24	30	27

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

184. Conclusions- key implications from this section include:

- i. Despite having committed to achieving the MDGs, this commitment is not clearly reflected as a priority in the DRC's education sector strategy, resulting in misaligned sector policy and sector goals.
- ii. The public school management system at the primary and secondary levels faces particular issues stemming from the nature of the fragmented management system between conventionné and non-conventionné schools.
- iii. In the same vein, there is a clear lack of monitoring and execution of the education budget. In particular, the ministry of budget depends on the SECOPE database on salary disbursements to effectively calculate the breakdown of the recurrent expenditure. This further highlights the weaknesses of the institution.

- iv. The public education sector is clearly underfunded - with only 10.9 percent of the public budget being allocated to education and with education budget executions at about 1.8 percent of GDP.
- v. The education sector remains largely financed by households- 73 percent of total education spending in the DRC.
- vi. The budget allocation and execution are not aligned, resulting in large discrepancies between the two.
- vii. The low execution rate of capital spending, especially since 2010, is linked to the budget's heavy reliance on external sources of funding for capital spending.
- viii. The functional allocation reveals that the budget does not adequately provide for non-personnel costs which are essential for the public schools to efficiently teach and manage their establishments.
- ix. The budget allocation is not aligned with the MDGs, reflecting a lack of clear prioritization in the budget elaboration and allocation process.
- x. Although the education sector at the primary and secondary levels of education are decentralized in terms of school management, the financial management of the sector remains centralized and seems to be increasingly so.
- xi. Public education spending in the DRC tends to be pro-rich, where, all education levels combined, the public sector invests nearly three times as much into the richest quintile (33 percent) compared to the poorest (12 percent).
- xii. The unit cost in general education (pre-primary to upper secondary) is highest in private schools, although among public schools, the non-conventionné schools tend to be the more expensive.
- xiii. Post-primary unit cost is very expensive, especially in higher education, and this is driven mainly by the large share of administrative staff.
- xiv. There are large variations in unit costs across provinces, which could indicate underlying differences in the management system linked to resource allocation, distribution and utilization.
- xv. The high unit cost in post-primary education levels is prohibitive to poor households, despite their strong commitment to educating their children.
- xvi. School fees represent the highest share of household contributions to education spending and households are very dissatisfied with the high costs- even though they still contribute a high share of spending.

## VI. Management of the Education Sector

185. **The previous sections highlighted the allocative efficiency issues in the education sector in the DRC while this section investigates whether the available resources are efficiently and effectively utilized.** The efficiency analysis of the education sector investigates whether there is a room for improvement in efficient use of available resources. In particular, this section deals with the following three analyses: (i) efficient utilization of resources using the Data Envelopment Analysis (DEA) model<sup>68</sup>, (ii) an in-depth analysis of key drivers including the cost implication of the inefficiencies, and (iii) the management of human resources.

### Efficiency of resources utilization

186. The efficiency scores are estimated under two scenarios, one to proxy for access and the other for learning outcome at primary level. For the estimation of the access efficiency score, the model employed six inputs (equipment, classrooms, teachers, public spending, schools and enrollment) and 4 outputs (Gross enrollment ratio, gender parity, repetition, and promotion rates). Similarly, in the learning outcome, the model utilized five inputs (number of teachers, teachers' level of education, teachers' salaries, and index of school equipment), and 3 outputs. Annex Table 19 presents all input and output variables for both models. Since the decision making unit in the DEA analysis is assumed to be at the district level, district level detailed efficiency scores are presented in the annex (Annex Figure 14 and Annex Figure 15) with a brief methodological note. In this section aggregated average scores at provincial level are presented. In particular, the DEA results are presented as follows: (i) an overall view of the relative efficiency scores arranged into four quadrants of efficiency groups, (ii) efficiency by level of education for the access model, and (iii) a quality related model with comparison of school types, followed by a scenario simulation for optimal utilization based on input oriented DEA results.

187. **The overall result of the DEA model shows that Katanga and Bas-Congo provinces are relatively more efficient, while Kinshasa, Bandundu and Nord-Kivu are relatively inefficient in their resource use<sup>69</sup>.** Figure 49 presents the summary of DEA results in four quadrants (I, II, III and IV). The first quadrant (I), refers to provinces with relatively high efficiency scores both in terms of access and quality related variables (learning outcomes). Quadrant (II), designates provinces with a relatively high efficiency score in quality. This group of provinces are basically in line with first quadrant (I) in terms of learning outcomes efficiency score but have lower efficiency scores in access outcomes compared to quadrant (I). Quadrant (III) shows provinces with relatively lower scores in both access and quality outcomes efficiency scores. The final quadrant (IV), shows provinces with relatively better efficiency scores in the access model (in line with the first quadrant (I) in this aspect) but lower efficiency scores in learning outcomes. However, it should be noted that the DEA result is a relative comparison model and it does not mean that provinces in Quadrant (I) are efficient in absolute terms nor that those in quadrant (III) are inefficient in absolute terms either. Rather, this should be seen as the relative

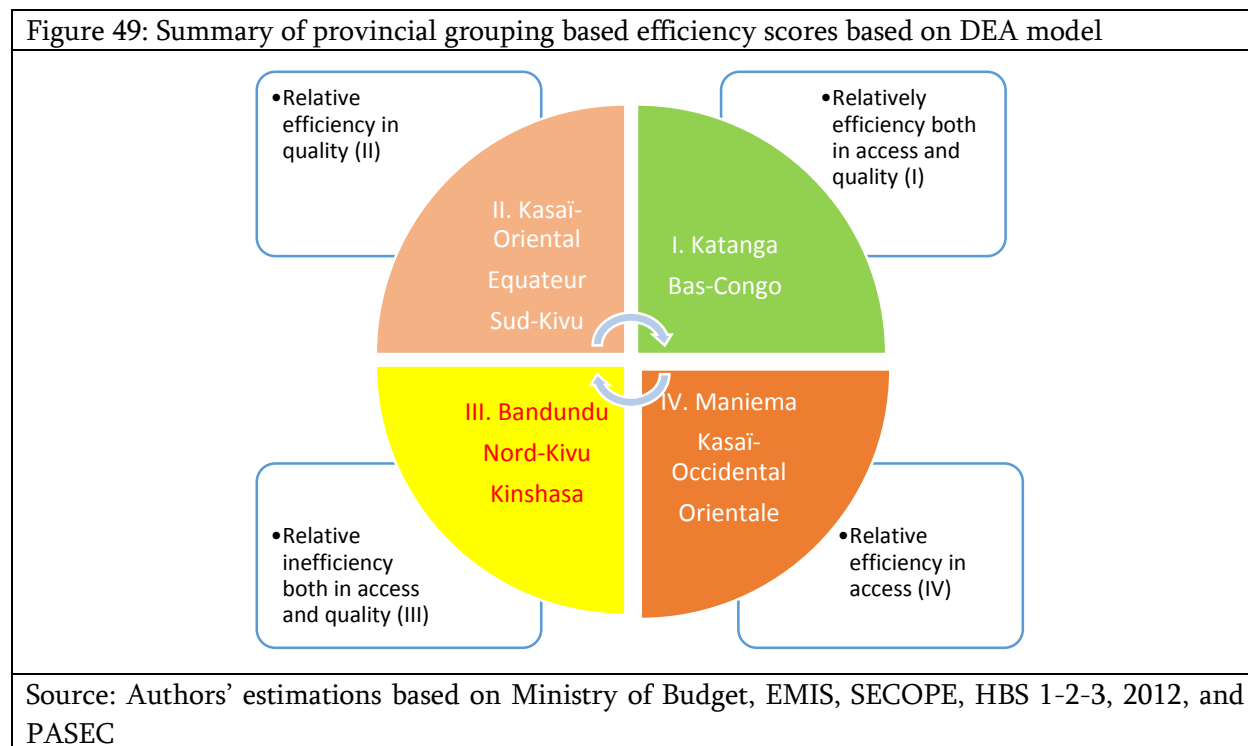
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<sup>68</sup> The main purpose of the DEA model is to analyze how efficiently different provinces and school regimes utilize the available resources given the associated education outcomes for each.

<sup>69</sup> The lower efficiency of one province in relation to another implies that while the two provinces may use the same resource, e.g. the same number of teachers, they may yield different quality or access outcomes. The source of inefficiency may, for example, be tied to the actual number of hours the teacher is in class or even the absenteeism rate of the teacher in question.



efficiency of one group of provinces with regard to the other groups. This could also be used as a benchmark of good practice for south-south knowledge exchange on efficiency improvement.

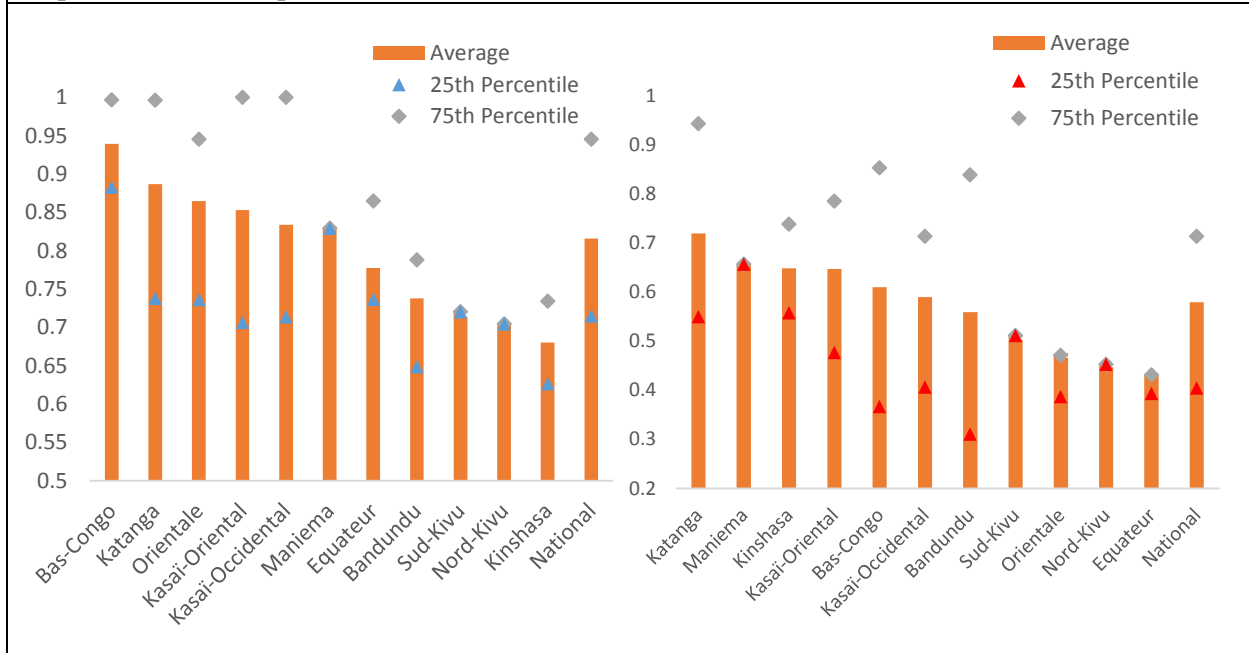


188. **Public primary education is more efficient in providing access than public secondary education and the primary and secondary education system could have saved 16 percent of the resources used if all provinces were as efficient as the most efficient province in providing access to education.** Access related efficiency results show that public primary schools are relatively more efficient than public secondary schools with significant variation across provinces at both education levels. Figure 50 presents the efficiency scores for public primary and secondary schools. Overall, the efficiency level in the DRC public primary education system is about 84 percent compared with 59 percent in secondary schools. Although the DEA analysis is a relative term, this clearly shows that there is huge heterogeneity in efficiency of secondary school compared with primary schools. For example, an average efficiency score of 84 percent for primary schools implies that 16 percent of resources could have been saved if all provinces were as efficient as the relatively most efficient province. At secondary level, the analysis estimates that about 41 percent of resources could be saved to produce education output as much as the most efficient province.

189. **Although there is some correlation (about 49 percent) between efficiency scores of primary and secondary schools, there is also some level of underlying heterogeneity across provinces.** For example, Bas-Congo is the most efficient in primary school while Katanga is the best in secondary schools. Similarly, Kinshasa is the least efficient in primary school while Equateur is the least in secondary schools. The relative inefficiency of primary schools in Kinshasa can be partly explained by high presence of private schools and higher salary scale for teachers to accommodate living standard differences (detailed analysis of justification are offered below). A similar possible explanation for efficiency differences between primary and secondary schools could also be linked to the relatively high unit cost in secondary schools. This particular implication suggests that an increase in enrollment

in secondary school in particular may improve access in terms of school participation for poor families in post primary education, reducing unit cost and increasing the efficiency of the level. Overall, as shown from the 25th and 75th percentile distributions, where the 25<sup>th</sup> percentile refers to the lowest 25 percent in terms of efficiency scores and the 75<sup>th</sup> the highest, the perfectly efficient DMUs mostly come from Bas-Congo, Katanga, Kasai-Orientale and Kasai-Occidental provinces at the primary school level while Katanga appears to be the only province driving the high scores in secondary level. On the other end, Nord-Kivu appears to be constantly inefficient at both levels of education.

Figure 50: Access Efficiency Scores by provinces for primary (left) and secondary schools (right) with 25 percentile and 75 percentile distributions



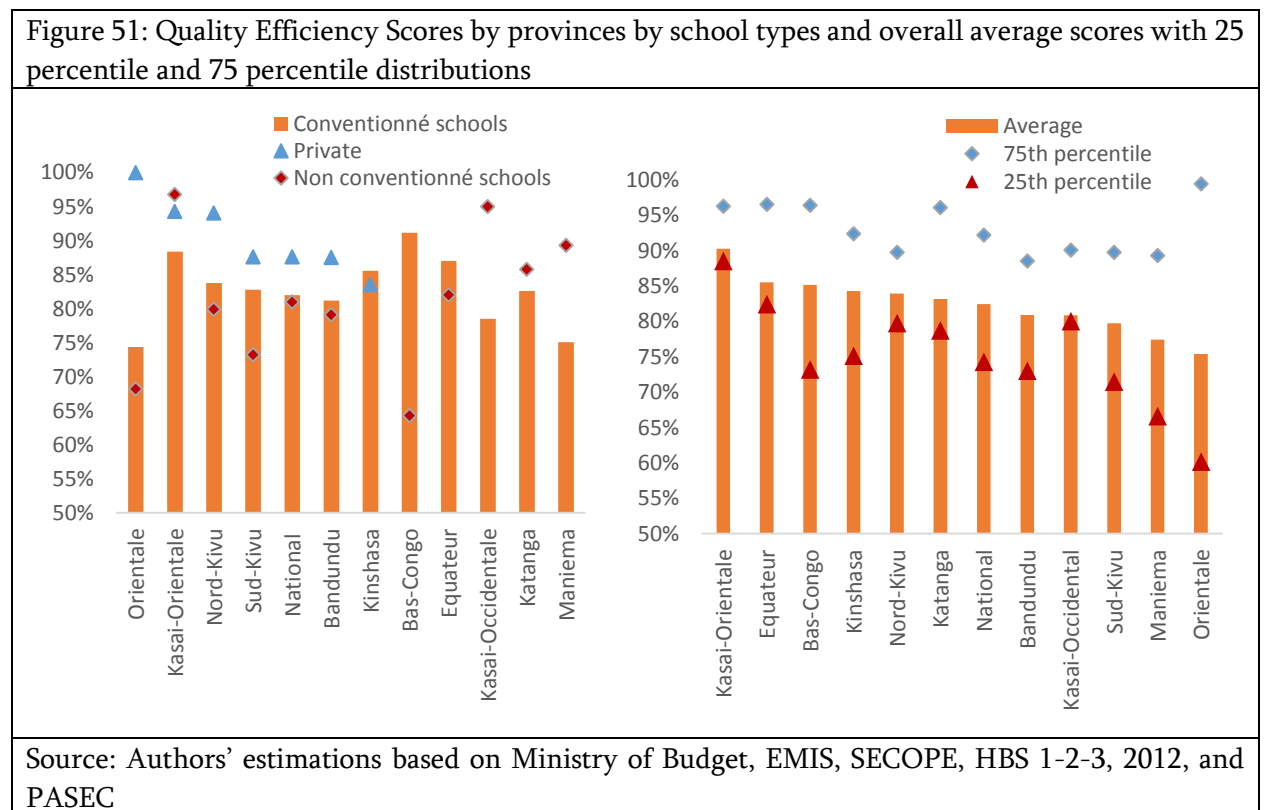
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, HBS 1-2-3, 2012, and PASEC

190. **Private primary schools are more efficient than public primary schools in terms of quality of education.** The quality related DEA result shows, at the national level, that (i) private schools are more efficient than public schools (though this result may be due, in part, to the fact that private school students come on average from richer quintiles than students in public schools, and greater household income gives children relative educational advantages that lead to better outcomes), and (ii) public conventionné schools are slightly more efficient than public non- conventionné schools. Unlike the access model, the quality model allows us to disaggregate school input and output measured by school types at school level (DMU is at the school level). Figure 51 presents the results for provincial comparison by school type as well as the heterogeneity of score difference based on the 25th percentile and 75th percentile of score distributions, similar to the access case. At the national level, the efficiency score for private schools is 88 percent compared with 82 percent and 81 percent for public conventionnée and non-conventionnée schools, respectively. Although the average efficiency of conventionnée schools

seems to be slightly higher compared to non-conventionné schools, a statistical test<sup>70</sup> shows no significant difference between these two categories of schools in terms of average efficiency scores.

191. **Concerning educational outcomes, the primary education system uses approximately 18 percent more resources than it would need if all schools were as efficient as the most efficient school in the provision of education quality.** The national average score in this measure stands at 82 percent, which suggests that the same level of education quality could be achieved with about 18 percent less resources if all schools were as efficient as the most efficient schools in the sample. Similar to the access case, some provinces associated with lower efficiency scores also faces large internal variations in efficiency scores. For example, private schools in Province-Orientale are relatively more efficient (Figure 51) but because of the much lower public schools’ efficiency score level, the average efficiency score is the least of all provinces. In other terms, the efficiency score of private schools in Province Orientale is 100 percent while the public conventionné schools score is 74 percent and the non-conventionné public school score is 68 percent. Since conventionné schools in the province are proportionally high, the average efficiency score for the province is also influenced by the weight of the conventionné schools (75 percent).

192. **The key implication of the efficiency measurement at school level is that efficient utilization of resources can be undermined at any stage of the services delivery chain** and any efforts for efficiency improvement should include the school as a principal unit of efficiency improvement. The second implication is that provinces with large internal efficiency variation could identify a model school and take advantage of south-south knowledge exchange for internal efficiency improvement.



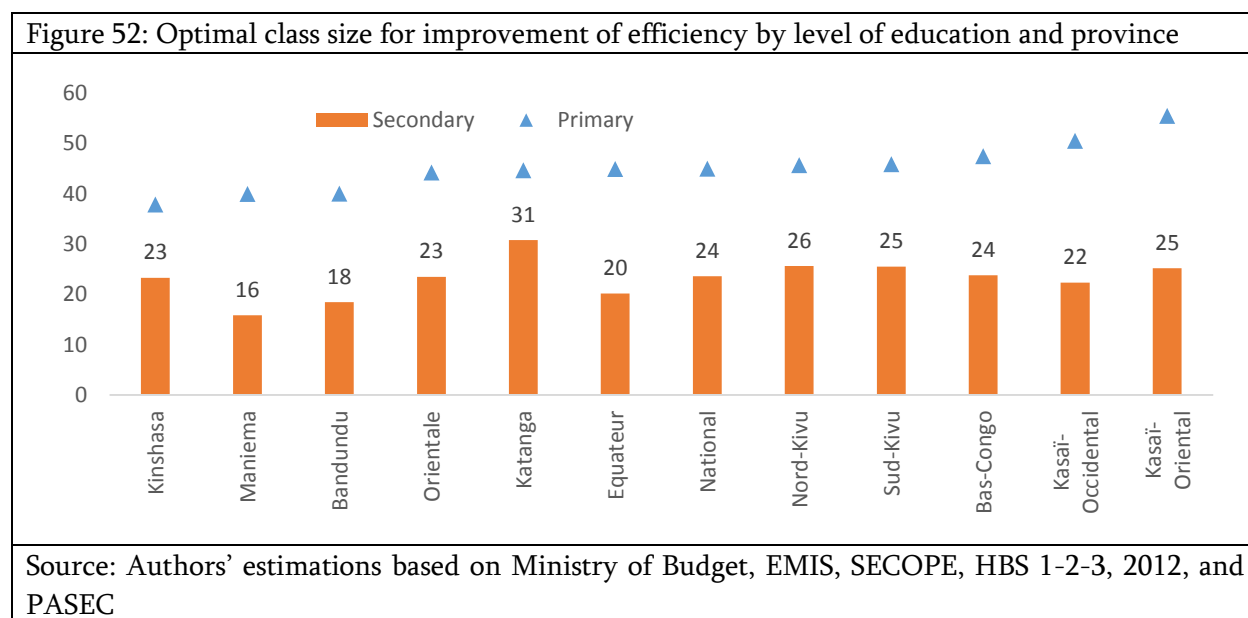
<sup>70</sup> t test of equality of means

## Drivers of internal inefficiencies

193. **The key drivers of internal inefficiency in the DRC’s education sector are divided into three main groups:** (i), inefficiency related to utilization of teachers and classrooms i.e. student teacher ratio and class size, (ii) inefficiency related to repetition, delayed entry, overage children and low survival rates, and (iii), inefficiency related to staff management including growth in payroll compared to growth in enrollment and share of administrative staff. The first and the third group of inefficiency channels have implications related to geographical factors and the wage bill, respectively, and a detailed analysis is provided following each section.

### Student-teacher ratio (STR) and class size

194. **The non-optimal use of teachers and classrooms are the main drivers of inefficiency in the DRC.** Annex Figure 16 shows the average simulated STR for the optimal utilization in primary and secondary schools suggested by the DEA model. While other inputs also play a significant role (see cross correlation matrix in (Annex Table 20), the STR is selected for indicative purposes to illustrate how the optimal use of resources improves efficiency scores. In particular, the STR (which is also highly correlated with class size), explains about 32 percent (about a third of the inefficiency) of the efficiency score. The main premise of the model is that an increase of the STR will lead to the optimal class size, rendering the inefficient school as efficient as the most efficient school in the sample. That means that an increase to the suggested optimal level improves the efficiency score of the inefficient provinces by 32 percent. This implies that, under the assumptions of the model, provinces could, on average, increase their enrollment rate by 32 percent without any additional spending<sup>71</sup>. Compared to the GPE recommended STR for primary level and the SSA average of secondary schools, the DRC’s STR is very low. The model projection notably suggested an STR for both levels of education very close to the SSA averages. In addition, the model’s suggestion of 24:1 STR at secondary schools is consistent with the World Bank (2005) empirical studies that indicate an optimal maximum of 25 students per teacher.



<sup>71</sup> <https://www.imf.org/external/pubs/ft/wp/2014/wp1419.pdf>

195. **The cost estimate of the inefficient levels of STR or inefficient utilization of class size is estimated to be about US\$432 million (which is slightly smaller than the current primary and secondary spending of US\$434 million) and is mostly attributed to inefficiency at the secondary education level.** This cost-savings is estimated based on the following information and assumptions: (i), current unit cost in public schools based on executed budget for recurrent spending, (ii) enrollment in public schools, (iii), teachers data from EMIS, (iv) STR at primary 40:1, and 25:1 at secondary education level based on best practice recommendation stated above. The optimal STR suggested by the DEA model (the access-related model) for efficiency improvement (44:1) is slightly higher than the GPE practice recommendations (40:1) for primary education. The simulation model used 40:1 following the GPE good practice recommendations for STR<sup>72</sup>. For secondary education, the DEA estimate is almost the same as the recommended class size. Table 15 below presents the optimal savings both in terms of enrollment and equivalent costs by level of education as well as the number of out-of-school children who could be accommodated, in order to put it into context. The top panel shows enrollment, number of out-of-school children and current public spending by level of education and by province while the bottom panel shows the number of children potentially accommodated and the equivalent cost savings.

196. **The implications are dramatic. Under the optimal STR assumption, about 5.3 million more children could be accommodated without additional cost.** In 2012/13, total enrollment in primary and secondary public schools was about 14.6 million. The estimate shows that optimal STR use can accommodate 19.8 million children. In other words, if the STR increased to 40:1 instead of the current ratio of 34:1 in primary education and to 25:1 instead of the current ratio of 13:1 in secondary education, about 5.3 million children could be accommodated without additional cost. It should be also noted that additional capacity at the primary level is only 937 thousand students given that average class size is close to the optimal; most of the gain (about 4.3 million children) would come from saving at the secondary education level given that the STR there is too low. The size of this potential gain in terms of number of children enrolled is slightly more than the current number of out-of-school children (4.9 million). In terms of cost equivalent, total saving is US\$432 million- US\$33 million coming from primary level and the remaining US\$398 million from secondary level.

197. **Different provinces are subjected to different levels of inefficiency depending on the current resources available to them.** For example, in Katanga, Nord-Kivu, and Kasai-Orientale, the STR at the primary level is already higher than the 40:1 ratio, and there would therefore be no cost saving there because the current STR would, under the simulation assumptions, need to be decreased, not increased. However, at secondary level all provinces have an average STR below the optimal level, and therefore all provinces stand to gain under the optimal assumption. Therefore, this simulation suggests that more can be achieved within the available resources. Further, the analysis of geographic dividends within the country, given the nature of the existing resource allocation, can provide more tailored suggestions, which are addressed in detail below.

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<sup>72</sup> The average number of students per teacher (student-teacher ratio) is an essential factor to be taken into account when defining the need for teachers. All things being equal, when this number rises, then fewer teachers are needed; however, with high values, there is a risk of compromising the quality of learning. Based on the values observed in low-income countries that are closest to UPE, the Education for All Fast Track Initiative (EFA-FTI) framework recommends a reference value of 40 students per teacher in primary education.

Table 15: Optimal class size and STR use implication on enrollment and savings. (Bottom panel shows additional capacity resulting from improvements, and the cost of adding that capacity without efficiency improvements).

	Enrollment in thousands		Out-of-school in thousands	Spending in million USD		
	Primary	Secondary	Age 6-17	Primary	Secondary	Total
Kinshasa	441	268	367	19.7	28.1	47.74
Bas-Congo	629	216	225	14.8	13.0	27.76
Bandundu	1,681	663	410	43.6	49.0	92.56
Equateur	1,334	332	478	32.1	21.5	53.61
Orientale	1,363	263	496	25.7	14.3	40.03
Nord-Kivu	951	289	536	19.7	11.3	31.02
Maniema	819	229	72	8.8	7.2	16.06
Sud-Kivu	383	116	452	14.8	8.4	23.21
Katanga	1,548	414	968	26.4	14.1	40.46
Kasai-Orientale	1,034	252	486	19.3	12.8	32.08
Kasai-Occidental	1,009	294	360	18.4	11.5	29.88
Total	11,191	3,337	4,850	243.3	191.1	434.39
<b>Saving</b>						
Kinshasa	78	146	224	6.6	26.1	32.61
Bas-Congo	68	412	479	2.3	41.0	43.29
Bandundu	612	1,274	1,887	22.5	135.5	158.00
Equateur	151	399	550	4.8	35.2	40.05
Orientale	58	202	260	1.6	15.7	17.28
Nord-Kivu	(21)	149	128	(0.8)	9.3	8.50
Maniema	14	106	121	0.5	7.2	7.64
Sud-Kivu	18	139	157	0.6	12.8	13.34
Katanga	(17)	976	959	(0.5)	46.4	45.98
Kasai-Orientale	(56)	221	164	(1.6)	17.0	15.41
Kasai-Occidental	32	290	322	0.8	17.1	17.92
Total	937	4,314	5,251	33.3	398.4	431.67

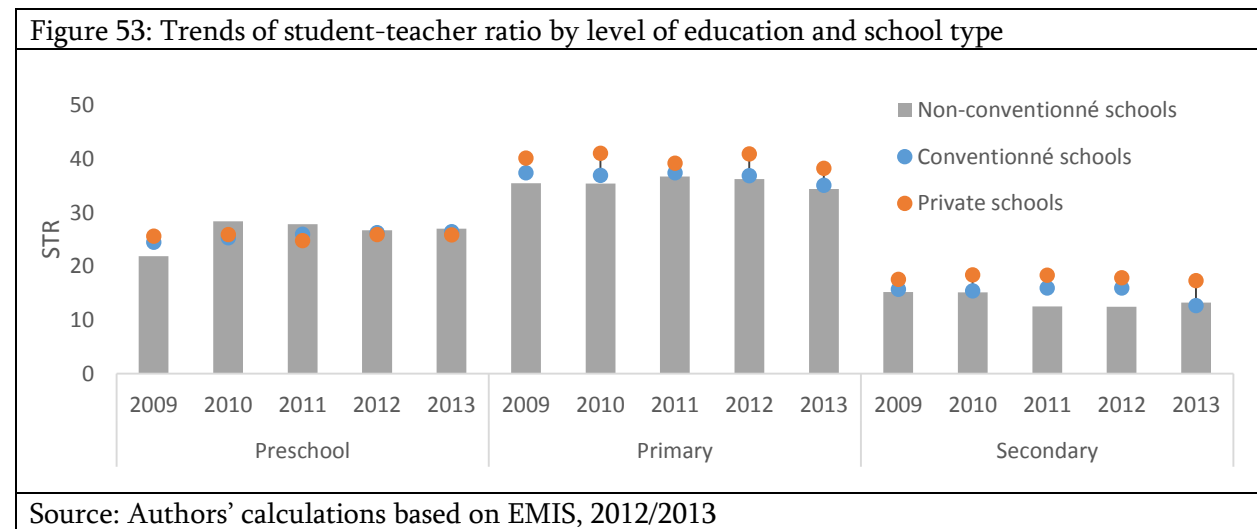
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

198. **Trends in the student-teacher ratio (STR) show under-utilized teachers at all levels of education and no signs of improvement, especially at the secondary education level.** Figure 53 shows the STR by level of education under the MEPSP as well as by school type. Although private schools have a relatively optimal STR, the level is low for both public and private schools. Within the public schools, conventionné schools are associated with relatively higher STRs both in primary and secondary schools. In general, it has been a common practice to recommend a lower STR to create a learning environment more conducive to better learning outcomes, but this recommendation has most relevance for countries with very high STRs. However the situation in the DRC is more similar to what has been observed in developed countries in terms of optimal resource utilization. In particular, if the budget allocation process were to use enrollment as a key allocation factor, the student-teacher ratio would be an important indicator of the level of resources devoted to education. However, in the context of the DRC, the low STR comes at the expense of many children who are excluded from the school system.

199. **While many factors contribute to the observed low STRs, the curricular options in secondary education and lack of secondary schools in accessible locations could be a few of the key factors.** For example, there are about 49 options in secondary school- many of which are deemed to be no longer relevant and not well-suited to the needs to of the education sector. The absence of a streamlined

curriculum may drive the recruitment of more teachers to teach the various courses, sometimes requiring specific qualification for each education program. This factor can be linked to the high unit cost in public secondary school, which is almost three fold the unit cost in primary schools as discussed above.

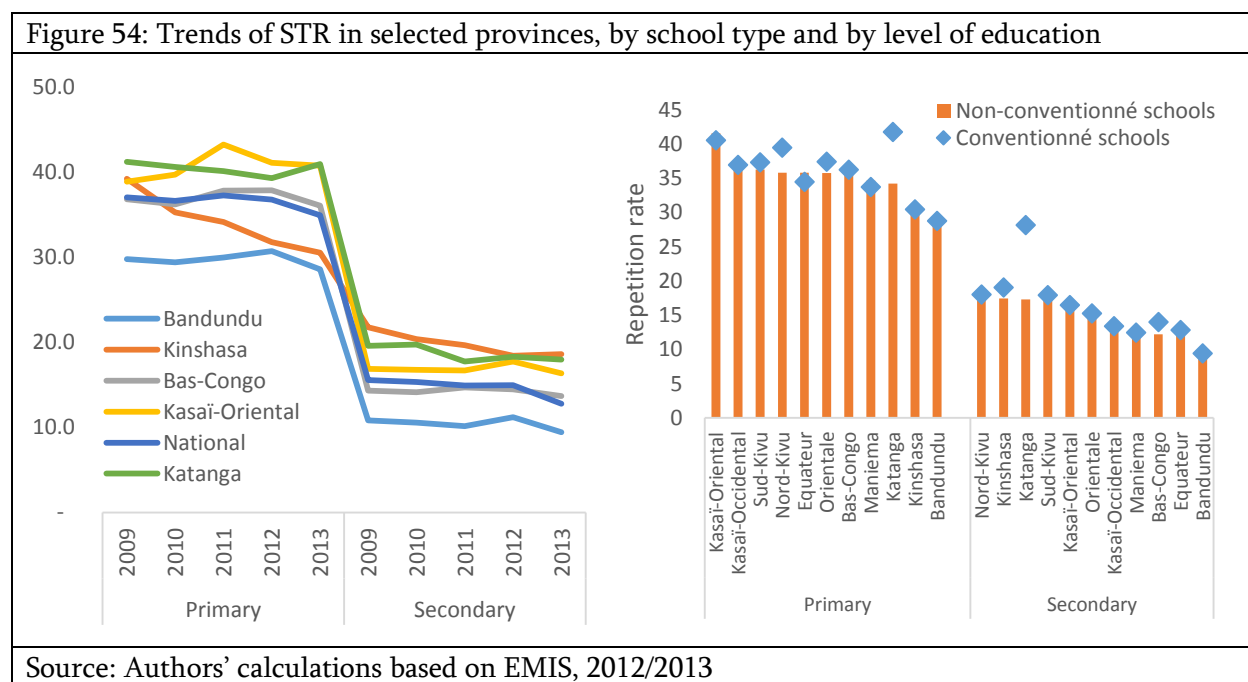
200. **Relative to private schools, public schools have lower STRs at the primary and secondary levels.** Again, better efficiency scores of private schools compared to public schools can also be linked with the latter’s small STR and class size. Therefore, at the national level, STR or class size could be increased through two policy actions: (i), provide access for the poor children so that the system produces more output, more efficiently, at the same costs, and (ii) streamline the secondary school curriculum so that the need for teachers is determined by the needs of a leaner curriculum.



201. **Trends by province show that there are significant and persistent disparities in STR over time.** Figure 54 shows trends of STR by selected provinces. Although variations by provinces are significant, there is no sign of improvement overtime. Provinces with relatively better efficiency scores observed from DEA tables (Katanga and Bas-Congo), have relatively higher STR and there seems to be no change over time; in fact in Kinshasa, the STR seems to have declined between 2009 and 2013. While this calls for better management of teachers’ deployment across provinces, this would not appear to be enough to bring the STR to the recommended level of 40:1 for primary since the national average is much below the threshold (35:1). At the secondary education level, this is even more difficult, as none of the provinces meet the recommended STR level (25:1).

202. **The current education management system does not allow for a strategic teacher deployment system.** This can be explained by: (i), the fact that not all teachers are on the government payroll, which means schools hire teachers directly and pay them through fee collection from parents, and (ii), conventionné public schools are managed by religious organizations and hiring decisions are made by the managing unit. For example, under the current teacher’s salary payment practice, after the hiring decision is made by a school, the school has to apply for a SECOPE identification number to officially onboard the teacher on payroll. Although the STR for the two school systems are the same, there is a value added rationale to use the conventionné schools, as their unit cost is lower. However, this does not come without cost and it may have several implications if this is not addressed sooner rather than later. For example, schools can hire an unregulated number of teachers without necessarily aligning

hiring with a national level recruitment framework, leading to a lower STR at the cost of contributing parents. This will have a negative and long lasting effect especially on the poorest households, if they withdraw their children from school due to high school fees or even make a decision not to enroll them at all. In addition, having a dichotomized system with teacher management by one body and salary payment by another body undermines the evaluation of teacher’s performances, teacher development and their efficient deployment. While system building may take some time, it is very important to have an effective resources management instrument for optimal utilization of already scarce resources allocated to the education sector.

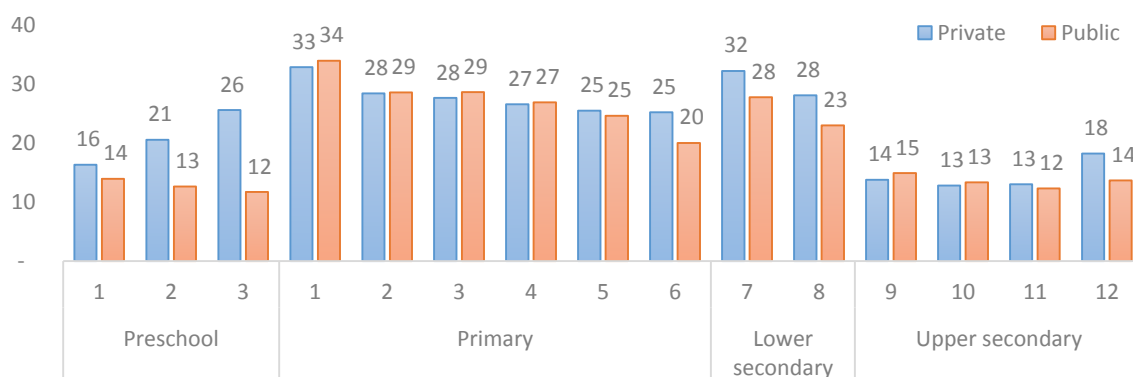


203. Although class size is highly correlated with STR, a closer analysis of class size by grade shows that most of the lower class size ratio is due to dropouts which leads to resource underuse at the higher grade in each level of education. Figure 55 shows class size by level of education and school ownership. Although private schools use classes more efficiently than public schools, class size is very small for both indicating that there is room for improvement in both sectors. Since the estimated class size is a proxy used to evaluate the number of students for one teacher, all subjects combined<sup>73</sup>, the low STR at the secondary level may also contribute to lower class size. For example, the abundance of curriculum options at the upper secondary level, has resulted in lower class size at this level (grade 9 to 12). Annex Table 21 presents class size and STR by provinces for both types of public schools. As stated above, although the policy options available for STR can also be suitable for class size, a simple increase of enrollment particularly of out-of-school children from the poorest households could increase class size, hence increasing the internal efficiency of school system.

<sup>73</sup>(Estimated class size = student-teacher ratio \* (number of hours received by students / number of hours given by a teacher).



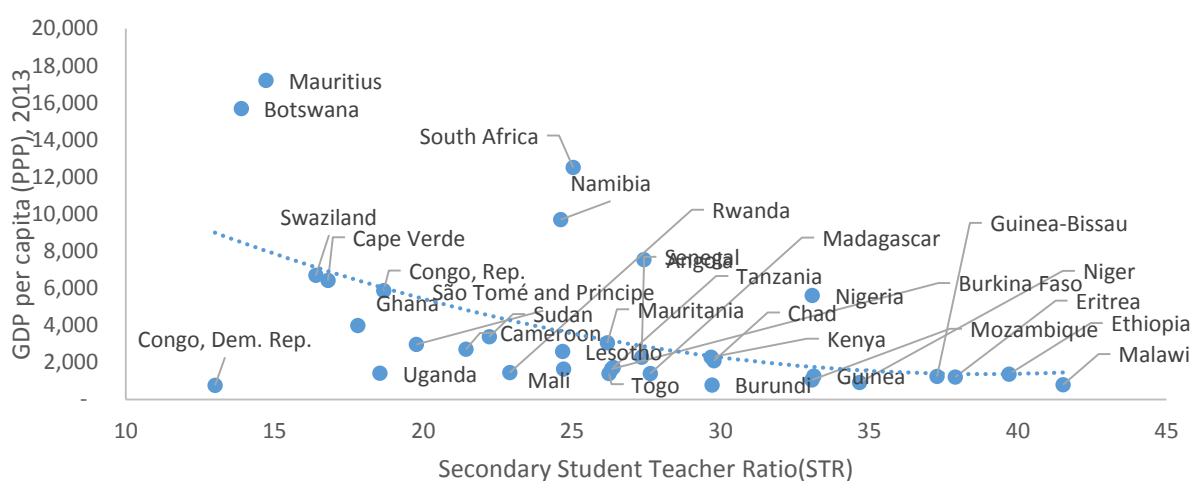
Figure 55: Class size by school ownership—public vs private.



Source: Authors' calculations based on EMIS, 2012/2013

204. **International comparison of STR at the secondary level reveals that the DRC has one of the lowest STRs in SSA.** Figure 56 shows the STR for secondary schools for 36 SSA countries that were selected based on data availability. The comparison shows that there is room for improvement in resource utilization in DRC both in absolute terms and in relative terms compared with other developing countries in SSA. The DRC has the lowest STR at the secondary school level with a 13:1 ratio while in some countries the ratio is as high as 42:1. The SSA average is around 25:1. It is important to highlight that the SSA average is very close to the DEA model suggestion for an optimal STR at the secondary school level as stated above (24:1). It is also worth to mention that low income countries are usually associated with high STR but the DRC's situation is a special case. This reinforces the finding that the DRC clearly underuses teachers.

Figure 56: Secondary education STR vs. GDP per capita(PPP), regional comparison, 2013



Source: Authors' calculation based on EMIS for DRC and The World Bank Group and UIS for comparison countries, 2011 or latest and 2013 for DRC.

## Adequacy of infrastructure and school facilities in DRC

205. **While the DRC has enough infrastructure to accommodate children in the official school age—subject to efficiency improvement—schools are not necessarily located in areas where they are most needed.** Although the above efficiency analysis shows underuse of resources in the DRC and suggests the availability of enough infrastructure to accommodate all children of official school age, given the land size, geographic challenges, and demographic dividends, basic services are not readily available for all. Infrastructure networks such as roads are key elements in provision of public services. As such, given the post conflict status of the country, the government faces typical challenges in the provision of services in remote and difficult to reach areas.

206. **The country as a whole underutilizes the available resources, and could accommodate children currently excluded from education.** For example, an estimate from a 2012/13 shows that the number of teachers and classrooms in the DRC are enough to accommodate all children of the official school age (Table 16). The estimate for official school age children was about 19 million. In the same year about 17 million children were enrolled in all levels of education (of which 14.7 million in public schools). The enrollment includes about 2.9 million overage children, and excludes higher education and preschool enrollment (which together come to 17 percent of enrollment in primary, and secondary schools). The estimate for the number of out-of-school children in the same year was 4.9 million (25 percent of official school age children age 6-17). A simulation of optimal utilization of classrooms or available teachers suggested that about 20 million children could be accommodated without additional costs. This could mean that 4.9 million out-of-school children can be absorbed under the existing government capacity.

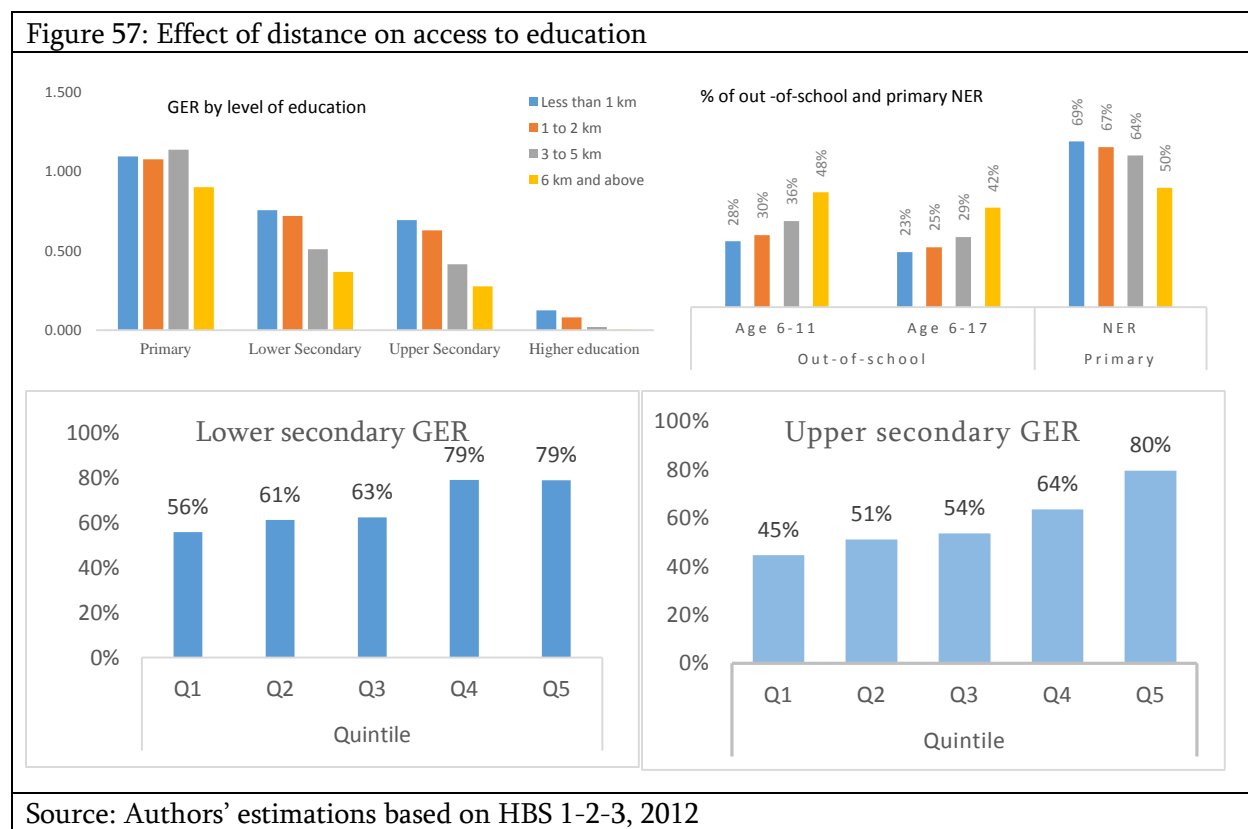
	Students	Share
Official age	19,271,304	
Official school age out-of-school	4,849,904	25%
Total enrolled	17,293,580	90%
Overage enrolled	2,872,181	17%
Public schools	14,667,175	85%
Class size (40;30)	20,167,695	
STR (40 and 30)	20,573,718	

Source: Authors' estimations based on EMIS, and HBS 1-2-3, 2012

207. **Distance is a key determinant of schooling in DRC.** As already mentioned, distance to school matters in school participation. Figure 57 summarizes the descriptive results of the effect of distance on schooling in four panels (a-d): Figure 57(a) distance is negatively correlated with GER at all levels of education including higher education. Figure 57(b), out-of-school rate is very high especially for primary age children as distance from home to school increases. In addition primary net enrollment rate drops by about 19 percent for children who live far away from schools. Figure 57(c and d), show comparisons of lower and upper secondary GER by distance and quintile and the result shows that the

distance gap is much higher than the quintile gap in enrollment between the two extreme points. For example, the lower secondary GER gap between the person who lives within 1km and above 6 km is 39 percent compared with the gap in GER between the richest and poorest quintile, which is 23 percent. The corresponding figures for upper secondary are 41 percent and 35 percent, respectively.

208. **The effects of distance on school participation vary across provinces.** As mentioned above the Annex Table 14 provides regression analysis of the effect of distance-to-school on school participation. Overall, the results indicate that distance to all levels of school have a strong negative effect on school participation at the national level but regression results at the provincial level reveal that the effect of distance on schooling is statistically significant in a few provinces after controlling other supply and demand side factors of school determinants. Provinces where the effect of distance became more dominant in both primary and secondary school age children are Maniema and Katanga while in Province-Oriental, Kasai-Oriental and Kasai-Occidental only distance to primary schools and only in Bandundu and Equateur at secondary school is significant. This means that although distance is a key determinant of schooling, other factors such household characteristics appear to be more important than distance in some provinces.

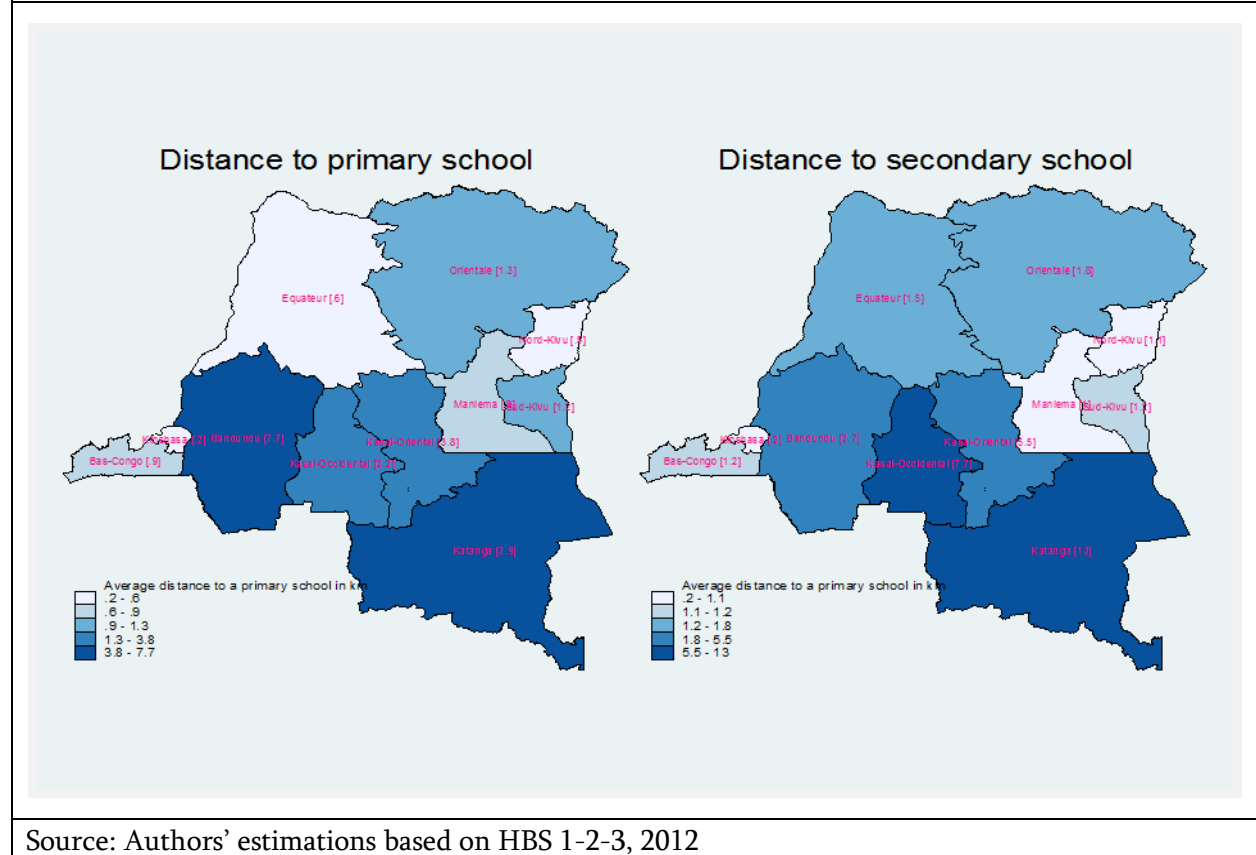


209. **A school mapping exercise is one possible policy option in order to address the distance to school issue.** Figure 58 presents the average distance for primary and secondary schools at province levels. The results show that the average distance from school varies by provinces for both levels of education with some provinces showing high average distances for both levels of education. Annex Figure 17 shows that inside the provinces, the issue related to distance varies across districts. For example, only some districts in Katanga have issues with access to primary schools while almost the entire province faces a distance issue at the secondary school level. In contrast, the average distance to

schools in some district in Bandundu is high for primary schools but it is one of the lowest in secondary school distance from home.

210. **While school mapping is a key short term policy action, alternative learning means could also be explored.** For example, several studies highlight the importance of Information and Communication Technology (ICT) as one of the best opportunities for provision of schooling in the most cost effective ways. In particular, given the geographic scale of the country, investment on ICT is not only helpful to the education system but also for better management of the country as the whole. From the education perspective, it could be more cost effective to reach remote areas through the ICT systems such as broadcast radio, interactive radio instruction, educational TV, and virtual online courses for education services such as remedial classes and accelerated programs. The flexibility of ICT-based learning can also help those who need to balance studies with work and other family obligations. In conclusion, although the initial cost of the ICT may be high, the DRC stands to make considerable cross-sectoral gains by investing in and developing its network, including leap-frogging geographic access issues and fast-tracking education outcomes.

Figure 58: Average community distance from primary and secondary schools<sup>74</sup>



Source: Authors' estimations based on HBS 1-2-3, 2012

211. **The problem of infrastructure in the DRC is also significant for the existing facilities since about 12 to 28 percent of the facilities are in poor condition.** Studies shows that good school facilities is among the basic requirements for efficient teaching and learning. Although public non-conventionné schools receive more funding for operating costs, both types of public schools face significant problems in key

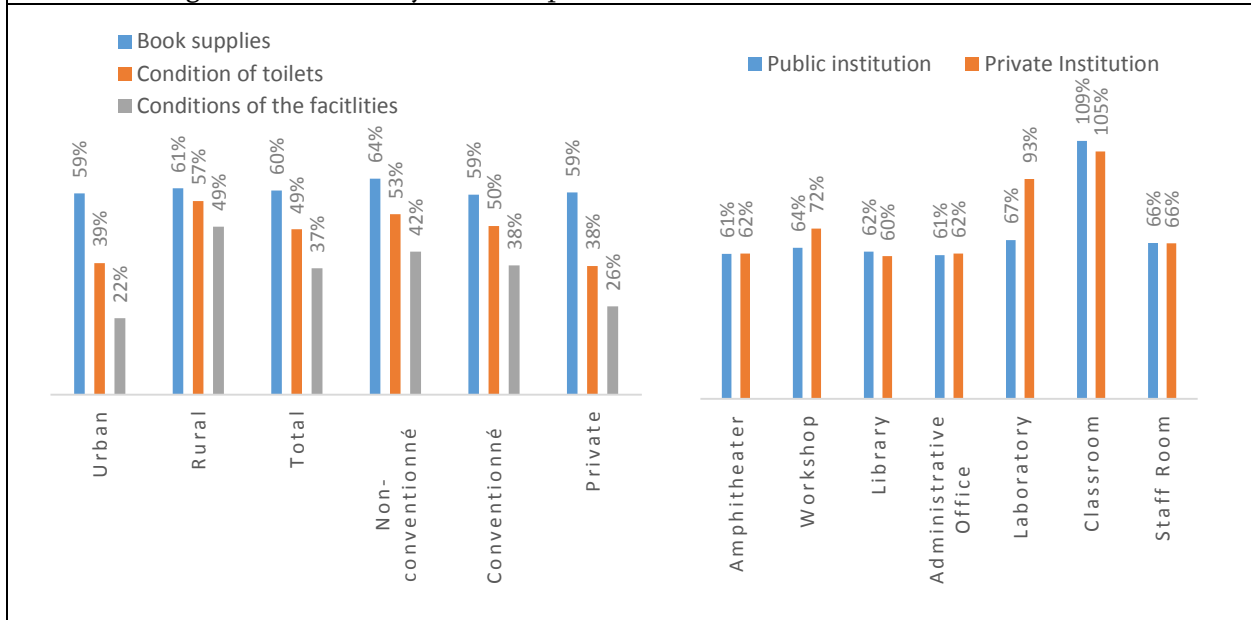
<sup>74</sup> A more detailed average distance map is presented in Annex Figure 17.

school facilities (Figure 59). There is also a level of inadequate facility provision for higher education (Figure 59(b)). As indicated in the DEA model, in addition to the schools' ability to effectively utilize the available resources such as teachers and class size, the internal efficiency of schools as well as the teaching-learning environment are affected by the physical infrastructure. In this regard, for example, a recent study by UNESCO (2012) highlighted a number of indicators including lack of resources and materials, school mismanagement, insufficient classrooms, poor plant facilities, insufficient water and sanitation facilities, an inadequate safety system and an ineffective home-school relationship as factors that adversely affected the leaning process.

212. **Relative efficiency of private schools and public conventionné schools can be partially explained by the condition of their facilities.** In particular, maintenance of good facilities at private schools could be one of the attractions for sending children to private institutions despite the high unit cost. The Tobit regression result shows that lack of school inputs adversely affects learning outcomes as measured by mathematics and French scores from PASEC (Annex Table 12).

213. This also reflects the household dissatisfaction rates captured in the 2012/13 household survey regarding key school input indicators such as book supplies, conditions of toilets and other facilities at the school level (Figure 59(a)). There is a high dissatisfaction rate of households concerning book supplies, for example, where the student to Math text book ratio is 2:1 which is less than the desired level of 1:1 although very close to the SSA average (Annex Figure 18). In higher education, although both public and private institutions seem to have enough classrooms, on average, they are running on about 30 percent below what is deemed to be needed. In particular, this study recommends inventory count and strategic rehabilitation programs rather than expansion of classrooms at existing sites. This is one of the main points pushed for by the ministry of education regarding the additional budget allocation to the sector.

Figure 59: Status of school facilities at MEPSP (% in good conditions) and availability of required facilities at higher institutions by ownership.



Source: Authors' calculations based on EMIS, 2012/2013

## Internal inefficiency related to repetition, overage and dropout

214. The cost estimate of school repetition and level-specific dropouts, finds the public sector is subject to 0.2 percent of GDP in losses (48 billion FC) and households to 0.5 percent of their total consumption expenditure (102 billion FC). The public sector lost the equivalent of about 12 percent of total recurrent spending on primary and secondary education. Similarly, households lost about 9 percent of their total current spending on education at the primary and secondary levels. This lost income and foregone output, over the lifetime of the affected children, is equivalent to 7.0 percent of GDP measured in today's terms. The private also lost 8.7 percent of their total consumption expenditure in today's terms as the result of dropout and repetitions. This was calculated using the number of dropouts and repetitions per year by level of education based on the unit costs of public and private per student payment. In particular the cost was estimated from: (i) direct cost of schooling which is generated from total number of repeaters and based on per student annual unit cost in public and private separately, (ii), the discounted value of forgone opportunity costs of expected earnings - estimated based on wage employment earnings by taking into account the age of labor market entry. Table 17 presents the details of the estimation. It is clear that given the already strained DRC budget, wastage of resources due to internal efficiency represents a significant loss to the sector- one that could be saved and directed to productive investment instead.

		Repetition	Dropout	Total	Share of GDP	Share of Consumption	Share of spending
Public spending	Primary	21,641	987	22,628	0.2%		10%
	Lower secondary	9,166	126	9,292			15%
	Upper secondary	16,105	243	16,347			14%
	Total	46,912	1,355	48,267			12%
HH spending	Primary	51,256	2,338	53,594			9.9%
	Lower secondary	14,911	204	15,115			8.4%
	Upper secondary	33,021	497	33,518			8.3%
	Total	99,188	3,039	102,228			0.5%
Forgone earning	Primary	862,718	188,819	1,051,537			
	Lower secondary	178,127	17,087	195,214			
	Upper secondary	337,986	142,716	480,702			
	Total	1,378,831	348,622	1,727,454			
Grand total	Primary	935,616	192,144	1,127,760			
	Lower secondary	202,204	17,417	219,621			
	Upper secondary	387,112	143,456	530,568			
	Total	1,524,932	353,017	1,877,949			
Share of GDP		5.7%	1.6%	7.0%	7.0%	8.7%	

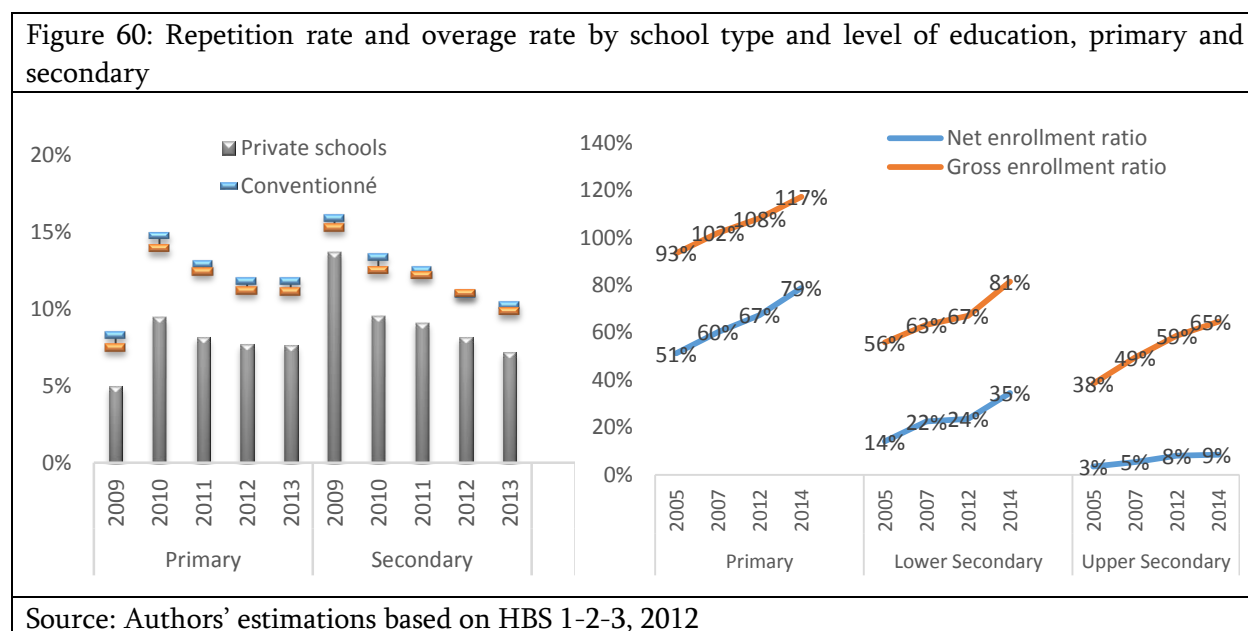
Source: Authors' calculation based on HBS 1-2-3, 2012 and The World Bank Group for GDP

215. Trends in the repetition rate show that the DRC is on the right track but is still at very high levels in both primary and secondary. Figure 60 shows the repetition rate by school type as well as the gross and net enrollment rates as proxies for overage children. Overall, private schools are more

efficient at both levels of education with slight differences between the two types of public schools. Although the causes of repetition can vary, including family, school, health, or even exam failure, the consequences of repetition could range from the additional cost of education, which may be small in magnitude, to the negative cumulated effect on the lifetime labor market outcome, and eventually on the country's economic growth and development.

216. **Delayed entry into the school system could explain some of the internal inefficiencies in the system, but repetition is an important factor in overage enrollment.** This issue is also associated with the dropout rate as children reach the labor market entry age or enter into marriage before finishing the desired cycle. Figure 60, on the right panel, shows a proxy for overage children by level of education. Being overage is associated with repetition and interruption of schooling. In other words, because of interruptions in schooling or repeating successive grade levels, children have difficulty in completing the desired school level within the standard timeframe and become overage students. Being overage in the classroom may be demotivating to the student as well, especially if the majority of the class is younger, which also negatively impacts the teachers' ability to manage the class.

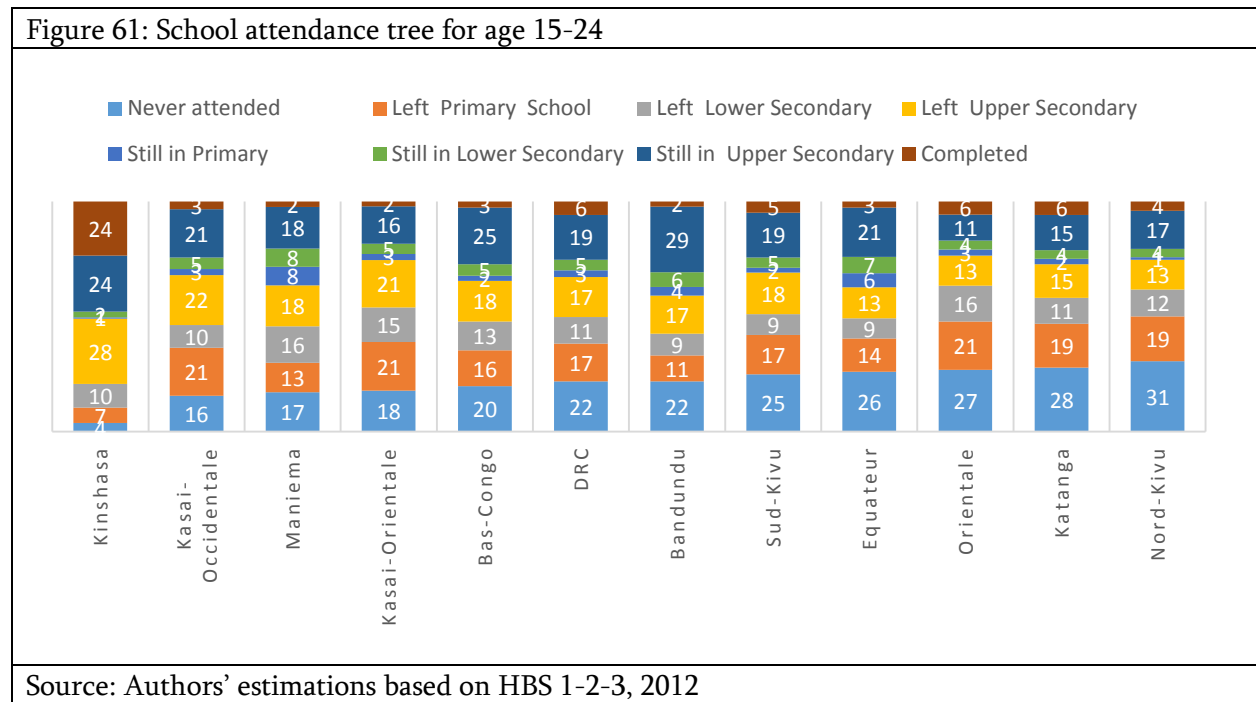
217. **A managed automatic promotion policy would be a feasible proposition for efficiency improvement.** Although automatic promotion is generally assumed to be a threat to quality, many impact evaluations show that there is no impact on the chances of survival through the school system<sup>75</sup>. Since many Congolese children drop out before finishing the desired level of education, the school system's efficiency depends on how many of the students who start a cycle complete it and how many do so on time, therefore lending both credibility and support to the automatic promotion policy proposal.



<sup>75</sup> For example, an econometric breakdown of the promotion into two parts, one based on indicators of merit (attendance and achievement in mathematics and language) and the other uncorrelated with those indicators) allow a test of whether parental decisions about enrollment are influenced by merit-based or non-merit based promotions. Results suggest that enrollment decisions are heavily influenced by student academic performance in the previous year, and that promotions that are uncorrelated with merit have a negligible impact on school continuation. Elizabeth M. Kinga, Peter F. Orazem, Elizabeth M. Paterno (1999).

218. **Many children who start school do not finish upper secondary school leading to high internal inefficiency in completion.** Figure 61 shows school attendance tree for age 15-24. The result shows that, at the national level, among youth aged 15-24, only 6 percent finish upper secondary and 19 percent are still in upper secondary, while the rest either dropped out or are held back in lower secondary or even primary grades. Provincial comparisons show large variations in the levels at which youth tend to leave the school system. To determine the factors that influence decisions for schooling at each transition level, we employed a sequential logit model and the result is presented the (Annex Table 22).

219. **Some factors affect all transition stages while others are specific to certain stages in the transition.** For example, the effects of a more educated household head are most evident in the first transition (never attending school or dropping out from primary vs. staying on). The effect of wealth status is more relevant at the secondary transition (given they passed the first transition). The probability of transitioning at different levels therefore depends on various different factors, except that the availability of schools, school facilities and the age of children, cut across the various tiers of education. Policy actions can be sequenced to address the importance of determinants at each level. In particular, availability of schools nearby and the wealth of household should be considered for decisions in supporting enrollment and reducing dropout at the primary level.



**Inefficiency related to administrative staff and staff growth**

220. **The high proportion of administrative staff at all levels of education is another source of internal inefficiency in the DRC-it accounts for about 15 percent of personnel spending (equivalent to 0.3 percent of GDP).** The excessive number of administrative staff suggests that the education system

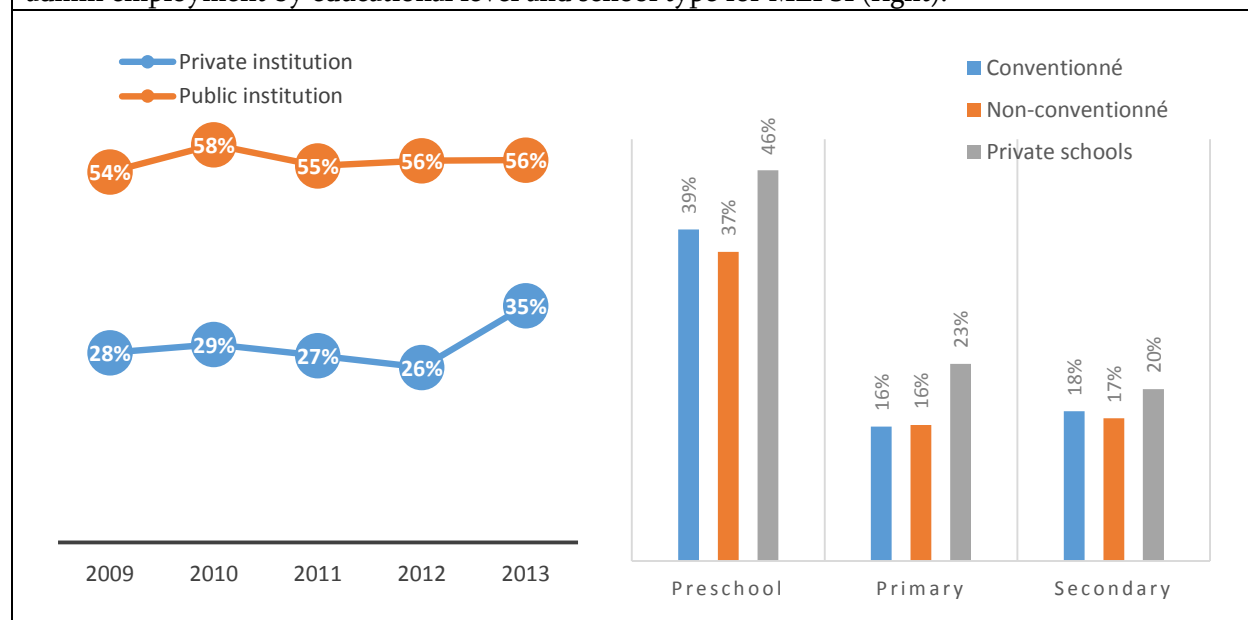


is being used as an employment buffer, implying a significant financial burden that could be reallocated to other needed inputs. For example, in public higher education more than half of the total staff is administrative staff, compared to about a third in private higher institutions (Figure 62(a)). In fact this is one of the causes for the high unit cost in public higher institutions discussed earlier.

221. **Although the share is relatively low in primary and secondary education compared with higher education, administrative staff constitutes more than 15 percent of staff in those levels (Figure 62(b)).** This implies to a teachers to admin ratio of 0.79 in public higher education, 6 in public primary 5 in public secondary schools. As stated earlier, using the SECOPE payment record, the cost implication of admin staff in public non-conventionné schools is very high (about a third of total salary payments) but since most of the admin staff for conventionné public schools are paid by the managing institution it is not possible to fully estimate the cost of non-admin staff, particularly since about 77 percent of public schools are managed under the conventionné agreement.

222. In higher education, the available budget information does not distinguish between the remuneration of the teaching and non-teaching staff, hence it is not possible to tease out the associated financial implications as well. Teachers also often taken on administrative responsibilities within the school, rendering the analysis more complex. Many countries use school size to determine whether the head teacher or principal would teach or not, whether the director should have assistants director or not, and determine which admin staff is needed according to school size and other facilities available in the school. However, the fragmentation of the teacher management system does not allow us to investigate such arrangements. Since the analysis clearly shows the inefficiency in the use of administrative staff, it is strongly recommended to make an assessment of all staff types through a thorough assessment of school size, location, and roles of each staff members and develop a standardized procedure for how non-teaching staff is allocated to schools, among others.

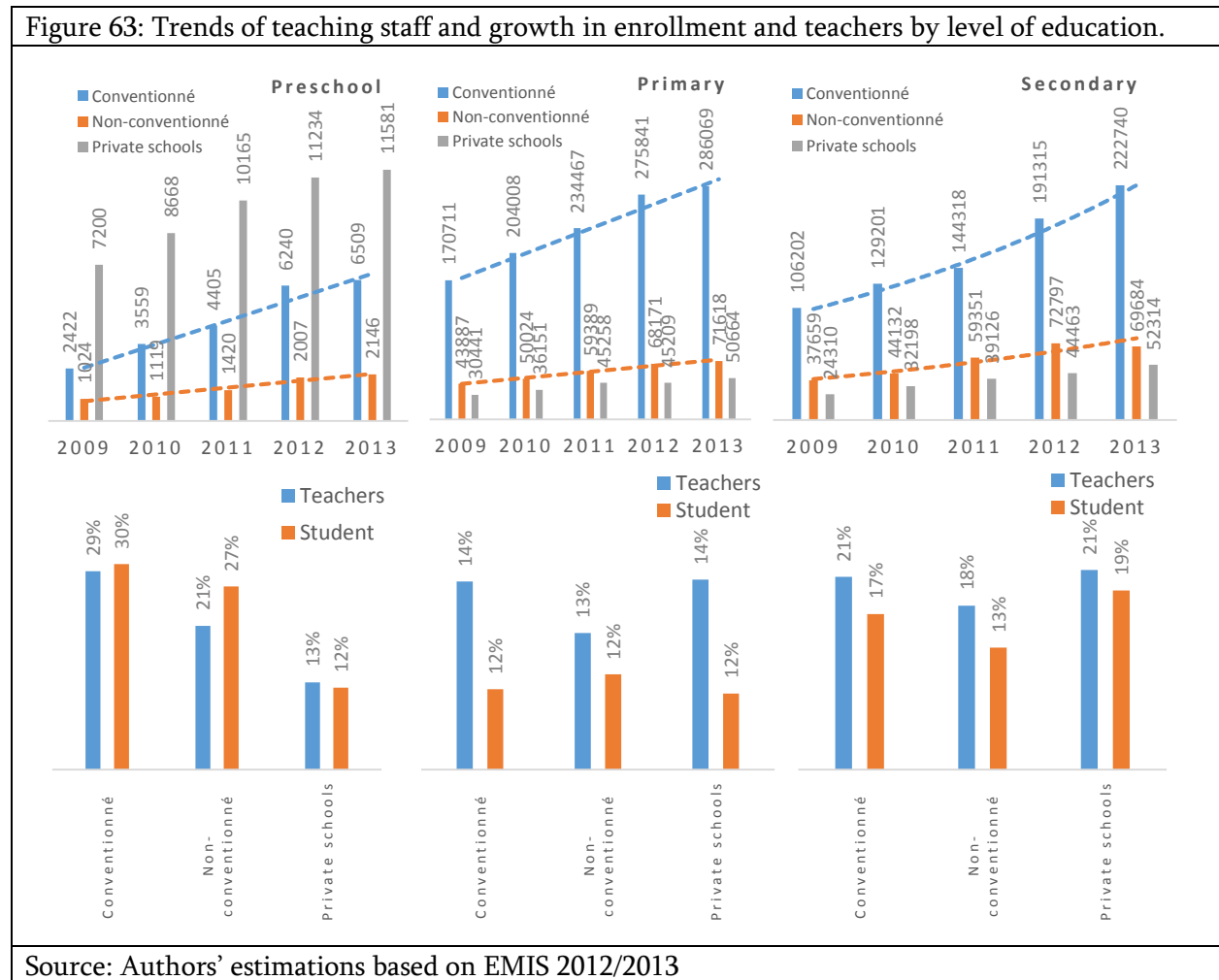
Figure 62: Trend in share of admin staff in total higher education employment(left), and current admin employment by educational level and school type for MEPSP(right).



Source: Authors' estimations based on EMIS 2012/2013

223. Another source of inefficiency is associated to the disproportionately high growth in teachers relative to the growth in the student body, especially given the already low student teacher ratio. Figure 63 shows trends of staff growth by school type, level of education, and enrollment between 2009 and 2013.

224. **Despite being relatively more efficient and associated with lower unit cost, public conventionné schools are the key drivers behind teaching staff growth.** For example, at primary school, while the average annual growth rate of enrollment in conventionné schools was 12 percent, the annual teaching staff growth was 14 percent between 2009 and 2013 compared to 13 percent, and 12 percent respectively in non-conventionné schools, (Figure 63(d)). While the problem of teacher management is central for both school types given the low STR, the timing of hiring and onboarding onto the payroll give a special incentive for staffing growth in public conventionné schools. In particular, as stated above, the school hires teachers and subsequent to hiring, requests that they be added onto the payroll which means that hiring precedes budgeting. A reversal of this practice could help overcome many challenges, promoting a more balanced staff growth as well as reducing the issues with delayed salary payments or unpaid teachers. Thus, this pattern of inefficiency can be addressed with better management of teachers but requires coordinated management of human resources across public school types. The next section provides detailed analysis of human resources management implications both on teaching staff quality and wage bill growth.

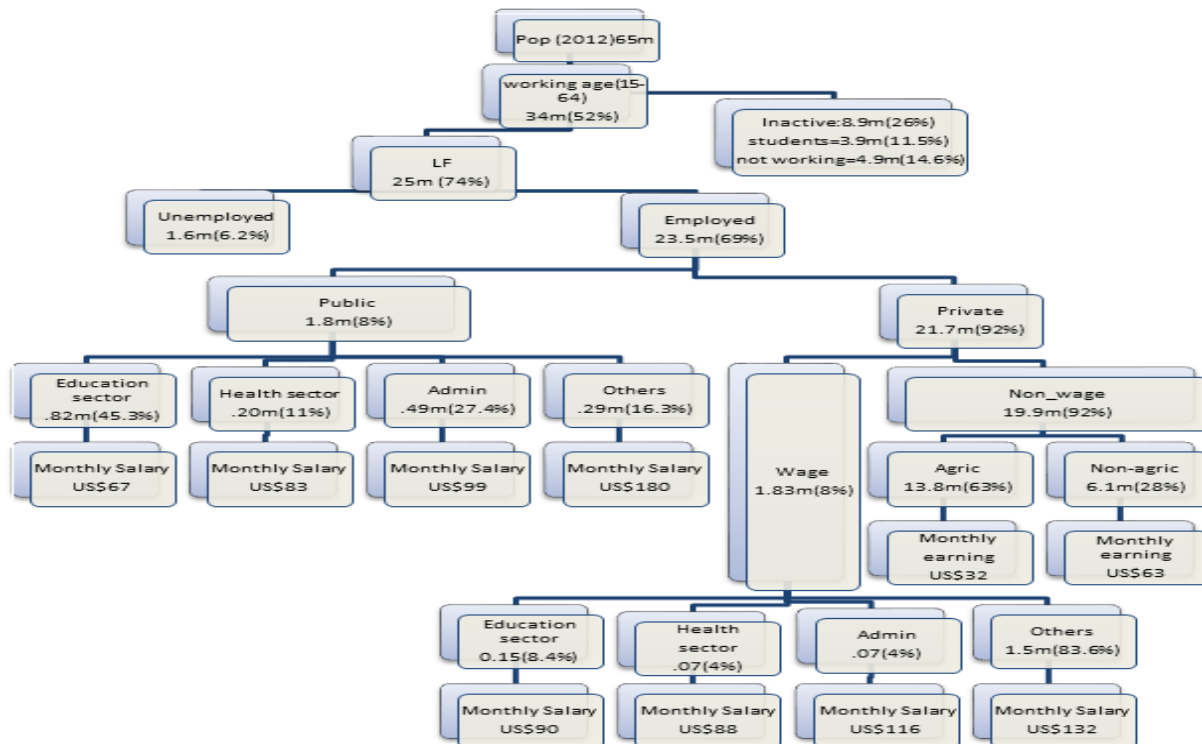


## Management of human resources

225. Estimates using the 2012/13 survey indicate that education sector staff accounts for about 45 percent of the wage bill in the public sector. Figure 64 presents the employment structure in the DRC, split into the public and private sectors. In 2012, the working age population accounted for more than half of the population (52 percent), which implies a dependency ratio of less than half (48 percent). Just over a quarter of the 34 million working age population (about 26 percent) are economically inactive of which 11.5 percent were in school and the remaining 14.6 percent were inactive for various reasons including engagement in non-economic activities. This suggests that about 74 percent of the working age population were in the labor force (LF) of which 94 percent were employed (6 percent unemployed). Overall, the public sector accommodates 8 percent of the employment (in wage employment) while the private sector including the informal sector accommodates the remaining 92 percent - of which 8 percent is in wage employment, 26 in a nonfarm household enterprise and the vast majority in agriculture (63 percent). Overall, the wage sector accommodates some 15 percent of the total working population.

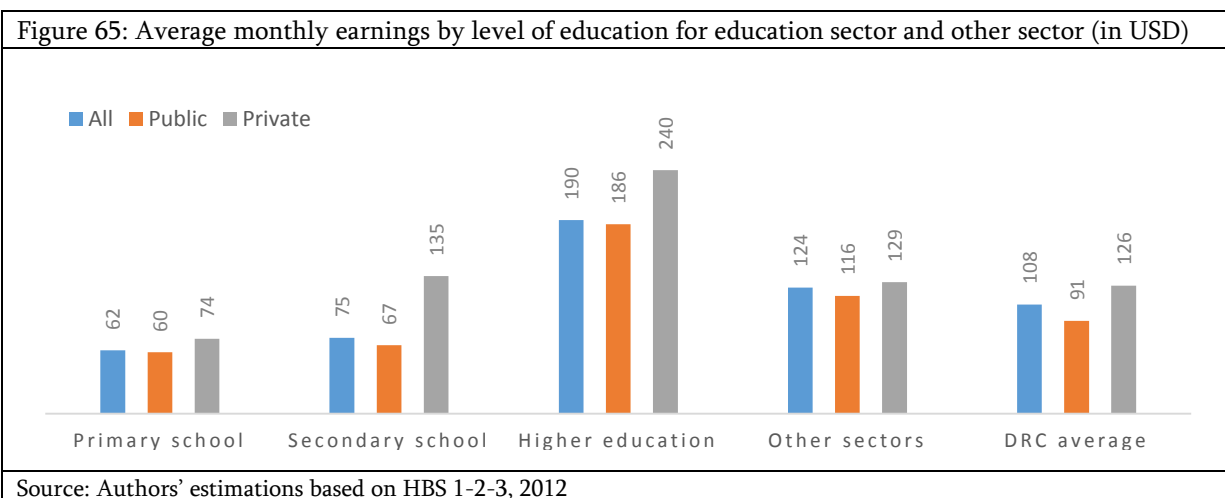
226. Salaries of the education sector staff members are below the public sector average wage. The education sector staff monthly salary is about US\$67 dollars compared to US\$91 average for public sector workers. For example, health sectors staff monthly salary is US\$16 higher than education sector staff. Public sector education staff are also paid less compared with private sector. It is interesting to note, however, that contrary to the public sector, in the private sector, education staff tend to be paid slightly more than private sector health sector staff.

Figure 64: Labor market flow and wage bill chart with associated average salary in DRC, 2012



Source: Authors' estimations based on HBS 1-2-3, 2012

227. **Primary education level workers are barely paid above the national poverty line (US\$60 vs. US\$53).** Figure 65 presents the average salary of teachers by level of education for the public and private sectors. Education staff at secondary schools are paid slightly more than at primary level but payment at the higher education level is much higher (US\$186), which is also reflected in the higher unit cost at that level. At all levels of education, the private sector remunerates its teachers better than the public sector. At the higher education level, although the unit cost of educating students is higher for public school, staff in private institutions are paid a very high rate (US\$240 per month vs. US\$186). This is more evidence that private higher education is more efficient than public higher education in the sense that private school unit cost is lower but the staffs are still paid more.



228. **Key labor market indicators show that the DRC is moving in the right direction but no focus has been given to the education sector, especially given the need and importance for growth and competitiveness.** Table 18 summarizes key labor market indicator performances both for public and private sectors between 2005 and 2012. Key highlights from Table 18 include (i): the economy is moving towards the formal sector since the portion of wage employment increased from 10 percent in 2005 to 15 percent in 2012 with a slightly greater increase in the private sector, (ii) the education sector wage bill increased by the same rate with the total government wage bill and also the annual growth rate close to annual GDP growth rate. This means that hiring of teachers is not an overload given the education staff growth observed above, and (iii), the role of the private sector in education has increased over time, which is encouraging as it provides an alternative and also supports the government in service delivery, as long as quality of education is maintained.

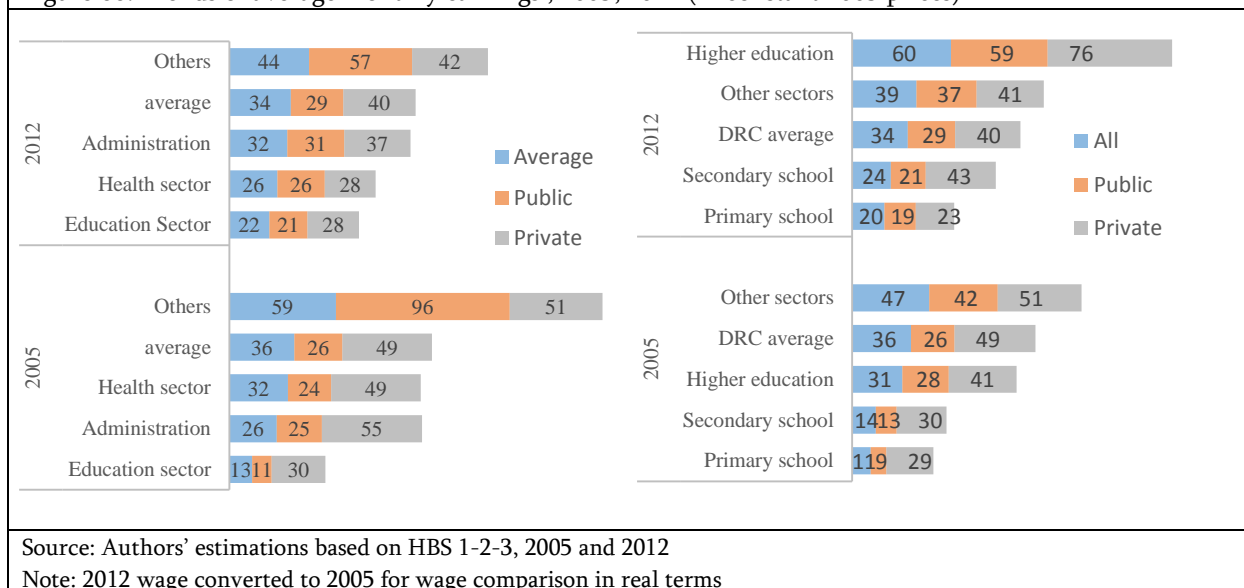
	2005	2012	Change	annual growth rate
% of wage employment total	10%	15%	52%	7.4%
Public sector				
% of public employee	6%	8%	31%	4.5%
% of education sector-public	44.7	45.3	1.3%	0.2%
% of health sector-public	8.3	11.05	33%	4.7%
Private sector -wage only				
% of wage employment	5%	8%	64%	9.2%
% of teachers -private	6.0	8.4	41%	5.9%
% of health sector-private	5.9	4.0	-32%	-4.5%
Public wage bill				
Total employment	1,148,010	1,802,658	57%	8.1%
Education	513,046	816,063	59%	8.4%
Health	95,285	199,194	109%	15.6%
Private wage bill				
Total wage	949,547	1,829,315	93%	13.2%
Education	56,498	153,662	172%	24.6%
Health	56,118	73,721	31%	4.5%

Source: Authors' estimations based on HBS 1-2-3, 2005 and 2012

229. **Teachers' salaries experienced a relative improvement between 2005 and 2012 in the public sector but are still lower compared to other sectors.** Figure 66 presents earnings for 2005 and 2012 (in constant 2005 prices; it should be noted that wages shown most often in this report in current or 2012 prices. Those expressed in 2005 dollar terms, e.g. in this paragraph and in Figure 66, are several times lower than the same wages expressed in 2012 dollars, reflecting a rapid price inflation in DRC in both local currency and in dollars as well). The results show that overall, average wage decreased between 2005 and 2012 by US\$2 per month mainly due to decreases in the private sector wage from US\$49 to US\$40 per month while the public sector showed an increase of US\$2 per month. During the same time, teachers' salaries increased from US\$13 per month to USE\$22 per month at the national level mainly due to an increase from public sector salary from US\$11 to US\$21. However, the education sector salary in private schools decreased from US\$30 to US\$28 per month. In parallel, monthly earnings in health sector remained the same at the national level (US\$26) but showed a slight increase in public sector (from US\$24 to US\$26) with a huge drop in the private sector (from US\$49 to US\$28 per month).

230. **The breakdown of the salary increase by level of education reveals that the higher education sub-sector showed the highest salary change between 2005 and 2012 in both public and private sectors.** This could explain in part the high unit cost in the public higher education sub sector. At the primary education level, the public sector salary increased by more than double (from US\$9 to US\$19 per month) while it dropped by US\$6 per month in private schools (from US\$29 to US\$23 per month). However, the gap between private and public salaries narrowed for both primary and secondary schools.

Figure 66: Trends of average monthly earnings , 2005, 2012 (in constant 2005 prices)



231. **Teachers' salaries in primary and secondary schools are less than 0.2 percent of GDP due to low public spending on education.** Table 19 shows that only 14 percent of the total public budget is allocated to the education sector compared with 45 percent of the wage bill presented above. Although many other factors play into this, the disproportionately low budget allocation to the education sectors is clear evidence for low composition for education sector staff. Although the budget share going to the education sector increased a little, from 10.9 percent in 2013 to 14 percent in 2014, the low level of budget execution rate remains a concern. This share is also 6 percent lower than what has been recommended as good practice (20 percent), and indicates that the education sector will continued to be underfunded. For example, teachers' salaries as share of per capita GDP in 2013 were 2.2 both at primary and secondary level, which is lower than the recombined 3.0 percent. While several policy actions are required to fix the human management issues, a budget increase to the sector is very important to have competitive teacher remuneration in order to attract qualified and motivated teachers, which are direct factors affecting better learning outcomes.

Table 19: Government spending by categories (education accounts for only 14%), 2014

	Total budget	%
Public Central Administration	2,797	38%
Economic Affairs	1,504	20%
Defense	426	6%
Education	1,076	14%
Housing And Community Amenities	112	2%
Policy And Public Security	502	7%
Protection Of The Environment, Fauna And Flora	72	1%
Welfare, Social Affairs	97	1%
Religions, Culture, Sports And Leisure	58	1%
Health	805	11%
Grand Total	7,449	100%

Source: Ministry of Budget

232. **Due to the low salary level, teachers are more likely to be involved in a secondary employment.** Further analysis of teachers' low remuneration reveals an adverse effect on teacher quality and the time

allocated to teaching. Table 20 shows that despite the fact that teachers are more educated than the average person, the lower salary payments lead them to engage more in secondary activities. For example, 33 percent of education sector staff had a secondary economic activity compared with 12 percent for all public sector staff. These rates are relatively low for teachers who work in the private sector- which is not surprising given that private sector teachers are better compensated, as described above.

233. In general, teaching schedules should not allow for a secondary job in another sector. We used regression analysis and SECOPE payroll data to determine the significance of the finding. The results clearly demonstrate that salary payment drives the choice of taking up a secondary job. In particular when teachers are not on SECOPE payroll (they are non-mécanisé), the probability of engagement in secondary work is high (Annex Figure 19).

234. **The remuneration scale does not attract more qualified workers to the education sector.** In terms of teachers' salaries at the MEPSP level: (i) there are some salary revisions underway but they still barely bring the salary level above the poverty line (Annex Figure 20), (ii) the remuneration scale is unable to attract more qualified teachers particularly in post primary levels. For example, only about 25 percent of secondary school teachers have the minimum requirement for teaching at that level while this figure is about 96 percent at the primary level<sup>76</sup>. Finally, (iii) the system is unable to attract female teachers. For example, at the primary level the share of female teachers is less than 25 percent while it is strikingly lower at secondary school level (less than 10 percent) and even lower in higher education (less than 5 percent). This suggests that better human resource management both in terms of recruitment and remuneration is highly recommended to improve sector efficiency and learning outcomes.

	DRC	Public	Private	Total	Public	Private
General Administration	11.7	11.7	11.3	18%	19%	12%
Education sector	12.1	12.0	12.5	31%	33%	20%
Primary schools	11.66	11.55	12.18	33%	35%	24%
Secondary schools	12.84	12.73	13.53	28%	32%	8%
Higher education	14.45	14.47	14.12	20%	19%	26%
Health sector	12.2	12.2	12.3	18%	21%	13%
Other sectors	10.2	11.9	9.9	11%	17%	11%
Average wage employment	11.1	11.9	10.2	12%	24%	11%

Source: Authors' estimations based on HBS 1-2-3, 2012

235. **Conclusions- key implications of this section include:**

- i. The first source of internal inefficiency is linked to the inefficient STR and class sizes- the current STRs in both primary (34:1) and secondary education (13:1) are significantly below the optimal levels of 40:1 and 25:1 respectively, which signals an under-utilization of resources. Optimal use of resources could lead to potentially US\$432 million in savings (1.4 percent of GDP).

<sup>76</sup> Regression analysis shows that PASEC French scores in grade 2 and 5 and mathematics scores in grade 2 are positively correlated with teachers' qualification.

- ii. The second main source of internal inefficiency in the education sector is linked to high repetition and dropout rates. The repetition rates in the DRC are around 10.7 percent at the primary level, and 5.9 and 6.8 percent at the lower secondary and upper secondary levels respectively, while the corresponding dropout rates are 3.7, 3.5 and 4.6 percent respectively. This is equivalent to a lifetime loss of 7 percent of GDP in today's price or 0.2 percent of GDP annually.
- iii. The third main source of internal inefficiency stems from the unmanaged and unplanned staff onboarding into the education system. As mentioned earlier, the excessive number of administrative staff suggests that the education system may be used as an employment buffer, especially within higher education where they outnumber the teaching staff. The estimate for such inefficiency is about 0.3 percent of GDP.
- iv. The high growth in teaching staff, which is driven mostly by conventionné schools, has several implications; (i) since the sector is already under-funded, the high growth rate in teaching staff puts further strain on existing resources which leads to teachers not being well compensated; (ii) it also has an impact on the quality of teachers they are able to hire since more qualified and more experienced staff tends to be more highly remunerated; (iii) given their low remuneration levels--the average education sector staff monthly salary is US\$67 compared to US\$91 for the average for all public sector workers--teachers often take on a secondary job--this may also adversely affect teaching quality, especially if the teacher is regularly absent or late which in turn affects learning outcomes. Lastly there is an important lack of female representation among teaching staff (only 20 percent), which represents a concern for gender parity issues in the sector.



## VII. Conclusions and Policy Recommendations

### Conclusions

236. **The DRC has achieved significant progress in its education sector over the last decade but the country still faces important hurdles standing in the way of achieving the MDG goals in education.** Addressing these concerns in a timely and expedient fashion is especially important since the DRC is at a critical junction in its development trajectory. The country has managed to overcome a particularly dark and violent period in its history and has shown incredible resilience in its aftermath, as exemplified by the GDP growth trends in the post-conflict period. Since 2010, the DRC has consistently reported GDP growth rates above 7 percent, reaching 8.5 percent in 2013- nearly double the average growth rate for SSA region in the same year. In order to harness the economic growth to fight rampant poverty, inequality, and ongoing security issues, it is vital that education be a national priority- in terms of resource allocation, policy focus and leadership.

237. In this final section, we present the summary of the key findings and challenges that characterize the DRC's education sector and present policy recommendations that aim to address the main issues identified.

#### Summary of main findings:

#### Access and MDGs

238. **The key access indicators show that, overall, the DRC has improved significantly between 2005 and 2012 across all levels of education, especially among girls and in rural areas.** In particular, the overall GER increased from 93 percent to 108 percent at the primary school level, from 56 to 67 percent in lower secondary, and from 38 to 59 percent in upper secondary. The increase in access is mostly driven by strong improvement in female participation at all levels of education, even though it remains inferior to male gross enrollment rates. Female participation has registered substantial increase at the upper secondary level, growing from 28 to 49 percent over the 2005- 2012 period. Enrollment has also significantly improved in rural areas, increasing from 89 percent to 106 percent at the primary level, from 47 to 58 percent in lower secondary and from 27 to 46 percent in upper secondary. The significant improvement in the gross enrollment ratio may reflect the policy focus on primary education, especially by international donors, in order to help the country achieve its MDG goals.

239. **Despite the significant improvement in access to education, the DRC will fail to meet its 2015 MDG goals in education.** Although the country has committed to achieving the MDGs and despite international partners' focus on this goal, the DRC is still lagging behind. In particular, the primary completion rate increased from 65 to 79 percent between 2005 and 2012. As with the access indicators, the increase in the primary completion rate is driven mostly by improvement among females and in rural areas. In fact, rural girls showed an increase from 37 to 69 percent over the period. At the same time, the gender parity index (GPI) has only marginally improved across all levels of education with the exception of upper secondary. The GPI increased from 90 to 96 percent in primary, 62 to 74 in lower secondary, 48 to 73 in higher education and decreased from 73 to 59 percent in upper secondary. It is very unlikely that the DRC will be able to overcome the current gaps within the given timeframe in either the primary completion rate or gender parity index.

240. **The below-par sector performance with respect to the MDGs in education may be explained by the fragmented sector strategy.** Despite having committed to achieving the MDGs, this commitment is not clearly reflected as a priority in the DRC's education sector strategy, resulting in misaligned sector policy and sector goals. In particular, despite identifying universal primary education as a sector goal, the operationalization of the strategy has failed to adequately prioritize this area. In particular, there is no clear strategy and/or strong financial commitment towards targeting children from difficult socio-economic backgrounds, girls or children from rural areas. The sector strategy also fails to highlight the issue of out-of-school children and therefore does not have a clear strategy to address this issue.

241. **The public school management system at the primary and secondary levels faces particular issues stemming from the nature of the fragmented management system between conventionné and non-conventionné schools.** The lack of clarity in responsibilities and lack of uniformity in the enforcement of management rules across the two types of public schools results in clear inefficiencies in the system.

### **External efficiency**

242. **An analysis of the returns to education clearly indicates that there is a strong rationale for investment in education both in terms of private and public returns.** In particular, private internal rate of returns (IRR) to education, indicate returns of 6 percent, for primary and lower secondary, 2 percent for upper secondary and 13 percent for higher education. In parallel, public returns to education were very high- 32, 21 and 22 percent respectively. The high public rate of return further supports the fact that the public sector is under-investing in education.

### **Human capital development**

243. **The DRC is striving to achieve its education sector goals, which has been highlighted as a priority area for the government, but given the current trends, these goals will not be achieved.** Three main observations are made from the HCP analysis:

- If there are no changes to current trends, the human capital projection suggests that by 2030, 18 percent of young people will enter the labor market without primary education. However, by simply achieving its MDGs in education, the same projection shows that, by 2030, there will not be any new entrants in the labor market with no education. This increase in the human capital stock of the country would enable the DRC to better meet the needs of the growth sectors and better align the education sector with the evolving labor demand needs.
- The projection of job creation and destruction by occupation and industry shows that the skills needed are not available from labor supply. As a result, industries that are associated with high job production are also associated with low skills requirement. The newly created jobs are associated with low productivity.
- While there is an important shift in the occupation and industry composition of labor demand, current trends indicate no such adjustment in the labor supply.
- This suggests and integration of the demand and supply side analysis of the labor market needs to develop a human capital agenda.

## Financing

244. **The public education sector is clearly underfunded - with only 10.9 percent of the public budget being allocated to education and with education budget executions at about 1.8 percent of GDP.** The SSA average is at 17 percent of budget allocation and 4.6 percent as a share of GDP. This places the DRC among the lowest performing SSA countries and undermines the credibility of its commitment to develop the sector.

245. **The education sector remains largely financed by households.** Although there has been some improvement regarding the burden borne by households, the latter still finance 73 percent of education spending in the DRC (down from 90 percent in 2005). The government contributes 23 percent to education spending (up from 6 percent in 2005) while donors contribute the remaining 4 percent. However, the reduction in the contribution of households tends to reflect the increase in the base education spending by the government rather than a reduction in the education burden itself on households. Donor contributions remain unchanged at about 4 percent.

246. **The budget allocation and execution are not aligned, resulting in large discrepancies between the two.** In particular, while the budget execution of recurrent spending- which comprises mostly salary payments- is nearly fully executed, capital spending on the other hand is grossly under-executed. The share of recurrent spending on education increased from 75 percent of the total education budget in 2009 to 81 percent in 2013, with an execution rate close to 90 percent, on average, throughout the period, while allocation to capital spending, which represented 19 percent of the voted budget, had extremely low execution rates ranging from 38 percent in 2009 to 3 percent in 2013.

247. **The low execution rate of capital spending, especially since 2010, is linked to the budget's heavy reliance on external sources of funding for capital spending.** In particular, the share of capital spending budgeted on external resources increased from 38 percent to 89 percent between 2009 and 2010 and has hovered between 84 and 89 percent since. However, the execution rate of these external funds has simultaneously decreased from 74 percent in 2009 to 22 percent in 2010 and to just about 3 percent in 2013. While it is unclear why the execution rate of the budget from external sources is so low, the government's dependence on external funding in the budget preparation process clearly undermines the adequate provision of capital spending in the sector.

248. **The functional allocation reveals that the budget does not adequately provide for non-personnel costs which are essential for the public schools to efficiently teach and manage their establishments.** Non-personnel costs include spending on school materials, library books, blackboards, among other day-to-day running costs incurred in management of the school. The breakdown of the budget by functional allocation reveals that only about 13.8 percent of the budget was allocated to these costs in 2013 with an execution rate of only about 10.4 percent (or 1.4 percent of total allocated budget). Given that the frais de fonctionnement (operating costs) represents one of the two largest components of the fees charged to households by schools, the failure of the budget to adequately allocate to and execute this component contributes to explaining why schools are charging households high school fees. It is also not currently possible to estimate the needs in terms of operating costs since schools are allowed to charge discretionary fees e.g. frais d'intervention ponctuelle that are decided at the school level. In addition, it is not possible to determine the extent to which the conventionné schools are tapping into resources of their respective religious network to fund these costs.

249. **The budget allocation is not aligned with the MDGs, reflecting a lack of clear prioritization in the budget elaboration and allocation process.** The budget allocation by level of education reveals that in 2013, only 40 percent of the budget allocation went to the primary education level while the majority was dedicated to the post-primary levels- with 26 percent going to higher education alone- even though, on average, 63 percent of all students were enrolled at primary level. As highlighted in this report, the budget allocation to the primary sector is low by all standards- the average budget allocation to the primary sector in the SSA is around 44 percent while the GPE recommendation is at 50 percent. It should also be noted that in some provinces, the share of enrollment in the primary level of education is higher than 63 percent- as high as 74 percent in Katanga for example. This further emphasizes the misalignment of budget allocation.

250. **Although the education sector at the primary and secondary levels of education are decentralized in terms of school management, the financial management of the sector remains centralized and seems to be increasingly so.** The share of the budget allocated to the Services Centraux (central services - 37 percent in 2012) is larger than any allocation to the provinces and has been steadily increasing over time, from 20 percent in 2009. However, a closer examination of the execution rate reveals that the budget allocated to central services suffers from very low execution rates (about 20 percent in 2013) while the funds at the provincial level register at times execution rates above 100 percent. This implies that although the central services are allocated a larger share of the voted budget, the budget is in reality executed at the provincial levels. This finding creates strong credibility issues with respect to the education sector budget preparation process and undermines any analysis of the budget process since the allocations do not even remotely reflect the real execution.

251. **In the same vein, there is a clear lack of monitoring and execution of the education budget.** In particular, the ministry of budget depends on the SECOPE database on salary disbursements to effectively calculate the breakdown of the recurrent expenditure. This further highlights the weaknesses of the institution.

### **Unit cost of education**

252. **The unit cost in general education (pre-primary to upper secondary) is highest in private schools, although among public schools, the non-conventionné schools tend to be the more expensive.** In fact, public non-conventionné schools are about twice as expensive as their public conventionné school counterpart. This is driven by two main factors, (i), public non-conventionné schools receive larger non-salary transfers than public conventionné schools - on average 307,724 FC compared with 193,474 FC, and (ii) public non-conventionné schools spend a larger share of their total education spending on the bureaux (that oversee the schools at a provincial and local level) and administrative staff- 30 percent, while conventionné schools only spend about 2 percent on those two categories. This results in a unit cost of 21.1 FC in public non-conventionné schools compared with 0.33 FC for public conventionné schools. In addition, while it is not surprising that private schools are more expensive in general education, this implies that poor households are less likely to have access to this service.

253. **Post-primary unit cost is very expensive, especially in higher education, and this is driven mainly by the large share of administrative staff.** The total unit cost (public unit cost and household unit cost combined) reveals that public schools in higher education are nearly twice as expensive as

private schools. The ratio of teaching staff to admin staff is 0.79 in higher education- indicating that there are on average nearly 10 admin staff for every 8 teachers.

254. **There are large variations in unit costs across provinces, which could indicate underlying differences in the management system linked to resource allocation, distribution and utilization.** Maniema for example, had the largest discrepancy between non-conventionné (87.1 FC) and conventionné (0.80 FC) unit costs while Kinshasa had the smallest with 3.2 FC and 0.43 FC respectively. The variation in unit costs across provinces could reflect (i) unequal variations in resource allocations, (ii) variation in efficiency, and (iii) variations in the number of children in the education system in each province. These variations could translate into variations in the amount charged as school fees to households.

255. **The midterm outlook in the DRC's education sector strategy tends to overestimate the public unit cost and this is mainly because it fails to capture two key aspects:** (i) given the current low resource utilization rate- in particular the low STR, an increase in enrollment should not be expected to lead to a proportional increase in unit cost- in fact, it would be reasonable to assume economies of scale and expect therefore a lower unit cost, and (ii) the estimation does not take into consideration the private sector education provision- this sector has been increasingly important-especially in Kinshasa- and should be taken into account.

## Equity

256. **Public education spending in the DRC tends to be pro-rich, where, all education levels combined, the public sector invests nearly three times as much into the richest quintile (33 percent) compared to the poorest (12 percent).** In particular, while public spending at the primary level is equitable in the sense that all quintiles receive more or less an equal share of public funding, at post-primary levels there are increasingly large disparities across provinces, poor and non-poor as well as gender.

257. **The high unit cost in post-primary education levels is prohibitive to poor households, despite their strong commitment to educating their children.** Unit costs of post-primary education are a particularly heavy burden for the poorest households- the unit costs represent 76 percent of their per capita income for lower secondary, 96 percent for upper secondary and 390 percent at the higher education level. That being said, the poor remain committed to sending their children to school; as such, they increased their spending on education as a share of total households consumption between 2005 and 2012 significantly more than any other quintile. In 2012, the poorest quintile committed 9 percent of total consumption on education- same as the highest quintile. However, given that the inequality gap between the rich and the poor is widening, poorer households may face greater difficulties in sustaining their investment in education, which would undermine all efforts to break the poverty cycle.

258. **School fees represent the highest share of household contributions to education spending and households are very dissatisfied with the high costs- even though they still contribute a high share of spending.** Estimations using the latest household survey 2012/13 indicate that 65 percent of household payments for education are in the form of school fee contributions. This is directly attributable to the public education sector being under-funded. As explained earlier, since schools do not receive enough funds to adequately or fully compensate teachers nor pay for operating expenses, they turn to the

households and parents to fill the gap through the frais de motivation (salary compensation) and frais de fonctionnement (operating costs). The latter two are the largest components of school fees. In parallel, the high costs borne by households are the main reason why children are out-of-school at all levels of education and across all groups- urban and rural, male and female and by quintile. Therefore, excessively high school fees are a key challenge to the sector.

259. **The country faces large internal inefficiencies in the education sector coming from three main sources.** The first source of internal inefficiency is linked to the inefficient STR and class sizes- the current STRs in both primary (34:1) and secondary education (13:1) are significantly below the optimal levels of 40:1 and 25:1 respectively, which signals an under-utilization of resources. These STRs tend to be even lower than in the private sector and do not show any signs of improvement over time. The low STR at the secondary level may be attributed to the inefficiently extensive curriculum program at that level of education. Optimal use of resources could lead to potentially US\$432 million in savings. It is also important to note that the STR tends to diminish within the cycle itself which is indicative of a retention issue within the cycle, and also that the STR tends to vary considerably across and within provinces.

260. **The second main source of internal inefficiency in the education sector is linked to high repetition and dropout rates.** The repetition rates in the DRC are around 10.7 percent at the primary level, and 5.9 and 6.8 percent at the lower secondary and upper secondary levels respectively, while the corresponding dropout rates are 3.7, 3.5 and 4.6 percent respectively. While some argue that automatic graduation within the school cycle may negatively impact the quality of education, repeating grades is not without cost. In fact, aside from the additional year/s of fees incurred by the household, and considering that on average, children start school one year late in the DRC compared to other SSA countries, the repeating child is also more likely to dropout before completing the cycle which has an accumulated lifelong effect on his/her future earnings stream. This deadweight loss is estimated at about 7 percent of GDP.

261. **The third main source of internal inefficiency stems from the unmanaged and unplanned staff onboarding into the education system.** As mentioned earlier, the excessive number of administrative staff suggests that the education system may be used as an employment buffer, especially within higher education where they outnumber the teaching staff. However this practice may be diverting resources away from other areas which may be more pressing such as hiring more qualified (and therefore more highly remunerated) teachers or even reducing school fees, which, as discussed are one of the leading factors keeping children out of school. In addition, the growth in the number of teachers has outpaced the growth in student enrollment, especially in conventionné schools.

### **Human resource management**

262. **The lack of a clear and uniform human resource management system has several implications on the quality of teachers as well as the ability to sustain high standards of teaching.** The high growth in teaching staff, which is driven mostly by conventionné schools, has several implications; (i) since the sector is already under-funded, the high growth rate in teaching staff puts further strain on existing resources which leads to teachers not being compensated well; (ii) it also has an impact on the quality of teachers they are able to hire since more qualified and more experienced staff tends to be more highly remunerated; (iii) given their low remuneration levels, teachers often take on a secondary job-

this may also adversely affect teaching quality, especially if the teacher is regularly absent or late which in turn affects learning outcomes. Lastly there is an important lack of female representation among teaching staff (only 20 percent), which presents serious gender parity issues in the sector.

**263. Teachers' salaries are below the public sector average wage and barely above the poverty line for primary education teachers, even though they account for 45 percent of the public education wage bill.** The average education sector staff monthly salary is US\$67 compared to US\$91 for the average for all public sector workers. This is lower than, say, health sector staff who receive US\$16 more (US\$83) than education sector staff. Public sector education staff are also less well remunerated compared with the private sector.

### **Policy recommendations**

264. The policy recommendations presented below are informed by the empirical findings derived from an in-depth analysis of the education sector and follow-up consultative workshop with sector experts and development partners. The recommendations are grouped under four broad topics: (i) budget, (ii) equity, (iii) efficiency, and (iv) developing human capital needs. A policy recommendation matrix is included at the end for easy cross-reference.

### **Budget**

**265. Increase the allocation to the education sector budget.** Many of the key issues facing the education sector stem directly and indirectly from underfunding of the education budget. The education budget as a share of GDP stands at about 1.8 percent executed (or 2.3 percent allocated), which is below the recommended GPE levels as well as the SSA average (4.7 percent). Our estimations show that an increase to 4.7 percent (in line with SSA average) would be sufficient to help the sector address three key issues: (i) it would cover the estimated cost of absorbing the out-of-school children into the education sector, (ii) it would also allow the full onboarding of all teachers who are currently not in the system, and (iii) it would allow an additional reduction in fees and other costs passed on to households. It is imperative that the government effectively prioritizes the education sector in its budget allocation process as outlined in the MTEF. In order to do so, the spending on the education sector as a share of the total spending should also be revised upwards, closer to the recommended 20 percent, almost doubling the current allocation share.

**266. Align capital spending to internal resources and increase non-personnel operating cost allocations.** An increase in the budget allocation would enable the sector to budget capital spending on internal resources instead of relying extensively on external resources, reclaiming ownership over the development of the sector and making it less prone to very low execution rates, which have characterized the sector over the last 4 years. In addition, the budget allocation to operating costs should be revised to allow larger transfers to the schools, which in turn would enable the sector to reduce the school fees collected from households- as intended under the gratuité policy intended to make education fee-free. This would also require a standardization of operating costs across school types within each province taking into account the living standards- it is essential in this context to determine the real operating costs of both conventionné and non-conventionné schools and standardize these estimates in order to adequately budget for additional operating costs.

267. **Improve the budget elaboration and preparation process to clearly reflect the sectoral priorities of the government- especially with respect to the attainment of the MDGs.** The budget preparation and elaboration process needs to reflect the sectoral priorities both at the allocation and at the execution stage. The misalignment of the sectoral priorities and budget allocation hinders the ability of the education sector to meet its sector goals- in particular the MDGs. For example, given that most of the education budget is allocated to post-primary levels of education (60 percent), the budget allocation does not reflect the sector's strategy focus on the primary level of education. The priority on primary education is theoretically built into the MTEF and should be reflected in the budget allocation but this is unfortunately not the case, leaving the sector under-funded and still lagging in its short-term goals. Given that the existing education is low, this analysis does not recommend re-allocation between sectors but rather suggests that increases in the total education budget be focused more on primary education. Since this level of education services the poor the most, this will improve the inequitable distribution of resources as well.

268. **Improve the budget nomenclature to clearly reflect allocation of all spending to each level of education separately, which would enable proper monitoring and evaluation of spending allowing the DRC to stay on track with its education sector goals.** The lack of a clear and consistent budget nomenclature is an important impediment to any analysis, monitoring and evaluation. For example, it is currently not possible to distinguish between the levels of education that are under the MEPSP, for a comparative analysis of expenses, unit costs, etc. using the Ministry of Budget's nomenclature. In this analysis, we were able to do it because of the actual executed SECOPE spending. Having a budget classification that is clearly structured around the levels of education would facilitate sector-level analysis and evaluation of the priority areas.

269. **Adopt a clear strategy to onboard the schools and staff not on SECOPE payroll, with clear goals and targets of the rate of onboarding.** The current practice of onboarding one by one based on the applications received undermines the credibility of the budget as well as leads to leakages. To overcome this, targets should be made at the budget preparation stage to clearly evaluate the progress towards achieving these targets. This would also ensure the equitable distribution of human resource across provinces.

## Equity

270. **Given the widespread variations in unit costs of education across provinces and school types, estimation of unit cost should be used to determine the most efficient and strategic resource distribution and should also inform the strategy to reduce the incidence of out-of-school children by providing realistic cost estimations of putting those children in class.**

- The unit cost estimations should be used to identify the most efficient resource distribution pattern (i.e. across provinces, areas, etc.) and ensure the latter fosters greater equity and that spending patterns are in line with sectoral priorities.
- The unit cost analysis is an important tool in the preparation of policies aimed at accommodating out-of-school children into the education system. The DRC has the third highest out-of-school rate in SSA and this has important implications on the lifetime earnings of individuals as well as the competitiveness of the country. The cost of accommodating the out-of-school children is within the means of the country and



reasonable but requires a financial commitment on behalf of the government. The unit cost analysis should be used as a tool at the planning stages in order to better grasp the cost of accommodating all children. In addition, given that the issue is one that affects especially girls and children from poor households, this would be one of the key areas in which the government could align its investment with greater equity.

**271. Given that household contributions to education are to a large extent going towards teacher salaries, either in the form of full or supplemental salary payment, it is vital that all teachers be onboarded and adequately remunerated, both which contributed to exclusion of children from poor families from education services.**

- Teachers' salary base should be revised upwards and should also account for variations in living costs across provinces and areas. Even though the education sector staff comprises 45 percent of the wage bill, the average wage is lower than the average public sector worker and is even below the national poverty level for teachers at the primary level in some provinces. Higher salaries would enable schools to attract more qualified teachers, reduce their likelihood of taking up a secondary job- both of which would have a positive impact on learning outcomes. Teachers often work part-time jobs because of low salaries and requires top-ups of their salaries because of the low salary payments which is the burden of the household.
- In addition, the sector should specifically provide for female teachers to improve the gender parity issue among the teaching staff. This is particularly relevant for early childhood development where the female teachers are often a reassuring presence for mothers, increasing the likelihood of the children attending ECD programs.

**272. The implementation of programs to foster equity in education and reduce the incidence of out-of-school children should be explored, including conditional cash transfers to parents, school feeding programs and targeted scholarships.** As discussed earlier, access to education for children from more difficult socio-economic backgrounds has not significantly improved over time, and despite some progress made, female participation in education remains inferior to male participation. In order to redress the disparities, the government can establish targeted policies that would identify the most vulnerable and provide targeted assistance. These measures, if tailored and targeted to the most vulnerable in the DRC, could be very effective tools in promoting equity, breaking the poverty cycle and promoting inclusive growth. For example,

- The DRC can leverage south-south knowledge exchange to learn from the implementation of such programs in other countries; for example Mexico and Brazil instituted Bolsa Familia and Oportunidades respectively, two of the largest conditional cash transfer programs in the world, and both have been largely recognized as successful programs in terms to improving education outcomes.
- In addition to defraying the cost of education, the DRC could provide scholarships to the vulnerable groups, such as girls, or students from rural areas, reducing barriers to access for those groups which tend to be more excluded and face greater difficulties in starting and completing the basic education cycle.

- Lastly, in order to promote equity in access to education, the government should also explore the implementation of school feeding programs, which have especially been successful in attracting to school students from low income families.

## Efficiency

273. **The efficient use of teachers and staff requires, especially at the secondary education level, a revision of the curriculum, streamlining the courses offered.** There should be an extensive review and revision of the curriculum, especially at the secondary level to streamline courses and programs offered and ensure study programs are aligned with the needs of the growth sectors. There are clear inefficiencies at the secondary level given that students have close to 50 options and fields to choose from without clear evidence from the need perspective.

274. **Improve efficiency of education provision by establishing a uniform public school management system with greater accountability and enforcement of rules and regulations to ensure standards are maintained across all schools.** As mentioned earlier, one of the recent and rampant issues facing the DRC's education sector is the lack of adherence to standards and guidelines among new schools. In particular, many conventionné schools which have recently been built (despite the moratorium in place on new construction) fail to comply with the agreed standards regarding issues such as the minimum number of students required to open a school, the student-teacher ratio, and the appropriate teacher-administrative staff ratio, leading to inefficiencies such as low STR, and the disproportionate hiring of teachers relative to student enrollment growth rates. This suggests that public schools stand to gain from increased coordination across school types through, for example, the creation of accountability channels given to the sous-PROVED (local offices overseeing education) regarding teacher recruitment and deployment for both types of public schools, conventionné and non-conventionné. It would also be helpful to set up systematic monitoring and evaluation of schools by both the province and central authorities which would best determine what measures to adopt vis-à-vis non-compliant establishments.

275. **The creation of a school-mapping tool is highly recommended to assist with efficient identification of infrastructure projects. In addition, resources should be channeled towards developing infrastructure that fosters alternative learning methods, such as the use of ICT for various types of distance learning approaches.** As discussed above, despite having a low STR ratio, there are significant variations in school availability across and within provinces.

- In order to allow more successful implementation of school rehabilitation and construction programs, a complete and regularly updated school-mapping tool should be developed. This tool would enable the central, provincial and DTE level authorities to have all the necessary information on school availability and identify more easily the areas that require additional facilities.
- In addition, given the scale of the country and the associated geographic challenges this poses, alternative learning outlets should be explored using the latest ICT developments, including broadcast radio, interactive radio instruction, educational TV, and virtual online courses for education services such as remedial classes and accelerated programs.

276. **In order to reduce internal inefficiency, the sector should seek to implement mandatory enrollment age, automatic promotion at least within the primary education level.** Given that high repetition and dropout rates, coupled with delayed entry into the school system, are important sources of internal inefficiency amounting to an estimated 7 percent of GDP in deadweight loss, several possible measures may be implemented to mitigate this impact. In particular, (i) the implementation of automatic promotion within the primary cycle would reduce the repetition rates as well as dropout rates, and (ii) the enforcement of compulsory entry age to 6 years old would help reduce the issue of delayed entry of, on average 1.3 years, which could have a significant cumulated impact on the lifetime income stream of the child.

277. **Create a formula to determine teacher recruitment and administrative staff needs at the school level.** In order to eliminate inefficiencies in the education sector, it is crucial for the school management to make decisions based on clear guidelines. For example:

- The teacher staffing process should be based on a pre-determined set of criteria including STR, classrooms, school size, subjects taught, and facilities available at school level.
- Similarly, administrative staffing should also follow an analogous set of criteria to avoid superfluous hiring, for example hiring of assistants should be based on the school size, whether the head teacher or principal also teaches a class, on the number of classes etc.
- At the higher education level, where the administrative staff is more than half of the total number of staff, regular auditing should be conducted to determine the staffing needs and provide retirement packages for those who qualify. This may apply to other levels of education but it is particularly relevant at the higher education level.

## **Human capital development**

278. **Align the curriculum at secondary and higher education with the future labor force needs of the country.** The human capital projection indicates that given the current trends, employment in the mining sector will decrease over time despite the fact that the industry is the main driver of economic growth. This indicates that the labor supply skills will increasingly be at a higher level, and need to be better aligned to avoid outsourcing of employment in the mining industry. In addition, in order to expand the upstream activities of the mining sector, the labor supply should be better equipped to respond to the needs of the more highly skilled industry. In order to ensure alignment of labor supply production and labor demand needs, the public sector needs to integrate private sector players (key employers) in establishing the curriculum and programs as well as developing an ongoing partnership in education matters.

Policy recommendation matrix				
Area/Issue	Policy	Action	Timeline	Responsible Agency
Sector financing	Increase the allocation to the education sector budget to catch up with the SSA average	The education budget as a share of GDP and as a share of total spending should be revised upwards to address the sector gaps identified in this report, including putting all teachers on the payroll and accommodating all out-of-school children.	Short to medium-term	Ministry of finance
	Align capital spending to internal resources and increase non-personnel operating cost allocations	Given the poor level of execution of capital spending budgeted on external resources, the education capital spending there should be a more balanced budgeting between internal and external resources. Operating cost allocations to schools should be increased.	Short-term	Ministries of education
	Improve budget nomenclature	Budget nomenclature should be revised to allow monitoring and evaluation of both recurrent and capital spending to each level of education.	Short-term	Ministry of budget, Ministries of education
	Improve budget preparation and elaboration process	The budget preparation process and final allocation should reflect the sectoral priorities outlined in the MTEF through better coordination across agencies.	Short-term	Ministries of education and Ministry of budget
	Adopt a clear strategy to onboard the schools and staff not on SECOPE payroll	Budgeting should precede and guide the number of schools and staff added to payroll annually	Medium-term	Ministries of education
	Use Unit cost to determine resource distribution	Use unit cost to determine equitable distribution of resources in planning access expansion policies, including accommodating out-of-school children.	Short to medium-term	Ministries of education

	Increase teachers' base salary and account for variations in living costs across provinces.	To avoid additional fee collection from parents, teachers' salary scale should be revised upwards, reflecting the government's "valorization" policy, with adequate adjustments for cost of living differences across provinces.	Short to medium term	Ministries of education, Ministry of budget
	Increase female teaching staff	To make the school environment conducive to learning, especially for younger children, it is important to have a clear strategy to onboard female teachers.	Short to medium term	Ministries of education
	Implement programs and measures to foster equity in education and reduce incidence of out-of-school children.	Given that cost of education is the most important barrier for out-of-school children, targeted programs should be implemented to help defray costs and attract children to school. Programs can also use CCTs, school feeding or even scholarship programs.	Short to medium-term	Ministries of education, Ministry of budget
Internal efficiency	Improve internal efficiency and increase completion.	Introduce and implement policy on automatic promotion and mandatory enrollment at age 6	Medium-term	Ministries of education
	Ensure teachers are effectively used at optimal STR	Revise curriculum to ensure course load and options are optimal	Short-medium term	Ministries of education
	Create a formula to determine teacher recruitment and administrative staff needs at the school level.	Norms need to be developed and enforced so as to standardize approach to determining administrative staffing needs at school level based on criteria such as STR, classrooms, school size, subjects taught and facilities available at the school	Short-medium term	Ministries of education
Sector Management	Establish a uniform public school management system.	Establish systematic monitoring and evaluation oversight of all schools to ensure standards are upheld; provide the means to enforce compliance.	Medium-term	Ministries of education

	Target future infrastructure development to areas with verified need	Implement and institutionalize school mapping to guide new infrastructure development.	Short-term	Ministries of education
	Investment in alternative service delivery channels	Develop alternative learning outlets (e.g. ICT-based distance learning).	Medium to Long term	Ministries of education, Ministry of budget, Ministry of finance
	Strengthen education management at decentralized levels and ensure that these levels are adequately funded	Commission a cross-sectoral study to understand the constraints to full implementation of the decentralization policy and propose measures to address these constraints	Short to medium term	Government in collaboration with the WB and other development partners
Human capital development	Align the curriculum at secondary and higher education to the future needs of the country.	Reform higher education governance policy to require strong participation of private sector in institutional governing councils and in program definition so as to dynamically align programs to priority needs of the economy. This could be enforced through performance contracts between institutions and the Government (example of Senegal)	Medium-term	Ministries of education, Ministry of youth, Ministry of employment, Fédération des Entreprises du Congo (FEC, the private sector representative)

## References

- Agresti, A. (2002). *Categorical Data Analysis*, Second Edition, New York: John Wiley & Sons.
- Almeida, R., Arbelaez, J., Honorati, M., Arvo K., Lohmann, T., Ovadiya, M., Pop, L., Sanchez Puerta, M. L. and Weber M. (2012). *Improving Access to Jobs and Earnings Opportunities*. Background Paper for the World Bank 2012–2022 Social Protection and Labor Strategy.
- Banker, R.D., Charnes, F. R. and Cooper, W.W. (1984). Some models for estimating technical and scale inefficiencies in Data Envelopment Analysis. *Management Science*. 30, 1078-1092.
- Buis, L. M. (2010). *Not all transitions are equal: The relationship between inequality of educational opportunities and inequality of educational outcomes*. VU University Amsterdam.
- Burkhead, J. (1967). *Inputs and Outputs in Large City High Schools*. Syracuse University Press, Syracuse.
- Charnes, A., Cooper, W.W. and Rhodes, E.L. (1981). Evaluating Program and Managerial Efficiency: An Application of DEA to Program Follow Through. *Management Science* 27(6), 668-697.
- Correa, H. (1963). *The Economics of Human Resources*. North-Holland, Amsterdam.
- Dantzig, G.B. (1951). Maximization of a linear function of variables subject to linear inequalities. In :T.C. Koopmans (ed.) *Activity Analysis of Production and Allocation*, John Wiley & Sons, New York, 339–347.
- Demery, L. (2000). *Benefit incidence: A practitioner's guide*, Poverty and Social Development Group Africa Region, The World Bank.
- El-Kogali, Safaa; Krafft, Caroline. (2015). *Expanding Opportunities for the Next Generation: Early Childhood Development in the Middle East and North Africa*. Washington, DC: World Bank.
- Farrell, J. M. (1957). The measurement of productive efficiency. *Journal of the Royal Statistical Society*, 120(3), 253–281.
- Fox, J. (1997). *Applied regression analysis, linear models, and related methods*. Thousand Oaks, CA: Sage.
- Gilespe, I. W. (1965). Effects of public expenditures on the distribution of income. In: Richard Musgrave (ed.), *Essays in Fiscal Federalism*, Washington DC : The Brookings Institution.
- Greene, H. W. (2005). *Econometrie*. Paris : Pearson Education 5e ed.
- Hanushek, E. A. and Wößmann L. (2010). Education and Economic Growth. In: Penelope Peterson, Eva Baker, Barry McGaw, (Eds), *International Encyclopedia of Education*. 2, 245-252. Oxford: Elsevier.

- Heltberg, R., Kenneth, S., Tarp, F., (2003). Public spending and poverty in Mozambique, FCND discussion papers 167, International Food Policy Research Institute (IFPRI).
- Kremer, M., Glewwe, P. and Moulin, S. (1998). Textbooks and test scores: Evidence from a prospective evaluation in Kenya. *Natural Field Experiments* 00255, The Field Experiments Website.
- KC S, Barakat B, Goujon A, Skirbekk V, Sanderson WC, Lutz W (2010). Projection of populations by level of educational attainment, age, and sex for 120 countries for 2005-2050, *Demographic Research*, 22(15):383-472 (16 March 2010)
- Lututala, B. M. (2002). Pertinence et effets pervers de la privatisation de l'enseignement supérieur et universitaire en République Démocratique du Congo, *Travaux et recherches de l'UK*, 0, 1-38.
- Maddala, G.S. (1983). *Limited Dependent and Qualitative Variables in Econometrics* Cambridge: Cambridge University Press.
- Mare, D. R. (1981). Change and Stability in Educational Stratification. *American Sociological Review* 46 (1), 72-87.
- Meerman, J. (1979). *Public Expenditures in Malaysia: Who Benefits and Why?* New York: Oxford University Press.
- Michaud, P. (1981). La mesure de la productivité dans le domaine de l'éducation: un examen des écrits, *Revue des Sciences de l'éducation* 7 (3), 487-502.
- Sahn, D. E. and Younger, D. S. (1999). Dominance Testing of Social Sector Expenditures and Taxes in Africa, *IMF Working Papers* 99/172, International Monetary Fund.
- Selden, M.T. and Wasylenko, M. J. (1992). Benefit Incidence Analysis in Developing Countries, No 1015, *Policy Research Working Paper Series*, The World Bank.
- Selowsky, M. (1979). *Who Benefits from Government Expenditure?* New York: Oxford University Press.
- Shavit, Y. and Blossfeld H. P. (1993). *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*. Boulder: Westview Press.
- United Nations (2002). *Methods for Estimating Adult Mortality*. NY, United Nations Population Divisions, Department of Economic and Social Affairs.
- UN population Division (2013). *World Population prospects. The 2012 Revision*.
- Worthington, A.C. (2001). An empirical survey of frontier efficiency measurement techniques in education. *Education Economics*, 9 (3), 245-268.



## Annexes

### Annex A. Methodological Notes

#### Note 1: Benefit Incidence Analysis

7. Benefit incidence analysis (BIA) illustrates how public expenditure on services is distributed among population sub-groups, utilizing both the service provision costs and participation or usage rates of a specific service (Heltberg, Simler, and Tarp 2003). Benefit incidence studies are particularly useful in determining the extent to which public spending on social sectors - for the present chapter, education - benefits the poorest strata and therefore creates a well-targeted instrument for poverty reduction.<sup>77</sup> BIA can likewise analyze expenditure by different groups or regional locations, though this analysis requires greater disaggregation in spending data which was not available for this analysis. This chapter has been therefore limited to the income group (denoted by expenditure quintile).

8. Benefit incidence analysis requires three elements: household-level survey data which gathers (i) information from which to construct a proper welfare indicator (i.e. per capita household consumption expenditures, appropriately adjusted) and (ii) utilization of or participation in the public service of interest (enrollment in school), as well as administrative or budget data that provides (iii) unit costs to the government for the provision of those same services (e.g. the cost of one year of schooling per student).

9. In the case of the DRC, the Enquete 1-2-3 is an adequate instrument for which to conduct a BIA with as it gathers appropriate information on both enrollment figures as well as consumption measures for constructing accurate welfare indicators. Welfare, in this case, is measured by aggregate household consumption over the last twelve months, after incorporating food consumption, non-food consumption, housing, and benefits derived from durable goods. The unit costs of education are derived from figures for public spending on education reported by Ministry of Finance for Public Spending on Education. By utilizing government expenditure sources in addition to household expenditure on education, a more accurate unit cost can be calculated.

10. Individuals (or households) must first be ranked by their measure of welfare according to the household survey, and then aggregated into population groups in order to compare how the subsidy itself is distributed across these groups. These groups are typically quintiles or deciles. This analysis utilizes expenditure quintiles, in which the first quintile holds the poorest 20 percent of the population, and so on.

11. Next, using the data provided in the household survey, the total number of individuals who participated in or used the publicly provided service in question (those who were enrolled in school) must be identified. Each user (or household) is then multiplied by the unit cost of service provision and finally, these beneficiaries are aggregated into their appropriate population groups (consumption

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<sup>77</sup> The concept of benefit incidence analysis (BIA) originally pioneered by studies by Gillespie on Canada 1965, and extended to developing countries context by Meerman (1979) on Columbia, and Seloswski (1979) on Malaysia and in its modern stage by Selden and Wasylenko (1992), Sahn and Yonger (1999) on Africa, Demery (2000).

quintiles). It is the distribution of this in-kind transfer of the population that constitutes a benefit incidence analysis. The BIA model for the DRC can be expressed as:

$$X_j \equiv \sum_{i=1}^4 E_{ij} \frac{S_i}{E_i} \equiv \sum_{i=1}^4 \frac{E_{ij}}{E_i} S_i$$

12. where  $X_j$  is the value of the total education subsidy imputed to consumption quintile  $j$ .  $E_{ij}$  represents the number of school enrollments of consumption quintile  $j$  at education level  $i$ , and  $E_i$  the total number of enrollments (across all consumption quintile) at that level.  $S_i$  is government spending on education level  $i$  and  $i$  ( $=1, \dots, 4$ ) denotes the level of education (primary, lower secondary, upper secondary, and tertiary). Note that  $S_i/E_i$  is the unit subsidy of providing a school place at level  $i$  (Demery 2000).

13. The resulting profile illustrates the distribution of public spending on education that is allocated to each welfare group (expenditure quintile), or the “benefit incidence”. Concentration curves can then be plotted that show the cumulative distribution of these benefits across households, and can be compared to the cumulative distribution of total consumption (what is typically referred to as the Lorenz curve). The Lorenz curve is a graphical interpretation of the cumulative distribution of income on the vertical axis against the cumulative distribution of population on the horizontal axis. The progressivity of spending is pro-poor if the poor receive more of the service’s benefits than the non-poor, as well as a share greater than their share of the population; graphically this line appears above the diagonal line as this is the line indicating that each quintile in the distribution is receiving the same share, in this case, 20 percent of spending. Pro-poor spending is an indication of the successful targeting of public service benefits towards poorer households (Heltberg, Simler, and Tarp 2003). “Not-pro-poor but progressive” refers to if the non-poor receive more than the poor, but the poor still receive a share larger than their share of consumption; graphically this line appears below the diagonal but above the Lorenz. “Not-pro-poor and regressive” occurs if the non-poor receive more than the poor, and the share of the poor is less than their share of consumption; graphically this line appears below the diagonal and below the Lorenz.

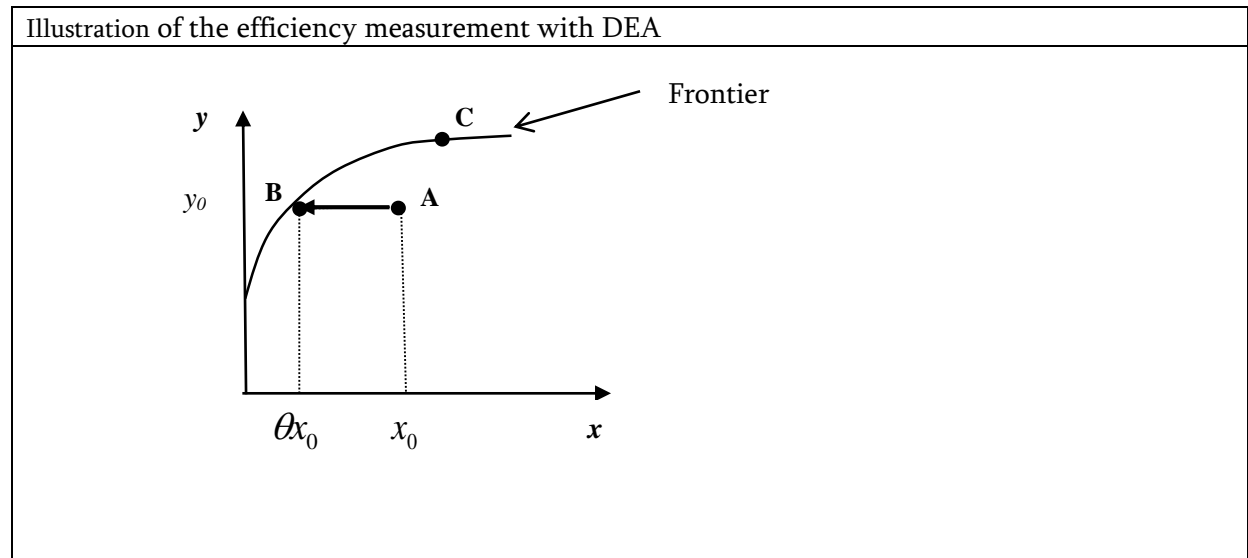
14. When determining enrollment as an element of BIA, its distribution can be interpreted in one of two ways: (1) net enrollment (the share of children of school-age groups attending the corresponding school level) or (2) gross enrollment (the share of all children regardless of their age who are attending a specific school level). The differences in these two can add depth to further interpretations of the benefit incidence analysis, particularly in the DRC where overages and older children still enrolled in primary school contribute to differing enrollment rates.

## **Note 2: Internal Efficiency: Efficiency analysis of the DRC education system using DEA**

### **Efficiency measurement with DEA**

15. Data Envelopment Analysis (DEA) is based on the construction of an empirical non-parametric production frontier and the measurement of the efficiency through the distance between the observed data and the optimal value of these data given by the estimated frontier. In the current analysis, the production frontier approximates the maximum quality or access to education (the output) that could be achieved given different levels of educational resources (the inputs). The figure below illustrates the

efficiency measurement with DEA in a hypothetical case of one input  $x$  that is used to produce one output  $y$ .



16. The frontier gives maximum levels of the output that could be achieved given different quantities of the input used. In the DEA literature, observations are called Decision Making Units (DMUs). DMUs that are on the frontier are relatively efficient (for instance, DMU at the point C) while those below the frontier are relatively inefficient (for instance, DMU at the point A). The level of efficiency is given by the distance to the frontier. Let's consider the DMU<sub>0</sub> initially at the point A. This DMU uses  $x_0$  units of the input in order to produce  $y_0$  units of the output. As already mentioned, DMU<sub>0</sub> is not relatively efficient. In order to be efficient, this DMU can reduce its input in the way that it projects on the frontier at the point B. In other terms, in order to be efficient, this DMU can keep its output level unchanged but has to reduce its input to the optimal level. The optimal quantity of input is given by  $\theta x_0$  with  $0 \leq \theta \leq 1$ . The higher is  $\theta$ , the closer the DMU is to the frontier and the more efficient is the considered DMU. The value of  $\theta$  is the efficiency measure. This approach is called input oriented DEA. There is an alternative to the input oriented DEA (the output oriented DEA) which is about how to get the frontier by increasing the output given the input used. While there are also several DEA models, the model that we use is the one developed by Charnes, Cooper, and Rhodes (1981).

### Efficiency measurement of the DRC education system

17. In this study, we use input oriented approach because we would like to focus on the use of resources in the DRC education system. One can notice the high heterogeneity in terms of access and quality of education across DRC provinces. Provinces that seem to perform well in terms of access do not necessarily do so in terms of the quality of education. For this reason, we perform two different efficiency analysis, one for the access to education and the other for the quality of education.

## **Efficiency in the provision of education access**

18. Recall that the illustration done above is a hypothetical case with only one output and one input<sup>78</sup>. In order to estimate a DEA model for the DRC, we need to choose inputs and outputs. In fact, DRC education system uses many inputs in order to provide the observed access to education. In addition there are several indicators of education access. More specifically, in the inputs side, we need to have proxies for educational infrastructure, equipment, human resources and public expenditures<sup>79</sup>. In the current efficiency analysis, we use the total number of schools and classrooms per student as proxies for infrastructure, the total number of equipment materials (chairs, tables and other types of equipment) as a proxy of school equipment, the number of teachers per student as a proxy for human resources and government total spending per student as a proxy for government expenditures. The outputs are: the gross enrollment rate, the gender parity ratio, the pass rate at grade 6 and the repetition rate.

19. As already discussed, according to the administrative organization, the DRC includes eleven provinces and each province is divided into districts. Inside the administrative districts, primary and secondary schools are differently managed. For this reason, we distinguished between primary and secondary schools inside each district. We aggregated schools by levels of education and we considered districts as DMUs depending on the level of education<sup>80</sup>. In other terms, a DMU represents either all primary schools or all secondary schools in a given district. For instance, in the district of Beni, we have two DMUs, one for primary schools and the other for secondary schools. This approach is advantageous because it allows comparing primary and secondary schools within the same district and across districts. We have one frontier for primary and secondary schools and this provides a proper comparison. Due to the lack of data in several districts, we only consider 82 DMUs and 42 districts.

## **Efficiency in the provision of the quality of education**

20. A DEA model is estimated using PASEC 2013 survey data in order to measure the efficiency in the provision of quality education in the DRC primary education system. Some key variables necessary for this analysis are not available for secondary education. For this reason, we concentrate on primary education. Inputs include the number of teachers per student, the number of classrooms per student, teachers' level of education, teachers' monthly salary and schools' equipment. Outputs are: the success rate, average score in the PASEC French and mathematics tests. We have a total 160 schools.

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<sup>78</sup> DEA accommodates multi input and multi output technologies. The principle is the same when we have more than one input and more than one output but it is difficult to be graphically illustrated. In addition, it is important to highlight that the efficiency assessment is done in a relative terms and results could change when the sample changes.

<sup>79</sup> The choice of inputs and outputs is supported by the literature. In fact, similar choice of inputs are done by authors in studies on the efficiency analysis in education. Other authors provide discussion about possible inputs and output for the education system. See for instance, Correa (1963), Burkhead (1967), Michaud (1981), Charnes, Cooper, and Rhodes (1981) and Worthington (2001).

<sup>80</sup> It should have been more appropriate to consider educational provinces as DMUs instead of districts given the fact that districts are linked to the country's administrative organization rather than the organization in the education system. However, we could not have performed this analysis with the only educational provinces because DEA requires a certain number of observations for the results to be reliable.

### **Note 3: The determinants of the primary and secondary education performance**

21. We apply a set of econometric regressions to find out what drive the primary and the secondary education sector performance. We concentrate on five main performance indicators: school participation, pass rate, repetition rate, delayed entry and transition through the school system. The explanatory factors include public expenditures, the proximity to schools and households' level of income. We control for the age of individuals, the gender, the area of living and the characteristics of the head of household.

#### **The determinants of out of school, drop out, pass, and repetition rates.**

22. A set of logit regressions is applied in order to study the probability of being out of school, the probability of dropping out of school, the probability of succeeding studies and the probability of repeating classes. The dependent variables are dummy variables. An ordered probit regression is also applied to study the determinants of delayed entry in primary education. The dependent variable is the age at which children (6 to 11 years old) have started primary school<sup>81</sup>.

#### **The determinants of transition through the school system**

23. In order to investigate the determinants of transition through the education system, a sequential logit model is estimated<sup>82</sup>. At each level of education, the probability of completion depends on the fact that individuals have completed the previous education level or not. For instance, completing primary education matters for individuals who are engaged in the education system and only people who have already completed primary education are concerned by secondary education completion. Sequential logit model allows modeling the probability of completing each level of education and that of moving to the next level of education taking into account the completion of the previous level of education. The purpose is to model the influence of the explanatory variables on the probability of passing a set of transitions.

24. The model that is estimated for the DRC includes five transitions: first, decision whether to continue/finish primary school (vs. never enrolling or dropping out of primary school); second, given that the youth continued/finished primary school, whether to get into lower secondary education or not; third, given that the youth enrolled in lower secondary education, whether the youth eventually dropped out or not; fourth, given that the youth enrolled in upper secondary education, whether the youth eventually dropped out or not; fifth, given that the youth continued with upper secondary education, whether the youth completed upper secondary education by the age of 24, are still participating in upper secondary education or not. We focus on youth (age 15 to 24) because they seem to be more concerned by transition issues in the education system.

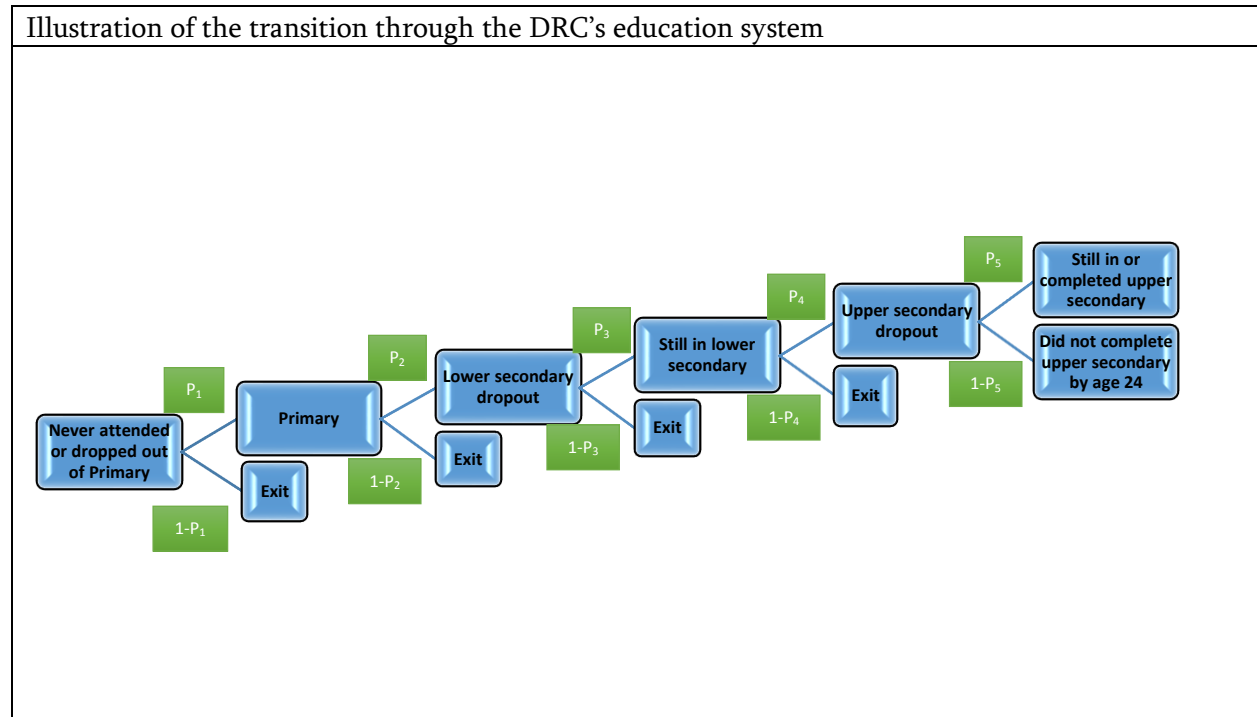
25. A schematic of the model is shown in the figure below. In this chart, one is required to have passed all lower transitions in order to make a decision to continue or to leave the school system. Given

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<sup>81</sup> See Maddala (1983) and Greene (2005) for technical details about all these econometric models.

<sup>82</sup> This regression model is also known under a variety of names, such as Sequential Response Model (Maddala 1983), Continuation Ratio logit (Agresti 2002), Model for Nested Dichotomies (Fox 1997) and Mare model (Mare 1981; Shavit and Blossfeld 1993). For an extended discussion see also Buis (2010).

the assumption that decisions are independent, one can estimate the model by running a series of logit regressions for each transition on the appropriate sub-sample.



After assigning a value to each level of education (pseudo-years) one can study the effect of the explanatory variables on the expected final outcome. The probability that person  $i$  passes transition  $k$ ,  $p_k$ , is given by:

$$\begin{aligned}
 p_{1i} &= \frac{\exp(a_1 + b_1 * x_i)}{1 + \exp(a_1 + b_1 * x_i)} \\
 p_{2i} &= \frac{\exp(a_2 + b_2 * x_i)}{1 + \exp(a_2 + b_2 * x_i)} \quad \text{if pass1} = 1 \\
 p_{3i} &= \frac{\exp(a_3 + b_3 * x_i)}{1 + \exp(a_3 + b_3 * x_i)} \quad \text{if pass2} = 1 \\
 p_{4i} &= \frac{\exp(a_4 + b_4 * x_i)}{1 + \exp(a_4 + b_4 * x_i)} \quad \text{if pass3} = 1 \\
 p_{5i} &= \frac{\exp(a_5 + b_5 * x_i)}{1 + \exp(a_5 + b_5 * x_i)} \quad \text{if pass4} = 1
 \end{aligned}$$

where, the constant for transition  $k$  is  $a_k$  and the effect of the explanatory variable  $x_k$  is  $b_k$ . Buis (2010) shows that the effect of the explanatory variables on the highest achieved level of education is a weighted sum of the effects of passing each transition and that the contribution of each transition can be visualized by the area of a rectangle with width equal to the weight and height equal to the effect on the probability of passing the transition (the log-odds ratio or the marginal effect).<sup>83</sup> One can thus see how the effect differs by characteristic (such as gender) or cohort.

<sup>83</sup> For this one can use the Stata command `Seqlogitdecomp`.

#### Note 4: Internal rate of returns to education (IRR)

26. In line with the second tenet of smart investment on education, we estimate incremental private and social rates of returns in the conventional manner and compare benefits (net of costs and subjected to various corrections) of a given educational qualification with those of a relevant preceding one. On the basis of the simulated incomes above, the rate of return of the higher level relative to the lower level is estimated by dividing the difference in wages between the two by the additional cost supported when pursuing schooling at higher level. Costs include direct training costs as well as the foregone earning (or opportunity cost) which is the income one would forgo while pursuing study to the higher level. The foregone earning cost for higher level is estimated by using the expected income at lower level. More precisely, the formula below is used to estimate the rate of return of higher level of education level relative to lower level of education:

$$R_{k/k-1} = \frac{\pi_k \bar{Y}_k - \pi_{k-1} \bar{Y}_{k-1}}{N_{k-1/k} \pi_{k-1} \bar{Y}_{k-1} + N_k C_k}$$

where  $\pi_k$  is the employment rate (therefore  $1 - \pi_k$  is the unemployment rate) of individuals with education level k;  $\bar{Y}_k$  is the simulated income of level k,  $N_k$  is the average duration of schooling (years) within level k,  $N_{k-1/k}$  is the difference between levels k and k-1 (years of schooling attended) and  $C_k$  is the direct training cost.

27. Since private and social rates of return involve a markedly different conception of the benefits and costs, the corrections to be made to the benefits and the estimates of costs are different in each case. Social rate of return involves a systematic comparison of the resource costs to the community of educational provision with the resulting increase in national production as reflected in the pre-tax earnings differentials of those receiving this extra education.

#### Note 5: Human Capital Projections: Assumptions and methodologies

28. The projection closely follows the International Institute for Applied Systems Analysis' (IIASA) methods of population projections in terms of required variables, as determined by Population Development Environment (PDE) software. This analysis was limited to two scenarios: (i) the constant scenario, in which the trend of drop-out and retention rates remains the same until 2040, under the assumption that no investments or reforms have taken place to alter the trends, and (ii) MDG attainment, in which the Millennium Development Goal (MDG) of universal primary education is met by 2020.

29. Projections of educational attainment depend on several factors. From the demand side, changing demographic structures of the households may affect investment decisions in children, households may obtain better information on the benefits of education, countries may become increasingly exposed to global competition, and increasing incomes resulting from economic growth may reduce the need to rely on children's earnings. From the supply side, new education policies and public investment in

education may affect the supply of teachers, schooling inputs and quality of education, likely leading to an increase in schools and expanded access.

30. To conduct a projection of educational attainment, a baseline population distribution must be first be generated by five-year age groups, sex, and level of educational attainment. The projection in this chapter used HBS 1-2-3 2005 and 2012 to the base year of 2010. The model likewise requires that: (i) for each five year increment, cohorts move to the next highest five-year age group, (ii) mortality rates specific to age, sex and education group are applied to each period, (iii) age and sex-specific educational transition rates are applied, (iv) age, sex, and education-specific net migrants are added or removed from the population, and (v) fertility rates specific to age, sex, and education groups are used to determine the size of the newest 0-5 age group. The projection in DRC was constructed based on the below assumptions.

31. Migration: The impact of migration was not considered in the projection of education of the labor force, as DRC had a small net migration rate, of -0.7 immigrants/1,000 as of 2012, and the gross migration rate is less than 2 percent (International Organization for Migration). The demographic background of emigrants and immigrants are likewise similar as they typically come from neighboring countries and do not significantly affect the education profile of the labor force.

32. Mortality: As complete death registration data is often unavailable in developing countries, this chapter adopts the census survival approach to overcome the limitation (United Nations, 2002). Data from HBS 1-2-3 2005 and 2012 was used as an input into the UN's life table model in order to estimate age-specific mortality rates. For life expectancy, differences estimated by KC S, Barakat B, Goujon A, Skirbekk V, Sanderson WC, Lutz W (2010) were adopted for each education level, and the model suggested that education was positively associated with longer life expectancy. A similar methodology applied to the education system in DRC led to the assumption that life expectancy increases with education by one year for each level of education, i.e. none, incomplete primary, completed primary, completed lower secondary, and completed upper secondary.

33. Fertility: For this projection, fertility is considered as a demographic determinant of the projected educational profile. Age-specific fertility rates (ASFR) were calculated by identifying live births that occurred in the three years preceding the survey and classifying them by the age of the mother (in five-year age groups) at the time of birth, using data from the 2008 Demographic and Health Survey (DHS) in DRC. Total fertility rates (TFR) refer to the number of live births a woman would have if she were subject to the current age-specific fertility rates for the duration of her reproductive years (15 to 49 years), and was likewise estimated using the 2008 DHS.

34. Transition: Transition rates were calculated based on the assumption that transitions take place between educational levels with the possibility of repetition, but with no reverse transition. This rate was based on UNESCO's formula which used age-grade enrollment patterns. To account for age distortions that arose from late entry, a remedial method suggested by IIASA was adopted, which states that the transition rate from one level of education to another is distributed by the proportion of age groups relevant to that same education level. Detailed procedures can be referenced from Lutz et al (2007, 2010).

35. Age: Five year age increments groups were used as an input to IIASA's population projection model for DRC. Given the gap between entry in primary school and labor market entry (approximately



7-10 years), the projection in this chapter begins in 2020 so that the current stock of human capita is reflected, while the full impact of policy scenarios can be observed in 2040.

36. The estimation of loss associated with grade repetitions was based on: (i) the direct cost of schooling, and (ii) the discounted value of forgone opportunity costs of expected earnings. The direct cost of schooling was generated using the total number of children who repeated a grade by frequency of repetition, and was based on annual public and private unit costs per student. The discounted value of the forgone opportunity cost of expected earnings was estimated based on wage employment earnings, which took into account both the age of labor market entry as well as the associated unemployment rate.

37. The opportunity cost of children who dropped out of school was calculated using the number of dropouts by level of education alongside calculated public and private unit costs. Earnings of individuals were estimated by level of education, and foregone income was computed by analyzing the earning difference between those completing levels of education and those who dropped out before completion. To account for cost differences of completing the level and dropping out, actual costs were estimated based on the average years of schooling by level for dropouts and the full cost of completion of the level.

## Annex B. Tables

Annex Table 1: Explanation of School Fees and Charges in Public Schools <sup>84</sup>					
Fee/Charge	Purpose	Periodicity	Amount	Fixed By	Distribution
Minerval	Originally a tax to cover administrative charges to the Ministry of Education; since 1997 the Central share goes to the public treasury as a general tax	Annual		Central Government	Collected by school. School: 20% Province:30% Public Treasury:50%
Frais de fonctionnement	Tax to cover the incidental expenses at the school level, administrative charges of the "reseaux" and inspection	Per term	Varies by province	Governor of Province	School:80% Sub-division:12% Region: 4% IPP:3% Regional inspection:1%
Frais de motivation	Parental contribution toward teacher salaries	Per term	Varies by school	School committee and school management, under supervision of the local authority and in consultation of communal/territorial committee of the parents' association	Distribution to teachers in each school
Primes d'assurance scolaire (SONAS)	Insurance for students	Annual			
Frais de promotion scolaires	To meet expenditures of provincial gatherings of teachers and administrators of the province	Annual	Varies by province	Province	Ministry of Education
Imprimeries	Expenditure for identity cards, school bulletins	Annual	Varies by type of certificate	Province	Ministry of Education
Frais de formation	To meet travel and per diem expenses of inspectors for school visits	Annual	Varies by province	Province	
Frais d'examens	Charges for end of cycle examinations and certificates	Levied at time of registering for examination (primary, secondary)	Varies by level of examination and province	Province	Province
Frais d'intervention ponctuelle	For special exigencies	As per requirement	Varies by province		
Frais technique	For technical schools	Annual	Varies by province and discipline	Province	

<sup>84</sup> Census of teaching and admin staff- source: <http://www.eduquepsp.cd/guide-et-procedures-de-gestion.html>

Annex Table 2: Test pass status by subject and province

Province	Type of school	% Passed French	% Passed Math	% Passed General Culture
Bandundu	Average	60%	47%	51%
	EC	58%	47%	49%
	ENC	61%	46%	53%
	EPR	68%	53%	61%
Bas-Congo	Average	67%	66%	69%
	EC	69%	69%	71%
	ENC	77%	72%	76%
	EPR	41%	38%	43%
Equateur	Average	64%	58%	63%
	EC	63%	59%	61%
	ENC	69%	56%	66%
	EPR	73%	54%	71%
Katanga	Average	56%	56%	53%
	EC	56%	56%	53%
	ENC	52%	52%	51%
	EPR	57%	60%	56%
Kinshasa	Average	60%	56%	58%
	EC	60%	57%	58%
	ENC	51%	50%	53%
	EPR	65%	61%	71%
Nord-Kivu	Average	60%	62%	61%
	EC	61%	57%	63%
	ENC	45%	44%	48%
	EPR	60%	107%	59%
Province Orientale	Average	29%	28%	47%
	EC	31%	31%	53%
	ENC	24%	18%	29%
Province Orientale	EPR	28%	22%	34%
Grand Total	Average	58%	56%	59%

Source: Authors' estimations based on EMIS and HBS 1-2-3, 2012

Annex Table 3: Employment sector and status of working age population by level of education						
Level of education	Employment sector			Employment status		
	Agriculture	Industry	Services	Wage	Non-wage	Agriculture
2005						
No education	91.6	2.9	5.6	1.5	6.9	91.6
Incomplete primary	83.8	5.2	11.0	2.8	13.4	83.8
Completed primary	72.8	7.9	19.3	6.9	20.3	72.8
Completed lower sec	51.9	12.2	36.0	19.1	29.0	51.9
Completed upper sec.	31.9	9.8	58.2	42.7	25.4	31.9
Post-secondary	13.2	9.7	77.2	60.9	26.0	13.2
Total	73.1	6.7	20.3	10.2	16.8	73.1
2012						
No education	79.8	3.7	16.5	2.6	17.6	79.8
Incomplete primary	72.9	5.6	21.5	4.3	22.8	72.9
Completed primary	62.4	6.8	30.8	8.4	29.2	62.4
Completed lower sec	46.8	9.8	43.4	16.4	36.8	46.8
Completed upper sec.	29.2	8.6	62.2	39.2	31.7	29.2
Post-secondary	4.6	10.7	84.7	72.7	22.7	4.6
Total	58.8	6.7	34.5	15.2	26.0	58.8
Source: Authors' estimations based on HBS 1-2-3, 2005 and 2012						

Annex Table 4: Educational wastage					
		Repetition (%)	Dropout (%)	Completion Age	Pass rate (%)
National	Primary	10.7	2.0	12.8	85.7
	Lower Secondary	5.9	2.3	16.3	90.6
	Upper Secondary	6.8	1.3	18.1	88.7
By Gender					
Primary	Male	10.2	2.2	12.9	86.0
	Female	11.2	1.8	12.6	85.3
Lower Secondary	Male	6.6	2.0	16.5	90.1
	Female	5.0	2.7	16.1	91.2
Upper Secondary	Male	6.2	1.3	18.7	88.4
	Female	7.6	1.4	17.3	89.0
By Area					
Primary	Urban	9.3	1.7	11.9	87.4
	Rural	11.6	2.1	13.4	84.6
Lower Secondary	Urban	6.2	2.6	15.7	89.9
	Rural	5.7	2.1	16.9	91.1
Upper Secondary	Urban	6.3	1.6	17.7	87.9
	Rural	7.3	1.0	18.7	89.6
By Province					
Kinshasa	Primary	4.4	1.9	11.5	93.0
	Lower Secondary	6.2	2.5	14.9	90.4
	Upper Secondary	5.1	1.4	17.6	89.8
Bas-Congo	Primary	11.2	3.3	12.2	85.0
	Lower Secondary	12.0	2.8	16.3	85.2
	Upper Secondary	5.3	0.2	18.8	93.4
Bandundu	Primary	7.1	1.8	12.1	89.1
	Lower Secondary	2.0	1.0	16.9	95.8
	Upper Secondary	4.5	0.6	17.8	92.4
Equateur	Primary	10.5	1.7	14.2	84.4
	Lower Secondary	5.0	3.4	17.3	87.4
	Upper Secondary	4.6	1.2	19.4	85.4
Orientale	Primary	13.2	2.8	12.6	80.8
	Lower Secondary	9.0	3.3	16.6	86.9
	Upper Secondary	8.1	3.1	16.8	85.6
Nord-Kivu	Primary	10.8	1.9	13.0	84.9
	Lower Secondary	6.4	5.1	16.4	88.5
	Upper Secondary	10.0	1.8	20.2	86.5
Maniema	Primary	13.1	2.4	13.9	84.3
	Lower Secondary	2.0	1.2	17.6	96.8
	Upper Secondary	6.0	0.0	18.1	94.1
Sud-Kivu	Primary	11.4	1.5	13.3	85.5
	Lower Secondary	6.2	0.8	16.4	92.5
	Upper Secondary	12.3	0.6	18.1	84.8
Katanga	Primary	12.1	2.6	13.4	83.7
	Lower Secondary	6.4	3.7	16.1	88.0
	Upper Secondary	9.3	2.9	18.1	84.5
Kasai-Oriental	Primary	14.6	1.4	13.6	82.9
	Lower Secondary	4.9	0.8	16.2	93.4
	Upper Secondary	5.5	0.7	18.0	91.0
Kasai-Occidental	Primary	11.3	1.0	13.8	87.2
	Lower Secondary	5.2	0.4	16.4	93.9
	Upper Secondary	6.2	1.0	19.3	90.8

Source: Authors' estimations based EMIS and HBS 1-2-3, 2012

Annex Table 5: Gross enrollment ratio by gender, area and province

		2005	2012	Average increase p.a.
National	Primary	93%	108%	2%
	Lower Secondary	56%	67%	3%
	Upper Secondary	38%	59%	6%
	Higher Education	4%	8%	12%
<b>By Gender</b>				
Primary	Male	101%	110%	1%
	Female	86%	107%	3%
Lower Secondary	Male	66%	76%	2%
	Female	45%	58%	4%
Upper Secondary	Male	49%	69%	5%
	Female	28%	49%	8%
Tertiary	Male	5%	11%	12%
	Female	2%	6%	14%
<b>By Area</b>				
Primary	Urban	108%	113%	1%
	Rural	89%	106%	2%
Lower Secondary	Urban	83%	80%	-1%
	Rural	47%	58%	3%
Upper Secondary	Urban	74%	75%	0%
	Rural	27%	46%	8%
Tertiary	Urban	12%	18%	6%
	Rural	1%	1%	6%
<b>By Province</b>				
Kinshasa	Primary	112%	105%	-1%
	Lower Secondary	89%	79%	-2%
	Upper Secondary	90%	75%	-3%
	Tertiary	16%	25%	7%
Bas-Congo	Primary	110%	126%	2%
	Lower Secondary	65%	67%	0%
	Upper Secondary	36%	58%	7%
	Tertiary	1%	4%	18%
Bandundu	Primary	82%	112%	5%
	Lower Secondary	67%	65%	0%
	Upper Secondary	57%	85%	6%
	Tertiary	1%	4%	19%
Equateur	Primary	103%	117%	2%
	Lower Secondary	56%	70%	3%
	Upper Secondary	20%	63%	18%
	Tertiary	1%	4%	21%
Orientale	Primary	95%	109%	2%
	Lower Secondary	36%	55%	6%
	Upper Secondary	23%	50%	12%
	Tertiary	1%	8%	48%
Nord-Kivu	Primary	82%	93%	2%
	Lower Secondary	46%	62%	4%
	Upper Secondary	33%	51%	6%
	Tertiary	2%	7%	17%
Maniema	Primary	116%	129%	2%
	Lower Secondary	46%	99%	11%
	Upper Secondary	27%	67%	14%
	Tertiary	1%	5%	28%
Sud-Kivu	Primary	88%	112%	4%
	Lower Secondary	47%	72%	6%
	Upper Secondary	27%	53%	10%
	Tertiary	2%	7%	17%
Katanga	Primary	89%	93%	1%
	Lower Secondary	44%	61%	5%
	Upper Secondary	32%	44%	5%
	Tertiary	5%	8%	6%
Kasai-Orientale	Primary	82%	109%	4%
	Lower Secondary	62%	64%	0%
	Upper Secondary	33%	45%	4%
	Tertiary	1%	3%	20%
Kasai-Occidental	Primary	94%	113%	3%
	Lower Secondary	53%	70%	4%
	Upper Secondary	28%	59%	11%
	Tertiary	2%	5%	15%

Source: Authors' estimations based on EMIS and HBS 1-2-3, 2012

Dependent variable: Wage (log)	National	Urban	Rural
Years of education	0.091*** (42.87)	0.110*** (26.94)	0.053*** (20.55)
Years of experience	0.067*** (16.84)	0.068*** (9.68)	0.058*** (12.41)
Years of experience squared	-0.001*** (13.68)	-0.001*** (7.79)	-0.001*** (10.07)
F	667.603	273.236	174.077
R2	0.139	0.193	0.052
N	21,399	8,361	13,038

Source: Authors' estimations based on HBS 1-2-3, 2012

	Growth in average earnings	Growth in average years of schooling
Major Group 1: Legislator, senior officials and managers		
Legislators and senior officials	42.0%	0.3%
Corporate managers 1	14.0%	-1.5%
General managers 2	0.0%	3.7%
Major Group 2: Professionals		
Physical, mathematical and engineering science professionals	37.0%	1.5%
Life science and health professionals	11.0%	1.6%
Teaching professionals	34.0%	0.4%
Other professionals	-9.0%	-3.7%
Major Group 3: Technicians and associate professionals		
Physical and engineering science associate professionals	2.0%	1.3%
Life science and health associate professionals	5.0%	1.7%
Other associate professionals	4.0%	1.7%
Major Group 4: Clerks		
Office clerks	10.0%	10.0%
Customer service clerks	16.0%	2.2%
Major Group 5: Service workers and shop and market sales workers		
Personal and protective services workers	7.0%	0.7%
Models, salespersons and demonstrators	6.0%	1.9%
Major Group 6: Skilled agricultural and fishery workers		
Market-oriented skilled agricultural and fishery workers	4.0%	1.3%
Major Group 7: Craft and related trade workers		
Extraction and building trade workers	3.0%	0.7%
Metal, machinery and related trades workers	6.0%	0.8%
Precision, handicraft, printing and related trades workers	1.0%	2.6%
Other craft and related trades workers	11.0%	1.0%
Major Group 8: Plant and machine operators and assemblers		
Stationary plant and related operators	47.0%	2.3%
Machine operators and assemblers	-3.0%	3.4%
Drivers and mobile plant operators	6.0%	1.6%
Major Group 9: Elementary occupations		
Sales and services elementary occupations	0.0%	2.4%
Laborers in mining, construction, manufacturing and transport	18.0%	4.3%
Total	6.0%	2.3%

Source: Authors' estimations based on HBS 1-2-3, 2005 and 2012

Annex Table 8: Growth rate of occupations in terms of number and relative share (%)				
	2005	2012	Growth in actual employment	Growth in share
Major Group 1: Legislator, senior officials and managers				
Legislators and senior officials	0.81	0.9	4.0%	1.9%
Corporate managers 1	0.22	0.3	6.0%	2.8%
General managers 2	0.11	0.1	8.0%	4.7%
Major Group 2: Professionals				
Physical, mathematical and engineering science professionals	0.13	0.4	35.0%	28.2%
Life science and health professionals	0.35	0.7	17.0%	12.6%
Teaching professionals	2.78	3.8	9.0%	5.5%
Other professionals	0.13	0.1	0.0%	-2.1%
Major Group 3: Technicians and associate professionals				
Physical and engineering science associate professionals	0.32	0.6	15.0%	11.0%
Life science and health associate professionals	0.65	0.09	10.0%	6.6%
Other associate professionals	1.24	1.3	3.0%	0.9%
Major Group 4: Clerks				
Office clerks	0.51	0.8	13.0%	8.9%
Customer service clerks	0.24	0.3	9.0%	6.0%
Major Group 5: Service workers and shop and market sales workers				
Personal and protective services workers	1.43	2	9.0%	5.5%
Models, salespersons and demonstrators	8.6	10.5	6.0%	3.1%
Major Group 6: Skilled agricultural and fishery workers				
Market-oriented skilled agricultural and fishery workers	71.44	65.5	1.0%	-1.2%
Major Group 7: Craft and related trade workers				
Extraction and building trade workers	2.83	2.7	1.0%	-0.7%
Metal, machinery and related trades workers	0.75	0.8	4.0%	1.4%
Precision, handicraft, printing and related trades workers	0.43	0.4	1.0%	-1.0%
Other craft and related trades workers	2.53	2.7	4.0%	1.2%
Major Group 8: Plant and machine operators and assemblers				
Stationary plant and related operators	0.05	0.1	21.0%	16.1%
Machine operators and assemblers	0.32	0.2	-4.0%	-5.4%
Drivers and mobile plant operators	0.62	1.2	17.0%	12.8%
Major Group 9: Elementary occupations				
Sales and services elementary occupations	2.96	2.6	0.0%	-1.7%
Laborers in mining, construction, manufacturing and transport	0.54	0.9	14.0%	10.0%

Source: Authors' estimations based on HBS 1-2-3, 2005 and 2012



Industry (ISIC-Rev.3)	2005	2012	Growth in actual employment	Growth in share
Agriculture, Hunting and Forestry	70.4	62.8	0.0%	-2.0%
Fishing	1.1	2.1	17.0%	13.0%
Mining and Quarrying	2.6	1.9	-2.0%	-4.0%
Manufacturing	3.7	4.3	5.0%	2.0%
Electricity, Gas and Water Supply	0.2	0.2	6.0%	3.0%
Construction	0.5	0.9	14.0%	10.0%
Wholesale and Retail Trade; Repair of Motor Vehicles	11	11.9	4.0%	1.0%
Hotels and Restaurants	0.5	0.7	12.0%	8.0%
Transport, Storage and Communications	1.3	2.7	18.0%	14.0%
Financial Intermediation	0.2	0.3	12.0%	8.0%
Real Estate, Renting and Business Activities	0.2	0.8	47.0%	39.0%
Public Administration and Defence; Compulsory Social Security	2.1	2.7	7.0%	4.0%
Education	3.1	4.4	9.0%	6.0%
Health and Social Work	1.1	1.4	8.0%	5.0%
Other community; Social and Personal Service Activities	1.4	2.1	10.0%	7.0%
Private Households with Employed Persons others	0.5	0.9	12.0%	8.0%
Total/Average	100	100	11.0%	8.0%

Source: Authors' estimations based on HBS 1-2-3, 2005 and 2012

Name of Ministries	Value	(%)
Primary, Secondary And Professional	588,666	55%
Interior, Safety, Decentralization And Customary Business	269,528	25%
Higher Education, University And Research	204,596	19%
Public Health	3,779	0.35%
Finance	2,736	0.25%
Employment, Social Work And Provident	1,533	0.14%
Social, Humanitarian And National Solidarity	1,247	0.12%
Planning, Urban Habitat, Itpr	1,120	0.10%
Land Affairs	1,089	0.10%
Planning And Monitoring Of The Implementation Of The Revolution Of Modern	851	0.08%
Foreign Affairs, International Cooperation And Francophonie	288	0.03%
Youth, Sports, Culture And Arts	241	0.02%
Public Employees	184	0.02%
The Environment, Nature Conservation And Tourism	1	0.00%
Grand Total	1,075,859	100%

Source: Ministry of Budget

Dependent variable: out of school	Primary	Lower Secondary	Upper Secondary
Distance			
Distance to primary school	0.002*** (6.17)		
Distance to secondary school		0.001*** (5.47)	0.001*** (4.86)
Public expenditures			
Public spending in education (Log)	-0.008*** (4.61)	-0.006*** (3.30)	-0.007*** (3.63)
Wealth quintile			
Quintile 2	0.057*** (5.02)	-2.613e-02*(1.81)	-0.017(1.05)
Quintile 3	-0.061*** (4.93)	0.002 (0.13)	-0.018 (1.00)
Quintile 4	-0.112*** (9.08)	-0.021 (1.24)	-0.047*** (2.76)
Quintile 5	-0.148*** (11.05)	-0.032 (1.56)	-0.054** (2.37)
Students' characteristics			
Girl	0.022** (2.33)	0.051*** (4.27)	0.093*** (7.17)
Age	-0.366*** (11.28)	0.020* (1.67)	-0.159 (0.80)
Age squared	0.016*** (8.49)		0.006 (0.98)
Households			
Household head education level	-0.046*** (14.74)	-0.041*** (9.77)	-0.047*** (11.06)
Household head (female)	-0.044*** (2.85)	-0.039** (2.31)	-0.035* (1.74)
Married polygamous	0.021 (1.48)	-0.002 (0.11)	0.037* (1.86)
Divorced/separated/Widowed	0.033** (1.99)	0.034 (1.59)	0.034 (1.55)
Age of household head	-0.005** (2.26)	-0.005* (1.75)	-0.016*** (6.59)
Age of household head (squared)	0.001** (2.03)	0.001* (1.84)	0.001*** (6.03)
Household size	-0.004* (1.85)	-0.001 (0.54)	-0.010*** (3.35)
Area			
Rural	0.075*** (6.69)	0.017 (1.21)	-0.004 (0.23)
F	95.053	15.413	19.740
Number of observations	16,740	5,033	7,529

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Annex Table 12: Tobit results: learning outcomes at grade 2 and grade 5				
Variables	Grade 2	Grade 2	Grade 5	Grade 5
	French	Mathematics	French	Mathematics
<b>Students characteristics</b>				
Female	-3.856*** (3.12)	-3.311** (2.48)	-3.639*** (4.08)	-1.967** (2.58)
Age	3.149 (0.73)	3.424 (0.79)	0.114 (0.03)	4.189 (1.46)
Age squared	-0.168 (0.71)	-0.143 (0.61)	-0.016 (0.12)	-0.156 (1.38)
Share of students that are absent	-3.413 (0.68)	-10.172** (1.97)	-8.811*** (3.04)	-12.033*** (4.84)
<b>Students living conditions</b>				
Access to tap water at home	5.015** (2.45)	4.207** (2.07)	2.936* (1.93)	4.252*** (3.36)
Access to computer at home	4.151 (0.95)	7.474* (1.85)	5.046** (1.97)	5.469** (2.32)
Access to breakfast	5.680*** (4.45)	6.303*** (4.56)	2.117** (2.26)	2.450*** (3.10)
Access to lunch	2.034 (1.35)	1.095 (0.64)	-0.251 (0.25)	0.570 (0.66)
Access to learning materials				
Access to French books at home	9.591*** (3.80)	7.785** (2.32)	10.091*** (6.33)	7.271*** (5.05)
Access to mathematics books at home	2.437 (0.88)	7.764** (2.25)	2.261 (1.28)	-0.347 (0.22)
<b>Teacher characteristics</b>				
Teacher fluent in French	9.476*** (10.36)	4.708*** (4.45)	0.497 (0.74)	-0.811 (1.42)
Teacher education level	1.869*** (3.43)	1.120* (1.67)	1.420*** (3.67)	0.460 (1.18)
Teachers salary (natural logarithm)	4.314*** (3.41)	3.384*** (2.61)	8.295*** (11.04)	2.548*** (3.26)
Teacher involved in agriculture	-7.085*** (5.07)	-8.520*** (6.05)	-0.821 (0.86)	1.390* (1.74)
Teacher involved in trade	-9.349*** (5.00)	-13.720*** (6.72)	-11.655*** (7.20)	-13.658*** (8.70)
Teacher involved in other teaching activities	11.711*** (3.98)	-5.896** (2.31)	-3.094 (1.63)	-3.122** (2.06)
<b>Schools</b>				
School equipment (index of equipment)	1.574** (2.20)	3.851*** (4.76)	1.494*** (2.96)	2.322*** (5.66)
Public school	3.282 (0.90)	-11.670*** (3.11)	-6.344*** (3.65)	-8.962*** (5.88)
Number of observations	1,479	1,479	2,200	2,200
Source: Authors' estimations using PASEC survey data				

Annex Table 13: Determinants of out of school by area (logit model)		
Dependent variable: out of school	Urban	Rural
Distance		
Distance to primary school	0.001 (0.83)	0.001*** (3.96)
Distance to secondary school	-0.001 (1.06)	0.002*** (6.75)
Public expenditures		
Public spending in education (Log)	-4.508e-04 (0.37)	-0.012*** (6.31)
Wealth quintile		
Quintile 2	-0.047*** (3.81)	-0.054*** (4.75)
Quintile 3	-0.057*** (4.75)	-0.051*** (3.95)
Quintile 4	-0.081*** (7.05)	-0.104*** (7.65)
Quintile 5	-0.120*** (9.60)	-0.061*** (2.63)
Students' characteristics		
Female	0.022** (2.45)	0.070*** (7.20)
Age	-0.153*** (15.99)	-0.284*** (27.42)
Age squared	0.006*** (15.12)	0.011*** (25.24)
Households		
Household head education level	-0.025*** (7.75)	-0.060*** (18.07)
Household head (female)	-0.005 (0.35)	-0.082*** (5.26)
Married polygamous	-0.010 (0.65)	0.050*** (3.42)
Divorced/separated/Widowed	0.028* (1.89)	0.063*** (3.27)
Age of household head	-0.008*** (4.17)	-0.010*** (4.22)
Age of household head (squared)	0.001*** (4.41)	0.001*** (3.65)
Household size	-0.002 (0.91)	-0.011*** (4.96)
F	33.988	84.448
Number of observations	13,856	13,769

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Annex Table 14: Determinants of out-of-school by province (logit model)											
Dependent variable: out of school	Kinshasa	Bas-Congo	Bandundu	Equateur	Oriental	Nord-Kivu	Maniema	Sud-Kivu	Katanga	Kasai-Oriental	Kasai-Occidentale
<b>Distance</b>											
Distance to primary school	-0.016 (0.48)	0.000 (0.03)	0.000 (0.24)	-0.015* (1.86)	-0.001 (0.14)	0.017 (0.66)	0.045*** (3.00)	0.035* (1.94)	0.003*** (6.89)	0.004 (1.08)	-0.001* (1.90)
Distance to secondary school	0.026 (0.82)	0.009 (1.40)	0.001 (0.91)	-0.004* (1.65)	-0.005 (0.88)	0.003 (0.30)	-0.017 (1.34)	-0.014 (1.10)	0.001* (1.71)	-0.004 (1.04)	0.003*** (6.82)
<b>Wealth quintile</b>											
Quintile 2	-0.109*** (5.98)	-0.009 (0.19)	-0.024 (1.40)	-0.081*** (3.76)	-0.039 (1.56)	-0.097* (1.87)	-0.029 (1.14)	-0.035 (0.80)	-0.116*** (5.19)	-0.032 (1.27)	-0.019 (1.01)
Quintile 3	-0.131*** (6.21)	0.041 (0.73)	- (1.79)	-0.098*** (4.61)	-0.105*** (4.32)	-0.089* (1.68)	-0.012 (0.44)	-0.083* (1.92)	-0.102*** (4.44)	-0.047* (1.87)	-0.036* (1.78)
Quintile 4	-0.202*** (6.47)	-0.031 (0.65)	-0.021 (0.83)	-0.115*** (5.88)	-0.019 (0.58)	- (3.40)	-0.058*** (2.67)	- (4.42)	-0.181*** (8.05)	-0.068** (2.44)	-0.070*** (3.23)
Quintile 5	-0.535 (5.68)***	-0.016 (0.25)	-0.035 (1.10)	-0.085** (2.27)	-0.122*** (3.78)	-0.092 (1.62)	-0.059*** (2.66)	-0.082* (1.66)	-0.261*** (12.81)	-0.052 (1.12)	-0.112*** (5.55)
<b>Students' characteristics</b>											
Female	-0.014 (0.74)	0.063** (2.33)	0.031** (2.10)	0.042** (2.39)	0.019 (0.84)	0.135*** (4.27)	0.053*** (2.69)	0.103*** (3.14)	0.022 (1.23)	0.053*** (2.58)	0.049*** (3.10)
Age	-0.147*** (7.93)	- (7.54)	- (13.08)	-0.183*** (9.78)	-0.247*** (9.26)	- (7.23)	-0.158*** (6.36)	- (9.11)	-0.226*** (11.30)	-0.248*** (11.83)	-0.238*** (14.53)
Age squared	0.006*** (7.76)	0.008*** (6.90)	0.009*** (11.71)	0.007*** (8.23)	0.011*** (8.99)	0.011*** (6.96)	0.007*** (6.36)	0.013*** (8.79)	0.009*** (10.61)	0.010*** (10.87)	0.010*** (13.23)
<b>Households</b>											
Household head education level	-0.012* (1.71)	-0.013 (1.36)	- (6.10)	-0.034*** (6.17)	-0.036*** (4.62)	- (8.70)	-0.008 (1.20)	- (4.24)	-0.074*** (11.24)	-0.042*** (6.23)	-0.024*** (4.21)
Household head (female)	0.041 (1.46)	0.056 (1.08)	- (2.07)	-0.027 (0.84)	-0.063** (2.03)	-0.013 (0.20)	-0.076*** (4.78)	- (4.02)	-0.065* (1.75)	-0.041 (1.17)	-0.031 (1.20)
Married polygamous	-0.035 (0.72)	-0.038 (0.76)	0.091** (2.80)	-0.037* (1.77)	0.048 (1.24)	0.025 (0.37)	-0.003 (0.14)	0.124** (2.28)	0.053 (1.56)	0.087*** (3.06)	0.033 (1.54)
Divorced/separated/Widowed	0.034 (1.33)	-0.011 (0.34)	0.051 (1.51)	0.028 (0.86)	0.038 (1.16)	-0.027 (0.42)	0.091 (0.96)	0.141** (2.44)	0.049 (1.11)	-0.008 (0.18)	0.098** (2.15)
Age of household head	-0.009** (2.25)	-0.008 (1.35)	- (1.96)	-0.015*** (3.10)	-0.014** (2.49)	-0.009 (1.00)	-0.008* (1.84)	-0.022** (2.45)	-0.009** (2.29)	-0.013*** (2.95)	0.013*** (3.16)
Age of household head (squared)	0.000** (2.38)	0.000* (1.71)	0.000* (1.66)	0.000*** (2.97)	0.000*** (2.90)	0.000 (0.45)	0.000* (1.92)	0.000** (2.32)	0.000** (2.14)	0.000*** (3.06)	-0.000*** (2.99)
Household size	-0.007* (1.74)	0.010 (1.56)	-0.006 (1.36)	-0.005 (1.39)	-0.005 (0.94)	-0.004 (0.57)	-0.013** (2.15)	-0.007 (0.99)	-0.018*** (4.80)	-0.010** (2.31)	-0.015*** (3.93)
F	12.116	5.502	17.711	23.391	11.226	10.580	7.670	8.626	32.184	14.272	20.822
Number of observations	2,474	1,011	2,871	4,318	2,277	1,493	844	1,201	4,578	2,785	3,063

Source: Authors' estimations using 1 2 3 survey and administrative data

Annex Table 15: Determinants of the dropout rate (logit model)			
Dependent variable: dropped out of school	Primary	Lower Secondary	Upper Secondary
Distance			
Distance to primary school	0.001** (2.27)		
Distance to secondary school		0.000 (0.90)	0.001*** (2.94)
Public expenditures			
Public spending in education (Log)	-0.000 (0.06)	-0.002** (2.09)	-0.002* (1.69)
Wealth quintile			
Quintile 2	0.001 (0.20)	0.018 (1.14)	0.008 (0.75)
Quintile 3	0.002 (0.23)	0.014 (0.91)	0.011 (0.85)
Quintile 4	0.009 (1.11)	0.019 (1.12)	-0.017 (1.59)
Quintile 5	-0.016 (2.50)**	0.031 (1.37)	-0.018 (1.43)
Students' characteristics			
Female	0.001 (0.12)	0.013* (1.68)	0.017** (2.12)
Age	0.017 (1.02)	0.005 (0.60)	-0.198 (1.60)
Age squared	-0.001 (1.16)		0.007* (1.65)
Households			
Household head education level	-0.002 (1.12)	-0.007** (2.48)	-0.007** (2.46)
Household head (female)	-0.008 (1.16)	-0.018* (1.80)	-0.037*** (3.71)
Married polygamous	-0.016*** (2.90)	-0.006 (0.46)	0.036** (2.32)
Divorced/separated/Widowed	0.020** (2.25)	0.031* (1.87)	0.056*** (3.06)
Age of household head	-0.000 (0.07)	0.001 (0.35)	-0.003 (1.57)
Age of household head (squared)	-0.000 (0.06)	-0.000 (0.27)	0.000 (1.29)
Household size	0.002* (1.91)	0.002 (0.99)	-0.005*** (2.90)
Area			
Rural area	-0.002 (0.34)	0.010 (1.16)	-0.009 (0.87)
F	3.037	1.986	4.341
Number of observations	10,537	4,366	6,264

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Annex Table 16: Determinants of pass rate (logit model)			
Dependent variable: pass	Primary	Lower Secondary	Upper Secondary
Distance			
Distance to primary school	0.000 (1.29)		
Distance to secondary school		-0.000 (1.20)	-0.001* (1.68)
Public expenditures			
Public spending in education (Log)	0.003** (2.03)	0.003 (1.63)	0.004** (2.17)
Wealth quintile			
Quintile 2	0.006 (0.48)	0.037* (1.69)	-0.006 (0.37)
Quintile 3	0.026 ** (2.00)	-0.007 (0.35)	-0.002 (0.12)
Quintile 4	0.005 (0.33)	0.002 (0.07)	0.023 (1.36)
Quintile 5	0.060*** (4.16)	0.003 (0.14)	0.036* (1.93)
Students' characteristics			
Female	-0.001 (0.15)	-0.025* (1.95)	-0.002 (0.19)
Age	0.053 (1.52)	0.015 (1.16)	0.483*** (2.85)
Age squared	-0.002 (1.04)		-0.016*** (2.82)
Households			
Household head education level	0.012*** (3.55)	0.014*** (3.11)	0.001 (0.38)
Household head (female)	0.033** (2.14)	0.057*** (3.05)	0.051*** (3.23)
Married polygamous	-0.034** (1.98)	-0.014 (0.72)	-0.007 (0.43)
Divorced/separated/Widowed	-0.001 (0.07)	-0.041 (1.50)	-0.060*** (2.64)
Age of household head	0.003 (1.25)	0.006 (1.39)	-0.001 (0.37)
Age of household head (squared)	-0.000 (0.66)	-0.000 (1.36)	0.000 (0.86)
Household size	-0.000 (0.01)	-0.004 (1.35)	-0.000 (0.14)
Area			
Rural area	-0.005 (0.42)	-0.019 (1.15)	0.005 (0.33)
F	6.820	3.188	2.376
Number of observations	10,557	4,374	6,274

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Dependent variable: repetition	Primary	Lower Secondary	Upper Secondary
Distance			
Distance to primary school	-0.000 (1.10)		
Distance to secondary school		0.000 (0.32)	0.000 (0.71)
Public expenditures			
Public spending in education (Log)	-0.003** (2.06)	-0.000 (0.27)	-0.002* (1.86)
Wealth quintile			
Quintile 2	-0.13 (1.37)	0.009 (0.63)	0.005 (0.42)
Quintile 3	-0.022** (2.14)	-0.002 (0.13)	0.000 (0.03)
Quintile 4	-0.006 (0.55)	0.003 (0.18)	-0.007 (0.59)
Quintile 5	-0.042*** (3.59)	-0.016 (0.97)	-0.024** (2.02)
Students' characteristics			
Female	0.001 (0.09)	0.021** (2.13)	0.002 (0.28)
Age	0.004 (0.15)	-0.024** (2.34)	-0.301** (2.49)
Age squared	-0.001 (0.59)		0.010** (2.41)
Households			
Household head education level	-0.007** (2.52)	-0.007** (1.99)	0.002 (0.62)
Household head (female)	-0.018 (1.50)	-0.033** (2.34)	-0.011 (0.85)
Married polygamous	0.039** (2.50)	0.022 (1.25)	-0.001 (0.06)
Divorced/separated/Widowed	-0.015 (1.40)	0.011 (0.59)	0.023 (1.49)
Age of household head	-0.002 (1.21)	-0.005* (1.78)	0.002 (1.08)
Age of household head (squared)	0.000 (0.60)	0.000* (1.77)	-0.000 (1.40)
Household size	-0.003* (1.82)	-0.002 (0.91)	0.000(0.39)
Area			
Rural area	0.014 (1.45)	0.004 (0.28)	0.005 (0.50)
F	6.347	2.062	2.159
Number of observations	10,537	4,366	6,265

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Dependent variable: year of entry to primary education	National
Distance	
Distance to primary school	0.001 (0.90)
Public expenditures	
Public spending in education (Log)	-0.026*** (6.37)
Wealth quintiles	
Quintile 2	-0.045 (1.42)
Quintile 3	-0.136*** (4.07)
Quintile 4	-0.324*** (9.18)
Quintile 5	-0.719*** (17.98)
Students' characteristics	
Female	-0.021 (1.03)
Households	
Household head education level	-0.079*** (10.65)
Household head (female)	-0.110*** (2.92)
Married polygamous	0.091*** (2.70)
Divorced/separated/Widowed	-0.020 (0.58)
Age of household head	-0.004 (0.79)
Age of household head (squared)	0.000 (1.99)**
Household size	-0.029 (6.71)***
Area	
Rural area	0.324*** (13.30)
Number of observations	11,466

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012



	Inputs	Outputs
Access efficiency in Primary and secondary (access model)	<ul style="list-style-type: none"> <li>• Number of equipment per student</li> <li>• Number of teachers per student</li> <li>• Number of schools per students</li> <li>• Number of classrooms per student</li> <li>• Public spending per student</li> </ul>	<ul style="list-style-type: none"> <li>• Gross enrollment ratio</li> <li>• Gender Parity</li> <li>• Pass rate at grade 6</li> <li>• Repetition rate</li> </ul>
Quality efficiency (quality model)	<ul style="list-style-type: none"> <li>• Number of teachers per student</li> <li>• Number of classrooms per student</li> <li>• Teachers' level of education</li> <li>• Teachers' average monthly salary</li> <li>• Schools' equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Success rate</li> <li>• PASEC French score</li> <li>• PASEC mathematics score</li> </ul>

Source: Based on data from Ministry of Budget, EMIS, SECOPE, PASEC and HBS 1-2-3, 2012

	Efficiency	Equipment	Teachers / 100 students	Schools / student	Classrooms / 100 students	Public expenditures per student	GER	Gender Parity Index	Pass rate at grade 6	Repetition rate
Efficiency	1									
Equipment	-0.0472	1								
Teachers / 100 students	-0.7917*	0.0385	1							
Schools / student	-0.7475*	-0.0566	0.7771*	1						
Classrooms / 100 students	-0.8384*	-0.0257	0.9750*	0.7966*	1					
Public expenditures per student	-0.2630*	0.0623	0.4104*	-0.0093	0.3735*	1				
GER	0.6362*	-0.092	-0.6604*	-0.5686*	-0.5898*	-0.3112*	1			
Gender Parity Index	0.3274*	0.0763	-0.0408	-0.3223*	-0.0986	0.3925*	0.2093	1		
Pass rate at grade 6	-0.1826	0.0045	0.3626*	0.1347	0.3516*	0.3666*	-0.1138	0.2631*	1	
Repetition rate	0.1074	-0.2910*	0.0192	0.0327	0.0612	0.0771	0.1453	0.0673	0.3208*	1

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012.  
Note: \* significant at 5 percent

Class size	Conventionné			Non-conventionné		
	Preschool	Primary	Secondary	Preschool	Primary	Secondary
Kinshasa	26	32	27	22	33	29
Bas-Congo	23	38	20	29	38	18
Bandundu	28	30	15	27	29	15
Equateur	26	36	19	25	37	19
Orientale	24	39	24	24	37	22
Nord-Kivu	26	41	28	26	37	27
Maniema	24	35	20	27	36	19
Sud-Kivu	33	39	27	33	38	27
Katanga	34	43	27	25	41	28
Kasaï-Oriental	27	41	24	32	42	24
Kasaï-Occidental	31	38	21	32	38	23
DRC	28	38	22	28	37	21
STR						
Kinshasa	26	30	19	22	31	17
Bas-Congo	23	36	14	30	36	12
Bandundu	28	29	9	27	28	10
Equateur	24	34	13	23	36	12
Orientale	23	37	15	23	36	15
Nord-Kivu	22	39	18	21	36	18
Maniema	24	34	12	23	35	12
Sud-Kivu	32	37	18	34	36	17
Katanga	34	41	10	25	39	20
Kasaï-Oriental	26	41	16	31	42	16
Kasaï-Occidental	29	37	13	29	37	14
DRC	27	36	13	27	35	13

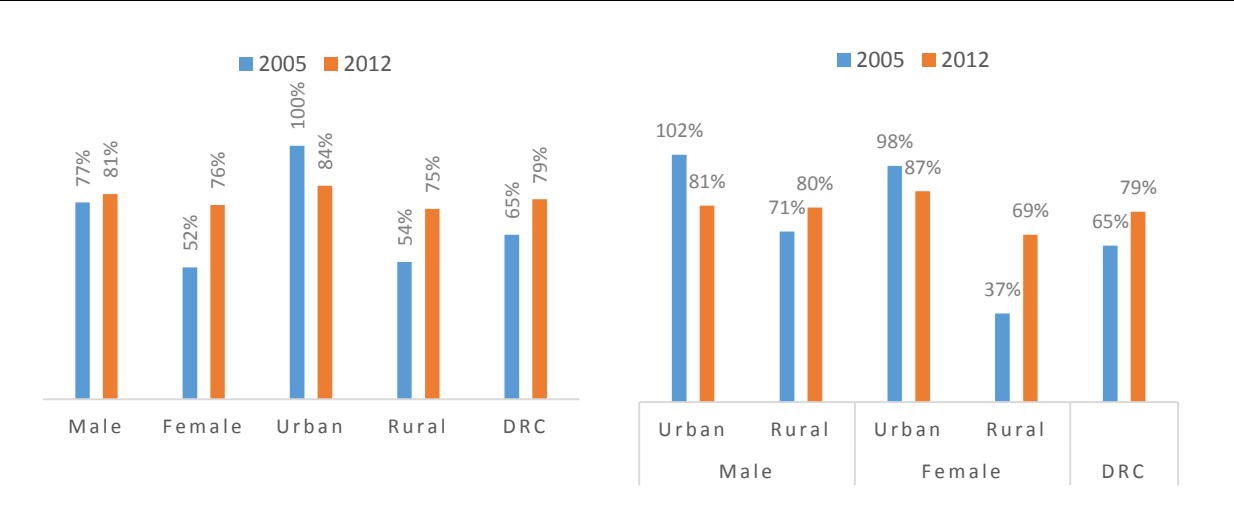
Source: Authors' estimations based on EMIS and SECOPE

	Transition from step 1 to step 2 (P <sub>1</sub> )	Transition from step 2 to step 3 (P <sub>2</sub> )	Transition from step 3 to step 4 (P <sub>3</sub> )	Transition from step 4 to step 5 (P <sub>4</sub> )	Transition from step 5 to step 6 (P <sub>5</sub> )
Distance					
Distance to primary school	-0.006*** (3.71)	0.001 (0.31)	-0.004** (1.96)	0.000 (0.20)	-0.002 (0.90)
Public expenditures					
Public spending in education (Log)	0.053*** (6.15)	-0.012 (0.95)	0.035 (2.88)***	-0.006 (0.52)	-0.004 (0.37)
Wealth quintiles					
Quintile 2	0.216*** (3.06)	0.127 (1.61)	0.034 (0.27)	0.087 (1.03)	-0.338*** (2.72)
Quintile 3	0.362*** (4.88)	0.304*** (3.55)	-0.209* (1.71)	0.133 (1.52)	-0.338*** (2.70)
Quintile 4	0.494*** (6.26)	0.667*** (6.88)	-0.022 (0.18)	0.265*** (2.93)	-0.394*** (3.15)
Quintile 5	0.813*** (8.84)	1.215*** (9.72)	0.370*** (2.62)	0.789*** (7.77)	0.174 (1.30)
Students' characteristics					
Female	-1.213*** (24.28)	-0.071 (1.24)	-0.890*** (12.28)	0.090* (1.71)	-0.814*** (12.88)
Households					
Household head education level	0.530*** (32.52)	0.223*** (11.32)	0.293*** (11.41)	0.135*** (7.15)	0.105*** (4.35)
Household head (female)	0.678*** (8.16)	0.482*** (4.40)	0.343*** (2.83)	0.310*** (3.19)	0.107 (0.97)
Married polygamous	-0.155** (2.00)	-0.044 (0.51)	0.060 (0.46)	-0.120 (1.42)	0.302** (2.43)
Divorced/separated/Widowed	0.041 (0.56)	-0.101 (1.03)	0.091 (0.87)	-0.080 (0.91)	0.154 (1.60)
Age of household head	0.123*** (15.48)	-0.123*** (7.99)	0.142*** (12.52)	-0.047*** (4.06)	0.162*** (14.51)
Age of household head (squared)	-0.001*** (12.57)	0.001*** (7.96)	-0.001*** (9.86)	0.000*** (4.01)	-0.001*** (11.85)
Household size	0.090 (9.12)***	0.007 (0.67)	0.061*** (4.13)	-0.014 (1.43)	0.058*** (4.61)
Area					
Rural area	-0.435 (8.09)***	-0.775 (11.64)***	-0.137 (1.72)*	-0.237*** (3.90)	0.060 (0.79)

Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

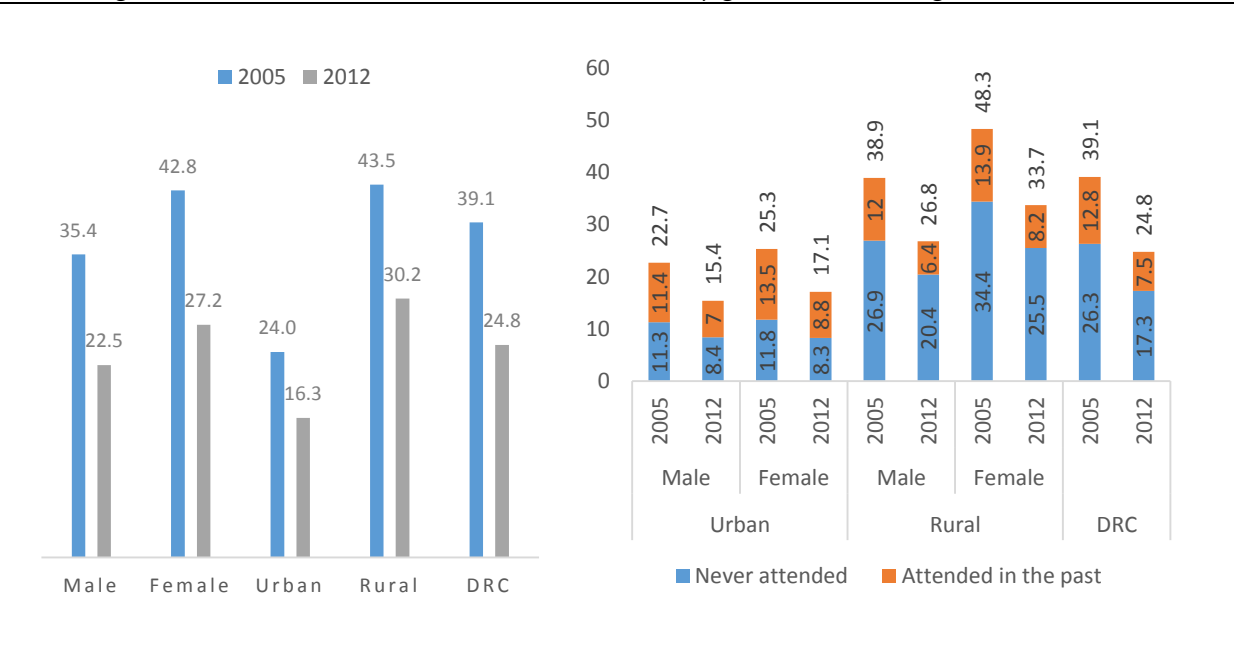
## Annex C. Figures

Annex Figure 1: Primary completion rate by gender and area (left), and by gender within the area (right)



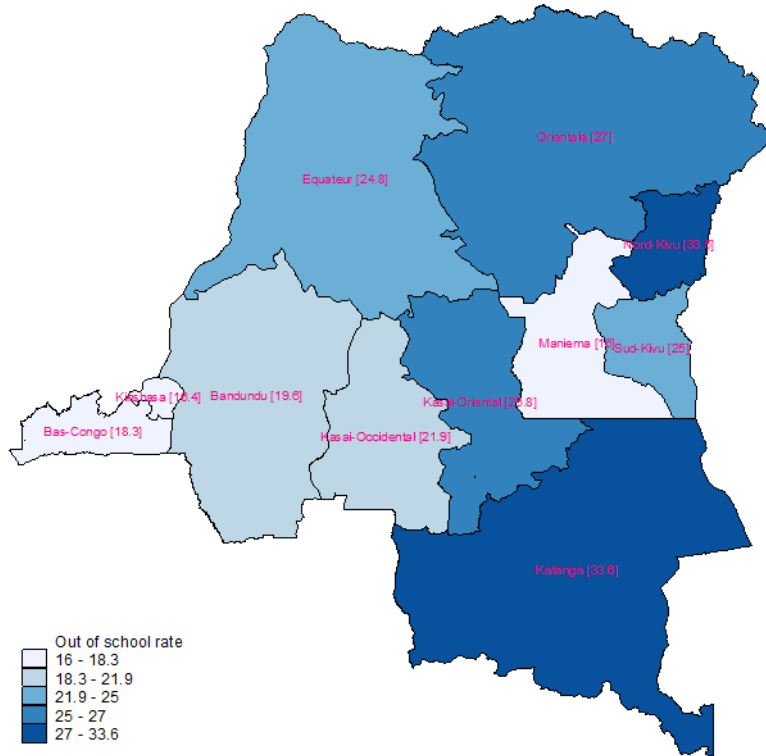
Source: Authors' estimations based on HBS 1-2-3 2005 and 2012

Annex Figure 2: Out-of-school rates (left) and out-of-school by gender and area (right)



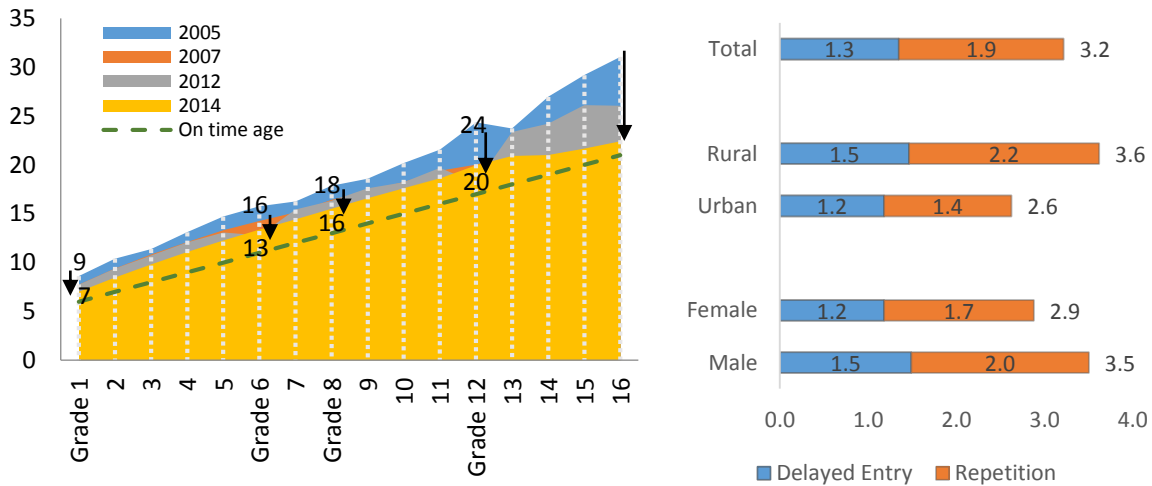
Source: Authors' calculations based on HBS 1-2-3 2005 and 2012

Annex Figure 3: Out-of-school rate for children of age (6-17) (%) by province



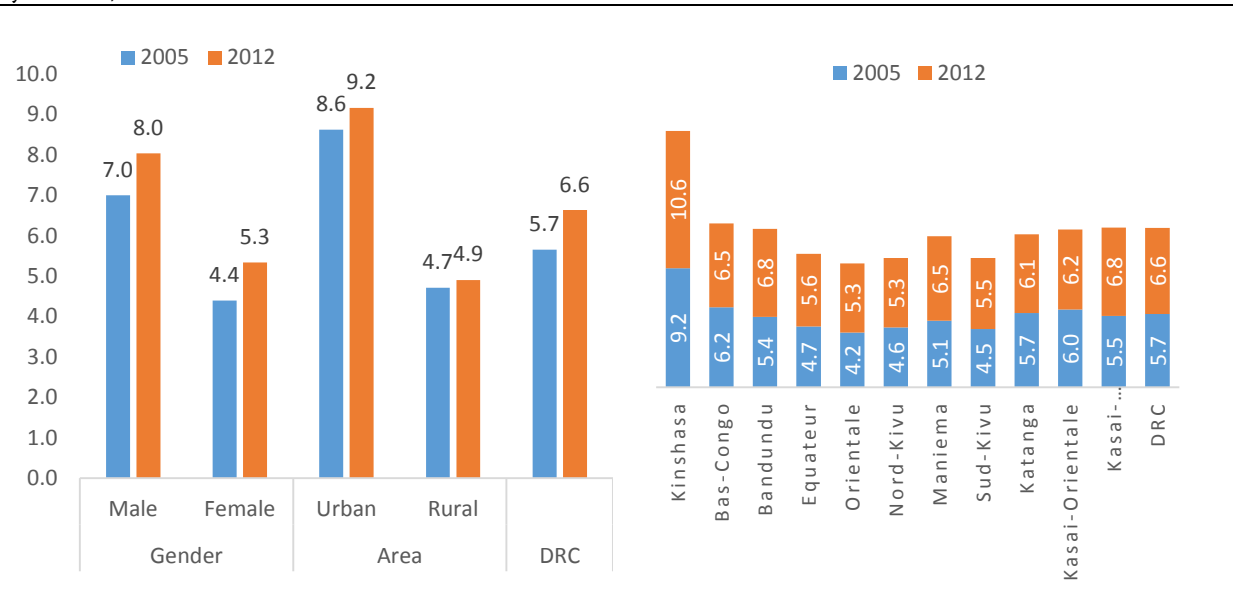
Source: Authors' estimations based on HBS 1-2-3, 2012

Annex Figure 4: Average age of students in each grade cohort (left) and wasted age in 2012 (right)



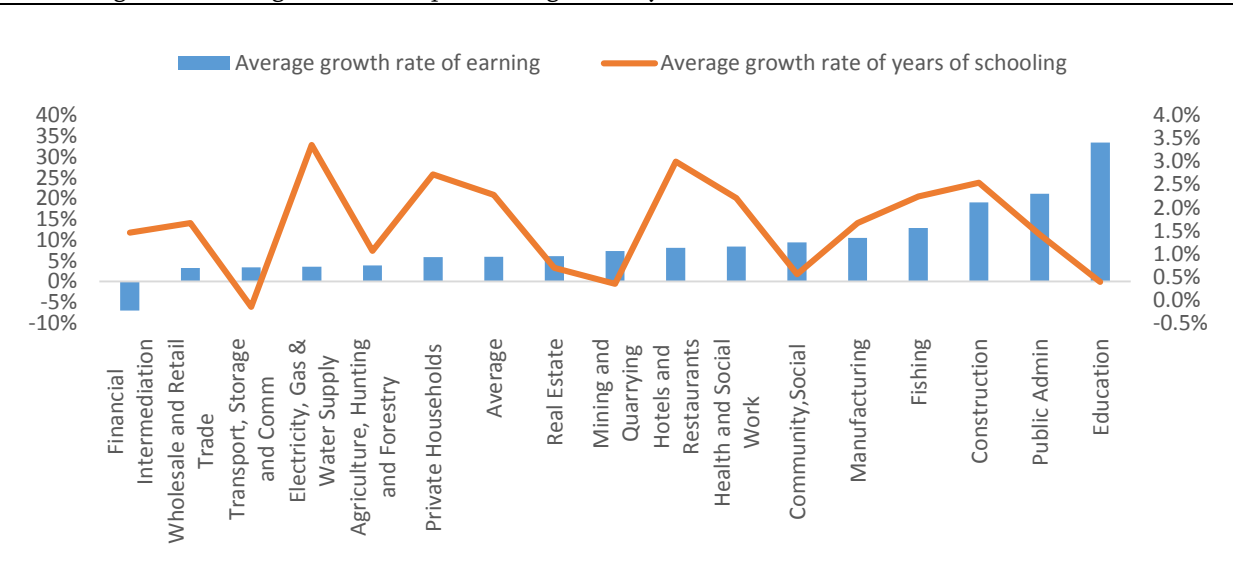
Source: Authors' estimations based on HBS 1-2-3 2005 and 2012; DHS 2007 and 2014

Annex Figure 5: Years of education of working age population (15-64 years old) by gender and area (15-64 year olds)



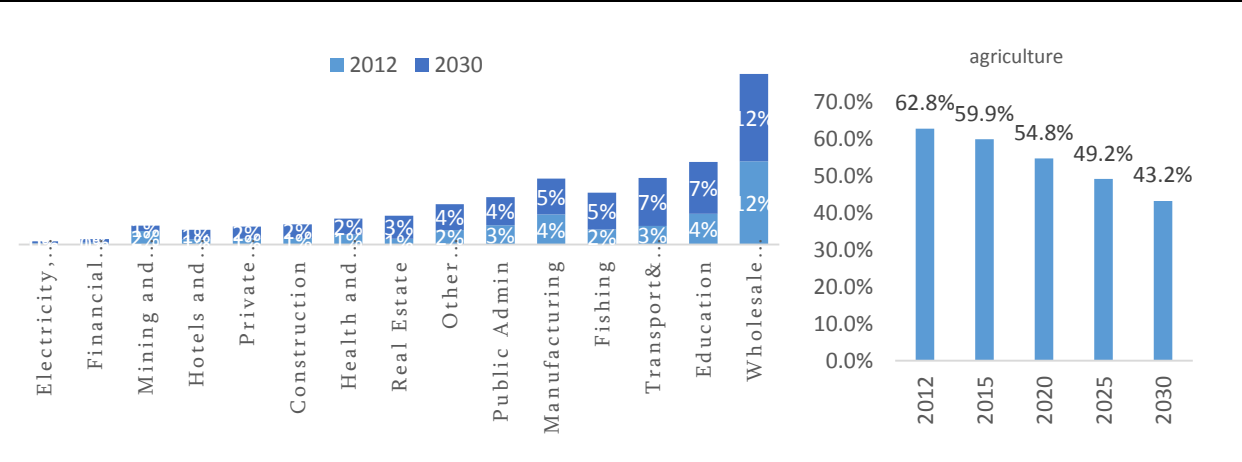
Source: Authors' estimations based on HBS 1-2-3 2005 and 2012; DHS 2007 and 2014

Annex Figure 6: Earning and skills requirement growth by industries.



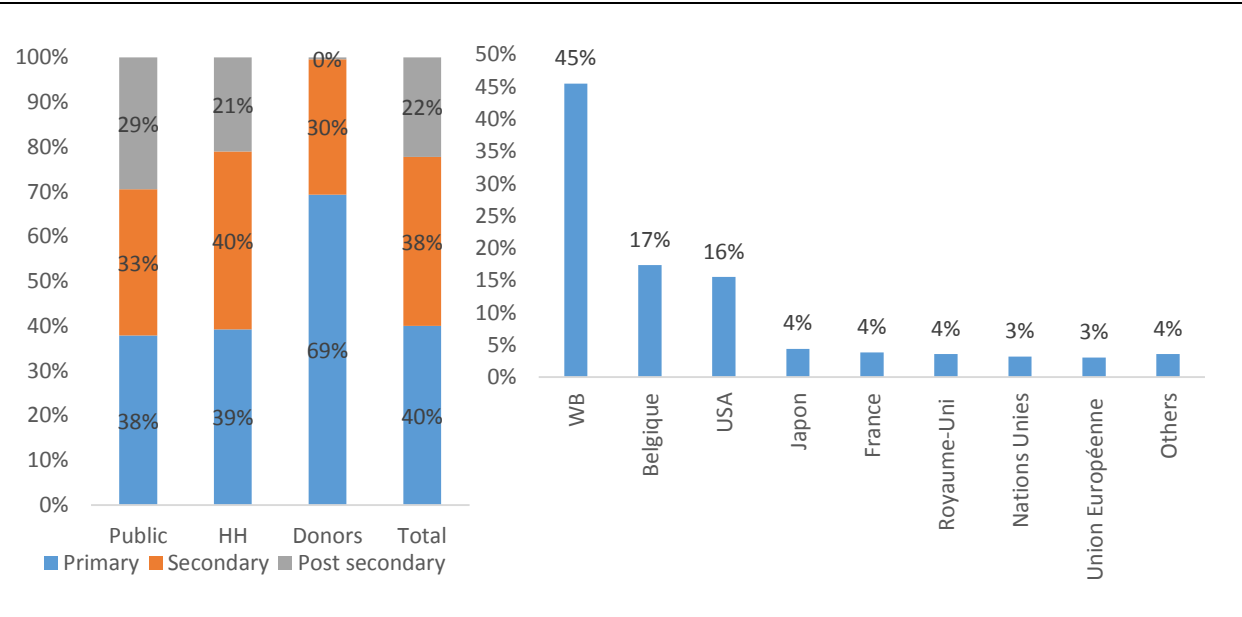
Source: Authors' estimations based on HBS 1-2-3, 2012

Annex Figure 7: Projected employment change by industries (all sectors-left and agriculture –right), 2012 to 2030



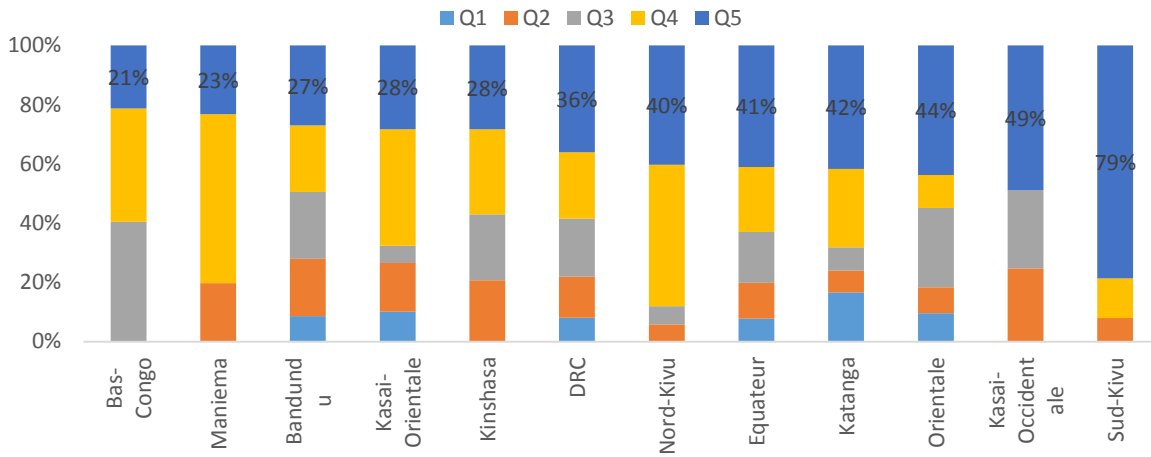
Source: Authors' estimations based on HBS 1-2-3, 2012

Annex Figure 8: Sectorial distribution of funds by level of education and major development partners and share between 2009 and 2013



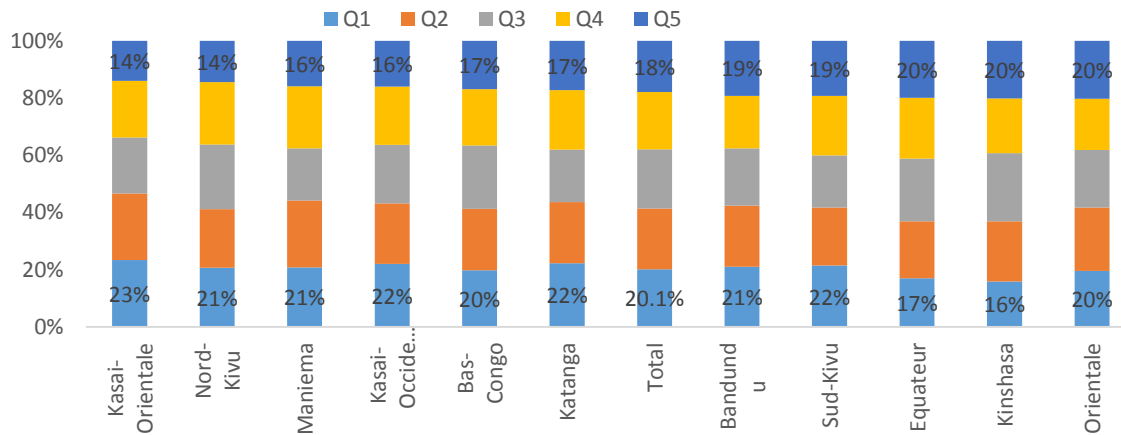
Source: Authors' calculations based on Ministry of Budget, SECOPE, CAT, PGAI, and HBS 1-2-3 2012

Annex Figure 9: Pre-primary Benefits incidence analysis of public expenditure on education



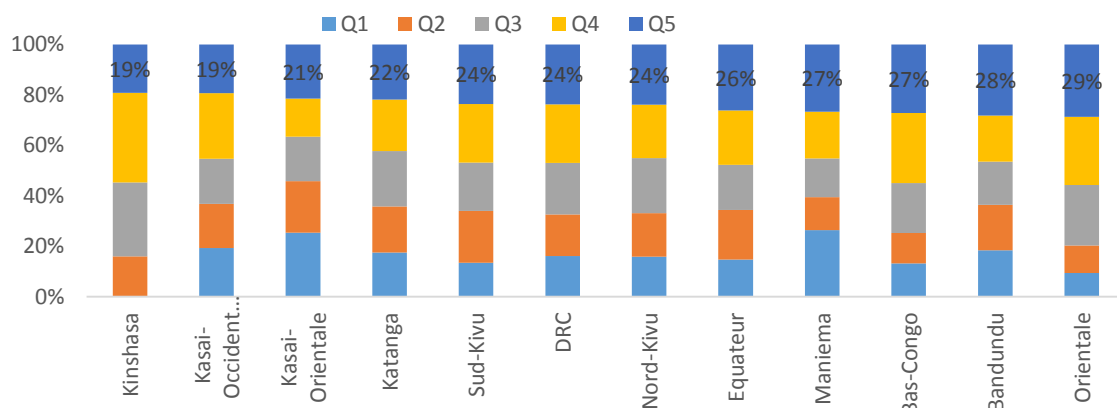
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Annex Figure 10: Primary level-Benefits incidence analysis of public expenditure on education



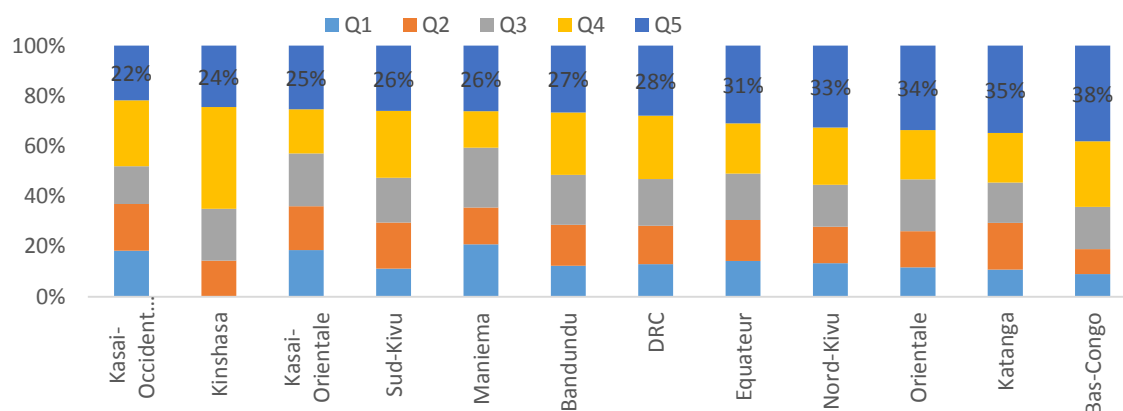
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Annex Figure 11: Lower Secondary Benefits incidence analysis of public expenditure on education



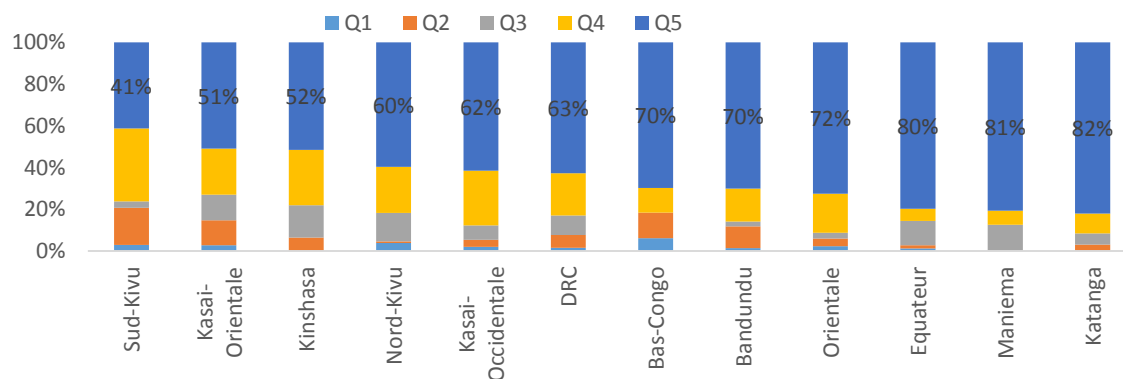
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Annex Figure 12 : Upper secondary Benefits incidence analysis of public expenditure on education



Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

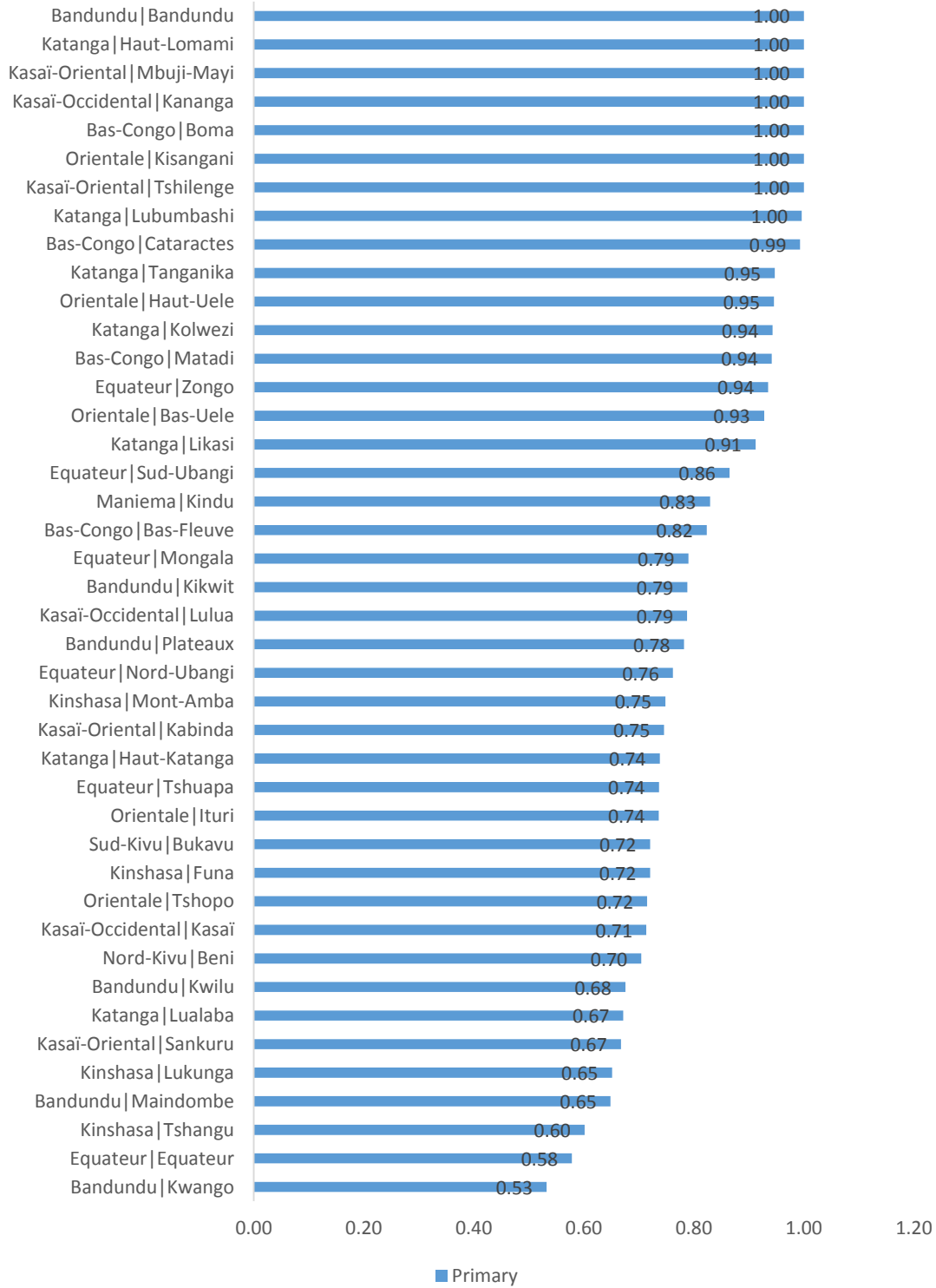
Annex Figure 13: Higher education Benefits incidence analysis of public expenditure on education



Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

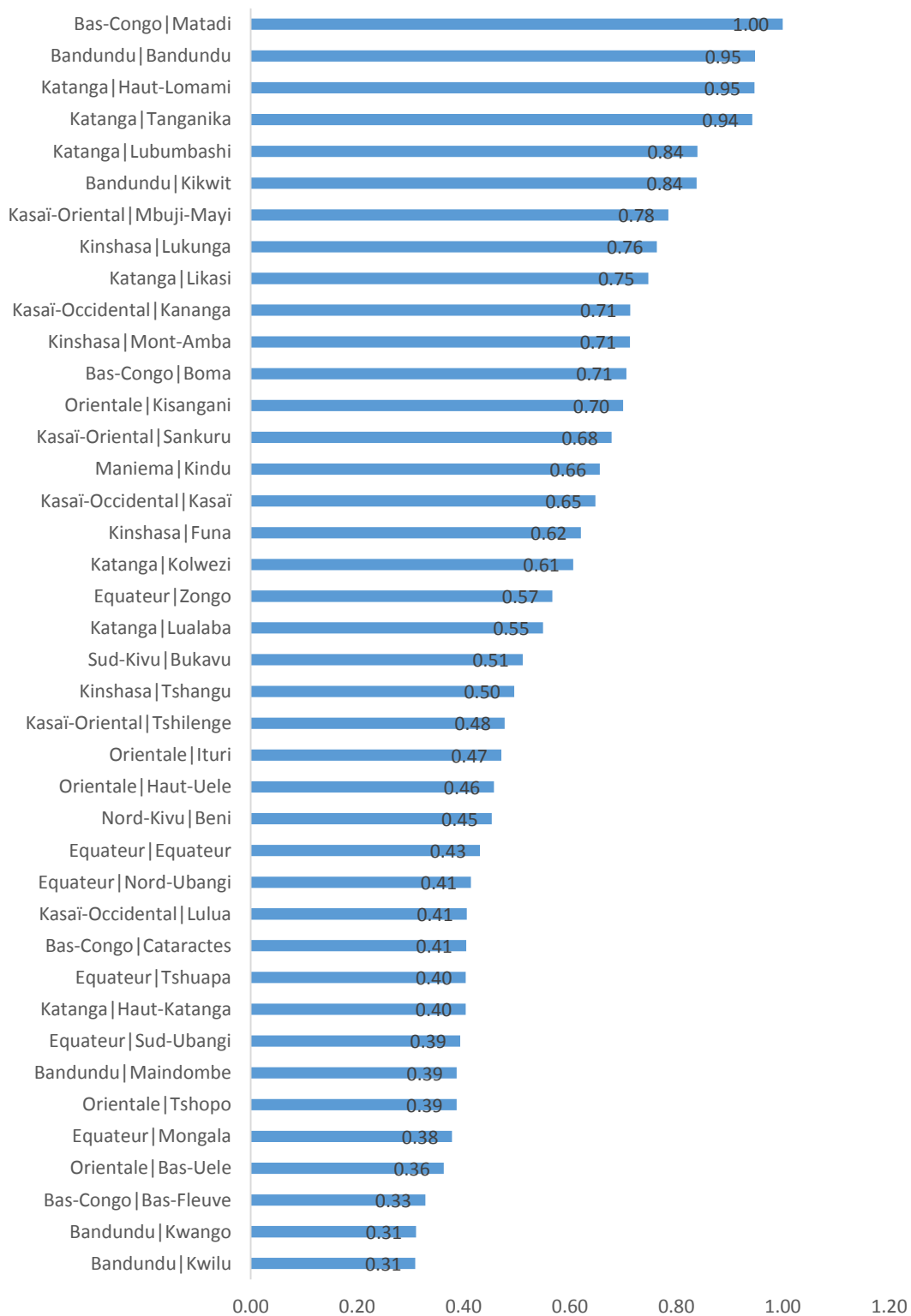


Annex Figure 14: Average efficiency by district in primary education



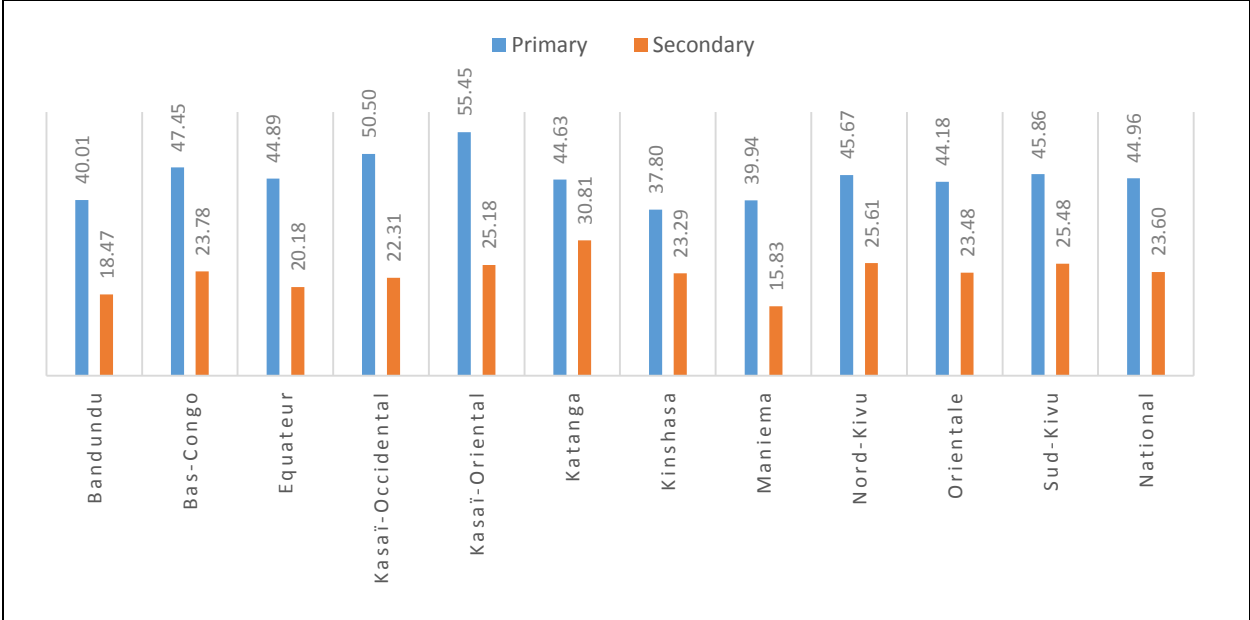
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Annex Figure 15: Average efficiency by district in secondary education



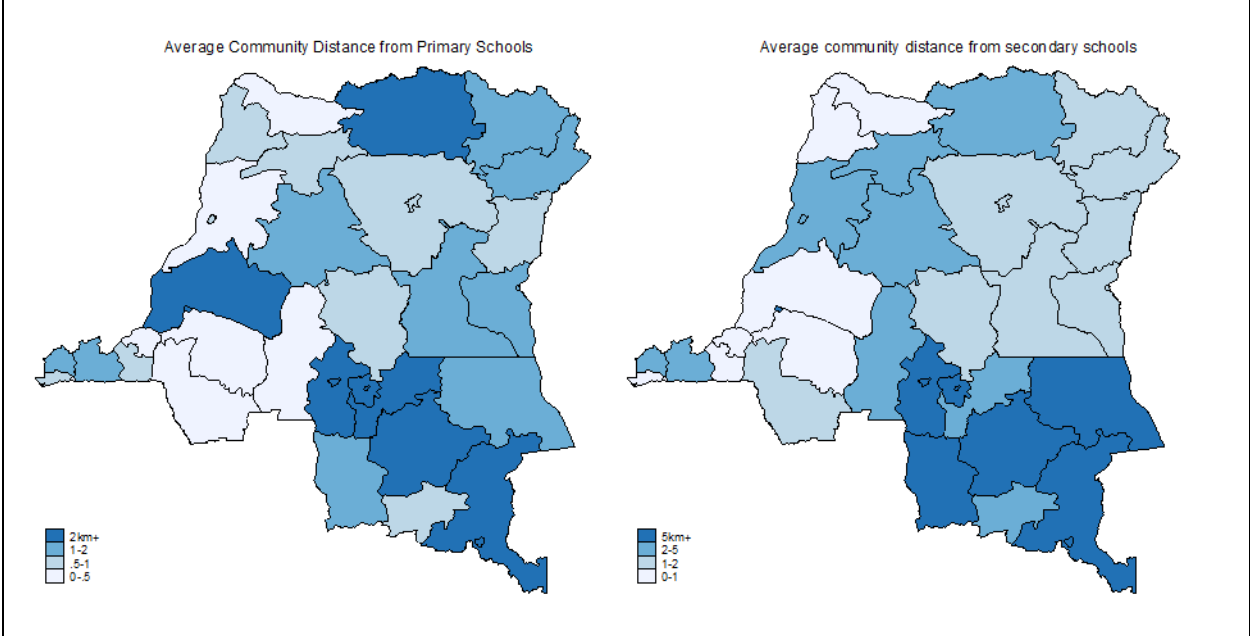
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012

Annex Figure 16: Average optimal values of the student-teacher ratio (for the access model)



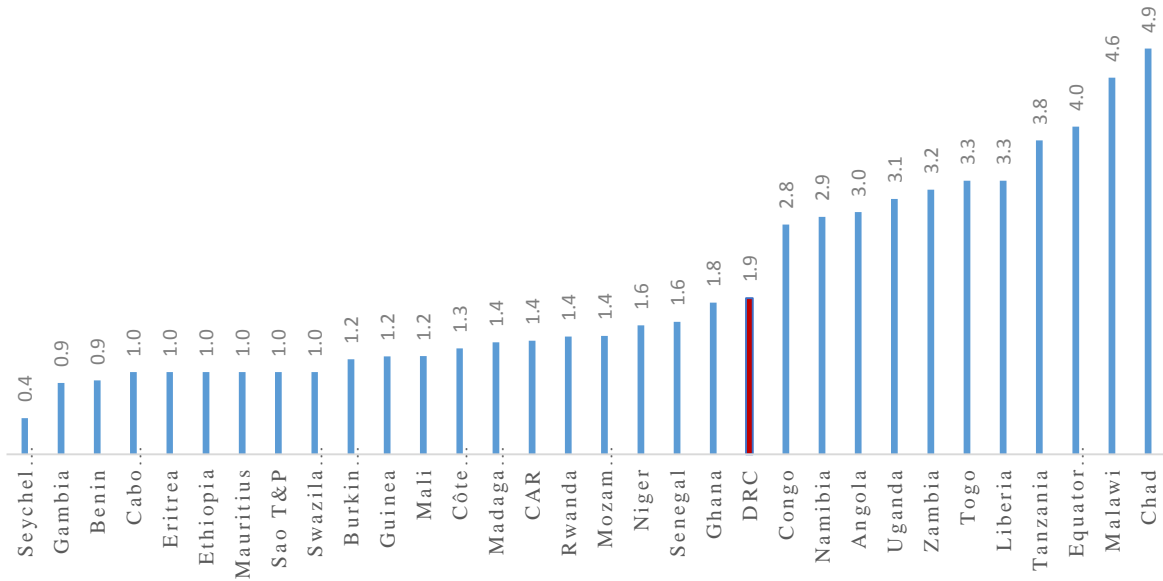
Source: Authors' estimations based on Ministry of Budget, EMIS, SECOPE, and HBS 1-2-3, 2012, DEA model suggestion

Annex Figure 17: Average Community distance from primary and secondary schools.



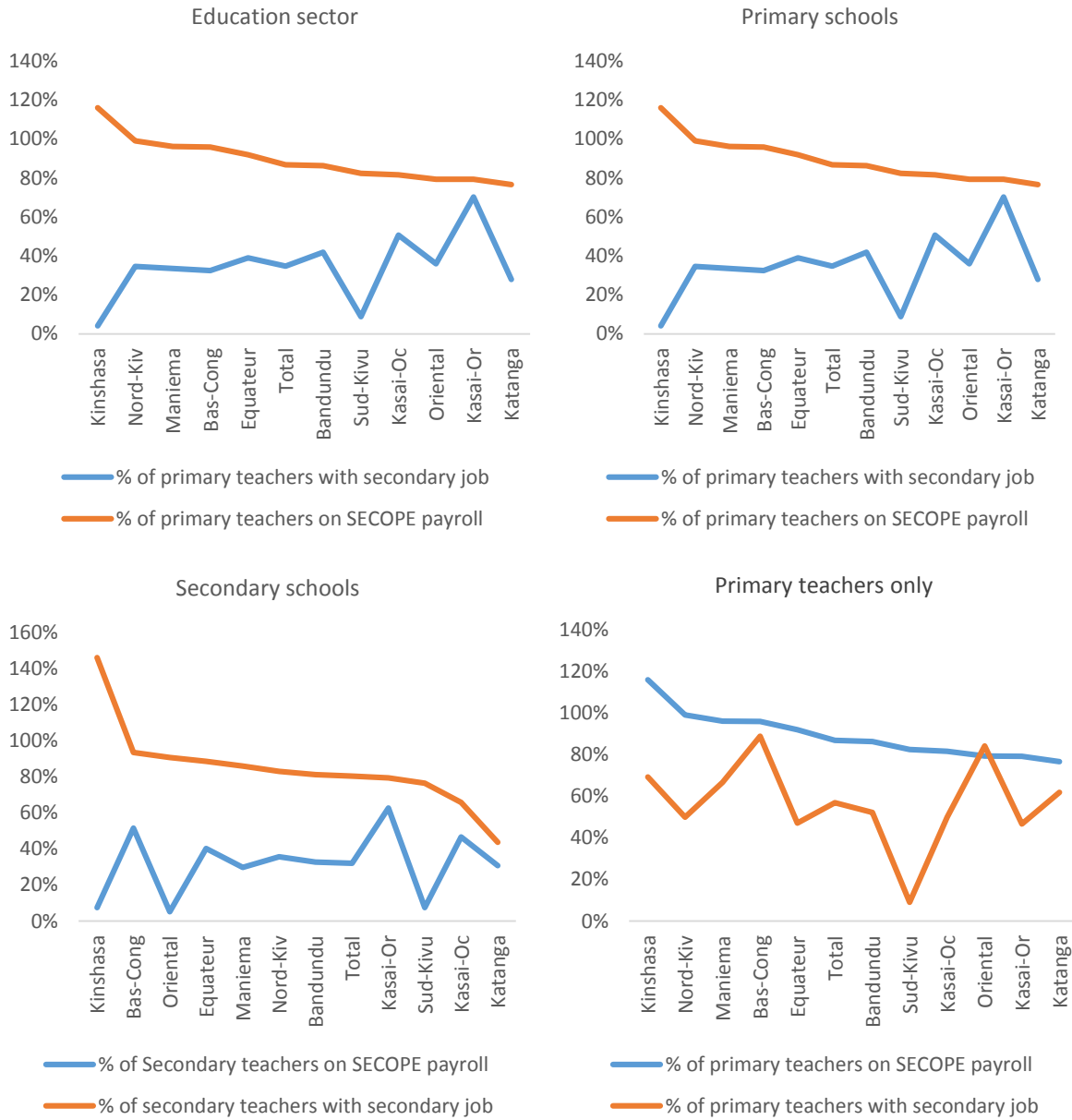
Source: Authors' estimations based on HBS 1-2-3, 2012

Annex Figure 18 : Student/textbook ratio. Mathematics. Primary. All Grades. Public Schools, 2012 or latest



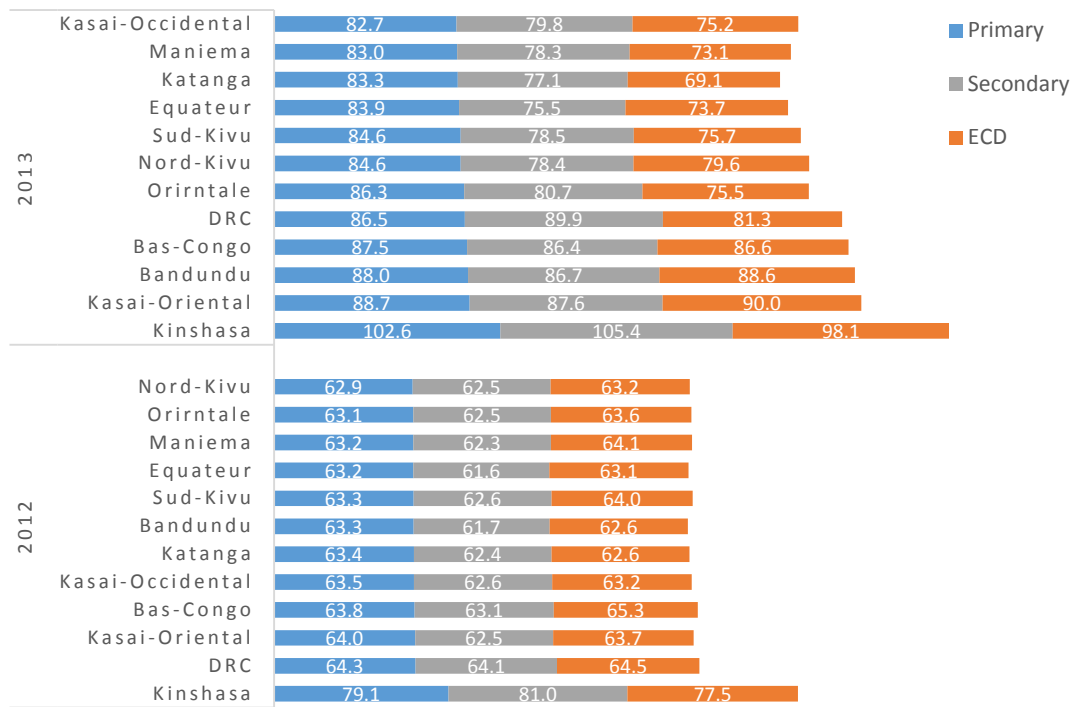
Source: UNESCO Institute of Statistics (UIS)

Annex Figure 19: Mechanization vs secondary job employment



Source: Authors' estimations based on SECOPE and HBS 1-2-3, 2012

Annex Figure 20: Trends of average education sector monthly wage



Source: Authors' calculation based on SECOPE, 2012

## Annex D. Boxes

### Box 1: Convention de Gestion des Ecoles Nationales, 1977

The Agreement (Convention de Gestion des Ecoles Nationales) was signed February 26 1977, between the Central Government and the four main religious authorities—Catholic, Protestant, Kimbanguists and Islamic—which transferred managerial responsibilities to the latter, as it had been before the nationalization (étatisation) of education in 1974. Conventiionné schools (schools that are under the Agreement) agreed to adhere to the standards and directives set by the central government, essentially maintaining the organizational structure of the government over the conventiionné schools. Items included in the directives included the curriculum, class size norms, teacher qualifications and salaries, as well as the evaluation system. The framework law of 1986 granted all authority to the Ministry of Education without any clear definition of the role of religious authorities. This further clouded an already unclear allocation of responsibilities and authority. The other main shortcomings of the Agreement include:

- Lack of clear definition of parents' roles and responsibilities within the education system.
- Lack of clear guidelines on structure and collection of school fees as well as their use.
- Lack of reference to relevant accounting and management guidelines as well as accountability mechanisms.
- Lack of referral to the authority of conventiionné schools' regarding management of teaching personnel.

### Box 2: 2014 Legislative Changes to 1986 Framework Law

The Government promulgated a new National Education Framework Law in February 2014 (*“Loi-cadre n° 14/004 du 11 février 2014 de l'enseignement national”*), which officially came into effect February 2015. This effectively replaces the 1986 framework law (*“Loi-Cadre 86-005 du 22 septembre 1986 sur l'enseignement national”*) to reflect the DRC's commitment to international agreements and the recent changes in the constitution of the country. Major innovations have been introduced in the 2014 law in order to reflect the new challenges faced by the education sector. Among other things, it includes:

use of local languages in teaching.

the creation of a special unit that will be in charge of monitoring the quality of education

the creation of elite higher education institutions to produce high level management graduates

the progressive introduction of the BMD (Bachelor-Master-Doctorate) system in higher education in order to promote international mobility of the Congolese educated workforce.

What is not included: Although the new legislation does introduce key changes, it fails to address the blurred organizational division of responsibilities and accountability between the government and the *conventiionné* schools.

Box 3: Concurrent and Exclusive Responsibilities between Center and Provinces

Article 202: on the exclusive responsibility of the central authority:

- Establishing the norms and standards for education in all territories of the republic
- Nomination and appointment of provincial inspectors for primary, secondary and technical education
- Statistics and national-level census
- National-level planning

Article 203: on the concurrent responsibilities of central and provincial authorities:

- Statistics and census
- Construction of primary, secondary, and higher education establishments
- Initiation of projects, programs and economic, cultural, scientific and social agreements

Article 204: on the exclusive responsibilities of the provinces:

- The organization and management of public sector establishments in the province within the legal framework
- Pre-primary, primary, secondary, vocational, special education and literacy education in accordance with the norms and standards established by the central authority.

These responsibilities remain unchanged even after the adoption of the new law in February 2014.

Source: Constitution DRC February 2006



Box 4: Projet de Réhabilitation et de Reconstructions des Infrastructures Scolaires (PRRIS)

The Projet de Réhabilitation / Reconstruction des Infrastructures Scolaires (PRRIS – Rehabilitation / Reconstruction Project for School infrastructure) is a central part of the government sector plan. The PRRIS has three components:

- Build or rehabilitate more than 1000 schools per year for five years and provide schools with adequate administrative offices, toilets and water points,
- Provide schools with the necessary equipment,
- Build the capacity of the local community for better management of school resources.

The project is funded by the DRC government and according to the project document, about 60% of the total project budget is assigned to the infrastructure related component, i.e. building and renovated schools.

The Bureau Central de la Coordination (BCECO) has been assigned as the procurement arm for this project. Created in 2001 as a temporary entity (Unité de Gestion de Projet –UGP) through World Bank funding, the BCECO is now a parastatal agency under the aegis of the Ministry of Finance and has taken on a fiduciary role with respect to the PRRIS. This is executed on a project-by-project basis. BCECO stipulates that the project is supposed to be implemented through two phases. The first phase includes the provision of 512 schools while the second one aims to provide about 517 schools. The budgets for the phase 1 and the phase 2 are respectively about 100 million US dollars and 33 million US dollars. Contracts have been signed with local companies for the construction activities and the provision of equipment (computers, tables, chairs, motorcycles, etc.). According to a report from the BCECO (Rapport d'activités au 30 juin 2014), on June 30, 2014, the first phase was under-executed with 60% of the total envelope disbursed. However, BCECO points out problems related to the provision of financial resources that negatively affect the execution of the project. The second phase includes the construction of modern technical schools (écoles techniques modernes) in all DRC provinces.

Source : Rapport d'activités, Ministère des Finances, Bureau Central de Coordination (BCECO) 2014

