Consortium for Research on Educational Access, Transitions and Equity

Changing Patterns of Access to Education in Anglophone and Francophone Countries in Sub Saharan Africa: Is Education for All Pro-Poor?

Keith M Lewin
Ricardo Sabates

Consortium for Research on
Educational Access, Transitions & Equity
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List of Acronyms

CREATE   Consortium for Research on Educational Access Transitions and Equity
DHS   demographic health survey
EFA   education for all
GER   gross enrolment rate
MDGs   Millennium Development Goals
NER   net enrolment rate
SSA   sub-Saharan Africa
UBE   Universal Basic Education
UNESCO   United Nations Educational, Scientific and Cultural Organisation
UPE   universal primary education

Acknowledgements

Preface

This monograph is part of the research on changing patterns of access that has informed the work of CREATE over the last five years. To understand the present and act on the future it is necessary to explore the past. The recent history of the evolution of access to education generates the starting points for policy dialogue on how to accelerate progress towards universal access. The dynamic aspects of the evolution of systems cannot be seen clearly at point in time and thus need analysis over time.

This analysis explores patterns of access to education across thirteen countries in Sub Saharan Africa. It shows the variety of pathways that have been followed and highlights how progress has been rapid in some cases and has stalled in others. Most importantly it draws attention to the extent to which what should have happened with the support of Education for All initiatives has not happened. The relationship between wealth and participation should have weakened; the numbers of over age children should have fallen, and differences in participation related to sex and location should have diminished. The data in this research indicate where these developments have not taken place and invite further exploration of why.

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Director of CREATE
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Summary

Most countries in Sub Saharan Africa (SSA) announced programmes to universalise primary education since the World Conference on Education for All at Jomtien in 1990. An increasing number have now extended the goal to include a complete cycle of basic education up to Grade 9 or more. But growth has been uneven, gains have not always been sustained, very rapid expansion has stressed infrastructure and teacher supply, and there are concerns that the number of over age children may have increased and quality may have deteriorated.

This paper[1] explores patterns of growth in participation in six Anglophone and seven Francophone countries in SSA. The Anglophone countries are Kenya, Malawi, Nigeria, Tanzania, Uganda, and Zambia. Francophone countries were Benin, Burkina Faso, Cameroon, Madagascar, Mali, Niger and Senegal. These countries have all had large scale Universal Primary Education programmes supported with external finance, and all have demographic and health survey (DHS) data sets collected at least ten years apart, first in the 1990s and subsequently after 2000. The data provide the opportunity to explore participation over a period of a decade or more to see how it has been changing.

The results show that progress towards universal access to education has been patchy and sometimes disappointing. Access to education remains strongly associated with household wealth despite commitments to pro-poor policies and investment of resources. Though overall participation has often increased, the chances of the poorest being enrolled relative to the richest have generally not improved substantially and in some cases have deteriorated. Reductions in the number of children out of school have in many cases been accompanied by an increase in the proportion of children over age for the grade in which they are enrolled. Poorer children are more likely to be over age and unlikely to complete schooling especially if they are girls. Girls are more likely to be out of school than boys in most of the Francophone countries but not in most of the Anglophone countries. In all the Francophone countries rural children were more likely to be out of school, but this was only true in one Anglophone case. Rural children remain more likely to be overage.

The message is clear. Though there has been progress, if falls far short of the gains that were anticipated. In a small but worrying number of cases the gains have been small or negative. In others much more progress is needed to achieve universal access with equity and to close the gap between the poorest and other households.

Keywords: Educational Access, Wealth, Inequality, Over age, Basic Education, Participation, SSA.

Changing Patterns of Access to Education in Anglophone and Francophone Countries in Sub Saharan Africa: Is Education for All Pro-Poor?

1. Introduction

This paper explores changing patterns of access to basic education in thirteen sub Saharan African (SSA) countries. The initiatives associated with Education for All (EFA) and international commitments to universalise access to basic education in the Millennium Development Goals (MDGs) have resulted in improvements in enrolment rates in many, but not all, low income countries (UNESCO, 2009). More especially EFA should have resulted in several changes in patterns of participation. Not only should overall enrolment rates have increased, but so also should completion rates indicated by the numbers reaching the end of primary and lower secondary schooling. The numbers over age when entering primary school for the first time, and the numbers overage in each grade should also have fallen. Children from the poorest quintiles of household expenditure should have seen their chances of being enrolled increase both absolutely and relative to those in wealthier households. The chances of participation by boys and girls and those in urban and rural areas should have become similar to each other as universal access is approached.

This research monograph explores changing patterns of enrolment by grade for a selection of Anglo and Francophone countries in sub Saharan Africa (SSA). The choice of countries is based on the availability of data for two periods, one in the 1990s and the second after 2000. This allows comparisons over time to be made. The reason to separate and compare the Anglophone and Francophone countries is that each inherit education systems shaped by two different colonial powers which lead to characteristic structures, language of instruction, teacher employment systems, and patterns of participation. There are however differences within each group and the results have to be interpreted with this in mind.

The analysis offered in section 2 presents data on enrolment patterns over time across the thirteen countries. This is linked to four characteristic patterns that differ in how enrolment changes by grade. The third section explores data on patterns of over age enrolment. These show that many children are still over age and that the spread of ages increases in higher grades. The fourth section uses DHS data to develop insights into the numbers enrolled and out of school and the proportions who are over age. This then leads to detailed analysis of enrolments in relation to household wealth, gender and location in section 5 and provides data on changing patterns of access across the two time periods.

In general the analysis confirms that participation of children in schooling has increased over the last decade in most but not all countries. Patterns of enrolment by grade show that progress towards universal access has been very uneven, and has often fallen well below expectations with substantial minorities remaining out of school. Access to education remains strongly associated with household wealth despite commitments to pro-poor policies and investment of resources. Though overall participation has often increased, the chances of the poorest being enrolled relative to the richest have generally not improved substantially and in some cases have deteriorated.

The reduction in the number of children out of school has in many cases been accompanied by an increase in the proportion of children over age for the grade in which they are enrolled. This is more common in Anglophone than Francophone countries. The latter have had lower

overall enrolment rates and are more likely to have excluded overage children altogether. It is also the case that poorer children are more likely to be over age. Large numbers – between 20% and 45% - are two or more years over age. In most cases the numbers three or more years over age are greater than those only two years over age. The latter group of children are unlikely to complete a lower secondary cycle, especially if they are girls.

In most countries the differences associated with sex and urban and rural residence are smaller than those associated with household wealth. Girls are more likely to be out of school than boys in most of the Francophone countries but not in most of the Anglophone countries. In one (Tanzania) girls were much more likely to be in school. Girls are less likely to be overage in Anglophone countries. There is little difference between boys and girls in Francophone countries. Sex differences have generally been diminishing over time.

In all Francophone countries rural children were more likely to be out of school, but this was only true in one Anglophone case in the sample – Malawi. In the others there was either no difference or more chance of being enrolled in rural areas. Urban rural differences have been diminishing in most cases. Rural children remain more likely to be overage.

Overall the picture that emerges is therefore complex in detail but clearly indicative of issues that have yet to be resolved in relation to EFA goals. Strong wealth gradients related to access persist; the poorest are more likely not to enrol and to be over age; girl's enrolments are approaching those of boys and in some cases girls are in the majority but Francophone countries lag behind. Similarly urban rural differences are disappearing more rapidly in Anglophone countries.

The message is clear. Though there has been progress, if falls far short of the gains that were anticipated. In a small but worrying number of cases the gains have been small or negative. In others much more progress is needed to achieve universal access with equity.

The thirteen countries in his data set have very different patterns of enrolment by grade and rates of progress towards universal enrolment and completion. Though the most prominent differences appear between Anglo and Francophone countries there are large differences within each of these groups. These differences mean that a single set of policy relevant conclusions will not resonate with each national context. Notwithstanding this, the paper does identify a range of insights and possible policy options that need to be adapted to context that can be used to inform policy dialogue around EFA.

2. The Evolution of Enrolment Rates

Enrolment patterns in SSA education systems fall into several types. A simplified and typology is shown in Figure 1 updated from Lewin (2008). In the first case (Type 1) the grade specific participation rate – the number enrolled over the number in the nominal age group for the grade - is a little over 100% in Grade 1 and falls slowly. Secondary level participation also has grade specific enrolment rates close to 100%. These countries mostly have virtually full enrolment with few over age children and little drop out until higher secondary level. In SSA these countries include South Africa, Namibia, Botswana and Mauritius. There are countries with Type 1 patterns of enrolment that do not have full enrolment. Thus where there are significant numbers of over age children in the system, grade specific enrolment rates can be around 100% for each primary grade but substantial numbers remain out of school, at least at higher grade levels. Kenya may be a case in point. Thus, though the grade specific enrolment curve looks the same it is useful to distinguish those cases where there is full enrolment (i.e. little over age and repetition and few drop outs) from those where there is much over age, repetition and drop out.

By contrast countries with enrolments like Type 2 have as many as twice the number of children enrolled in Grade 1 as there are in the population. Many are over age and a few are under age. Attrition is sharp and leads to the participation rate falling along a convex curve to around 50% by Grade 6 and continuing to fall in higher grades so secondary participation is low. Many countries with high growth in enrolments after the announcement of universal primary education (UPE) have experienced patterns of enrolment similar to Type 2 with very high grade specific enrolment rates in Grade 1. These countries include Malawi, and Uganda. The third group of countries – Type 3 – are similar except that the decline in enrolments through the primary grades follows a concave curve suggesting that retention in the early grades is high but that drop out becomes increasingly rapid in higher grades as in Kenya and Zambia. Type 4 countries have very low enrolment rates at all levels. In these countries many do not enter Grade 1 and most fail to reach Grade 6. Many of these countries are in francophone Africa.

It is a reasonable assumption that the investments targeted at universal primary enrolment should result in Type 4 countries evolving through Types 3 and 2 to Type 1 systems. It is an empirical question as to whether that happens.

Figure 1: Simplified typology of enrolment patters in school systems
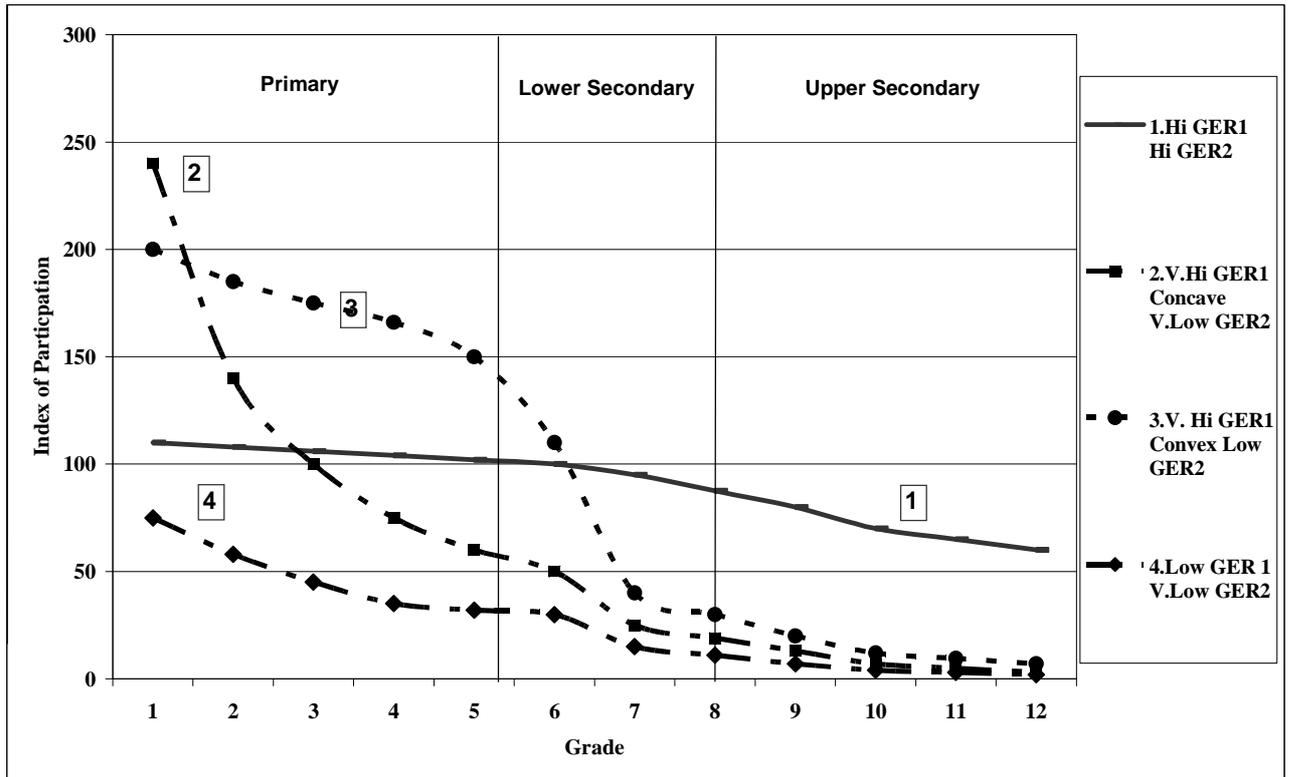
Source: Based on Lewin, (2008:105)

Countries in SSA have different length primary and secondary education cycles. This is important in understanding enrolment patterns since there are often steps in enrolment around selection points and transitions from primary to lower and upper secondary. The overall length of cycles also varies from 11 to 13 years with implications for costs and for retention, especially where primary school systems are long. The current patterns for SSA countries are shown in Figure 2.

Figure 2*: **Cycle Length in Years by Country**
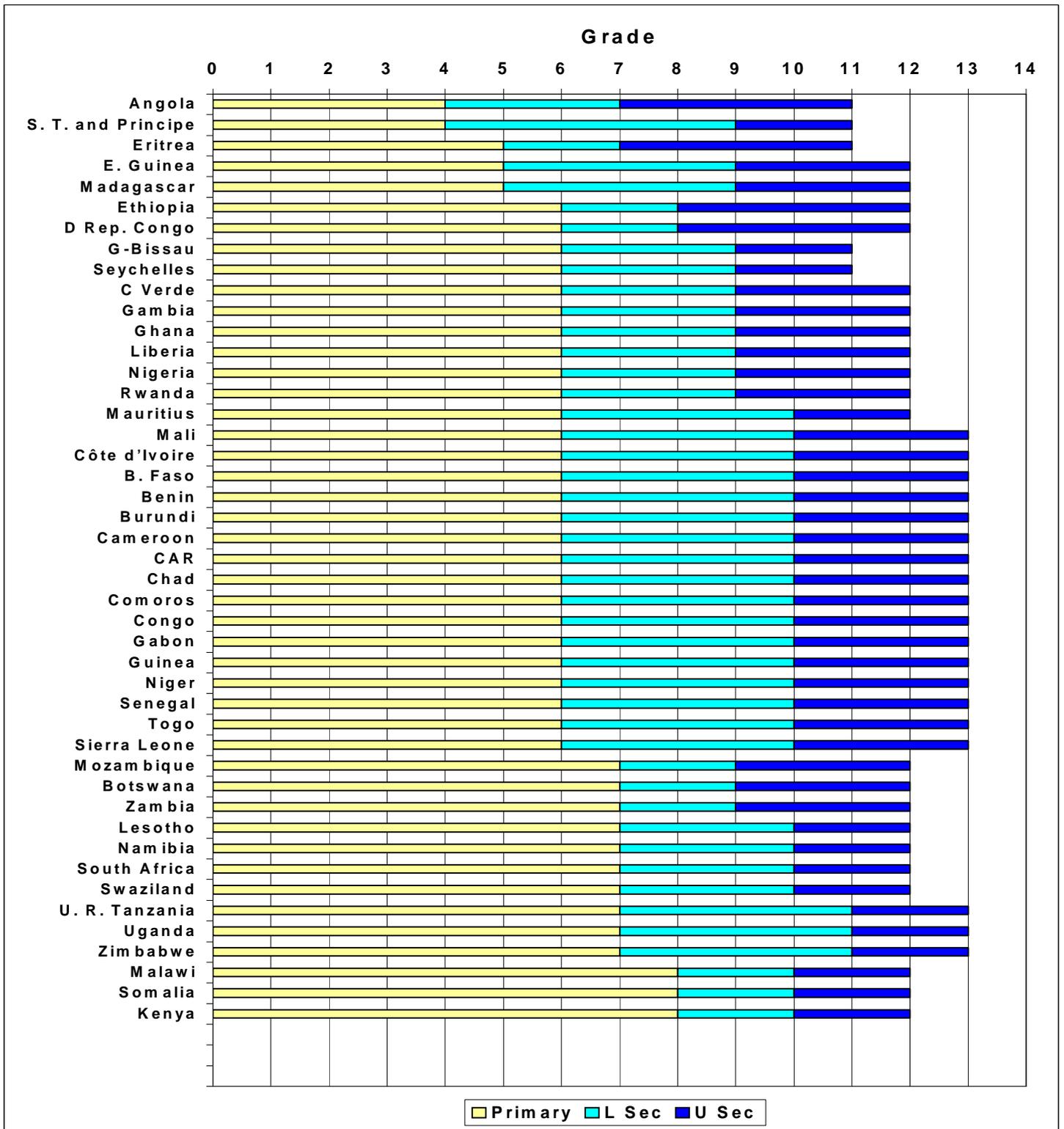
Source: Authors chart based on UNESCO Institute of Statistics Data

Enrolment data from the thirteen countries on which data is available can be used to explore how patterns have evolved. In the period 2000 to 2009 there are some striking differences. Figure 3 paints a picture of these.

Kenya has an 8:4 school system with eight years of primary and four of secondary. Kenya announced UPE for at least the third time in 2002 (Somerset, 2007). The grade specific gross enrolment rates (GER) show several things. First, enrolment rates in 2002 in Grade 1 to 3 were actually lower than in 2003. This may have been because the anticipation of fee free primary schooling resulted in delayed enrolment by some to benefit from not having to pay fees. Second, in 2003 enrolments in Grade 1 rose rapidly to 140% of the age group. This could only occur through a combination of over age enrolment and perhaps some underage enrolment[2]. The over age enrolment is of course consistent with delayed enrolment of some members of the 2002 cohort. Over the next four year enrolment rates in grades 1-4 stabilised at a new higher level of 100% or more of the school age population and the pattern became similar to type 3. However, above Grade 5 attrition continued to keep grade specific enrolment rates below 100% with a noticeable dip in Grade 8. Grade 8 is the year of the Kenya primary school leaving examination and it may be that some children are retained in Grade 7 if schools feel they have little chance of passing (Somerset, 2007; Obha, 2009).

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[2] Underage enrolment certainly occurs. Where it does children may spend two or more years in Grade 1 and may be placed there as a form of child minding or what some have called warehousing. There is little reliable data on underage enrolment.

Figure 3: Evolution of enrolments

Kenya
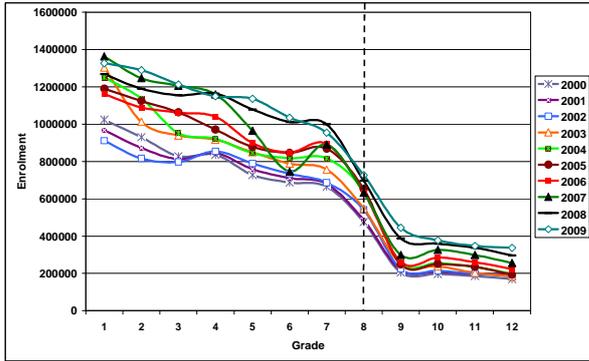
Nigeria
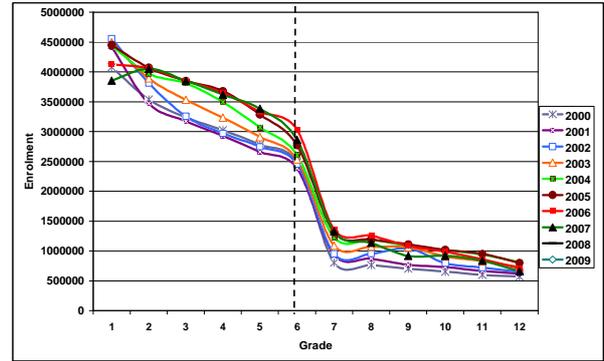
Malawi
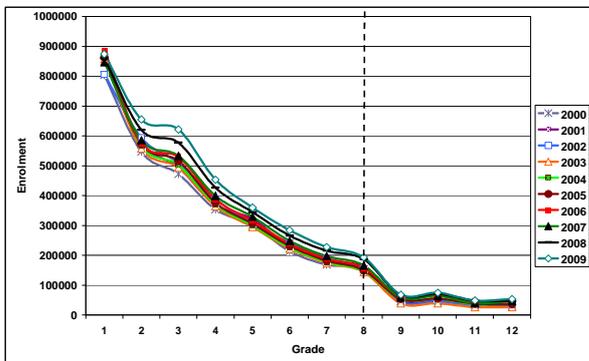
Zambia

Uganda

Tanzania

7
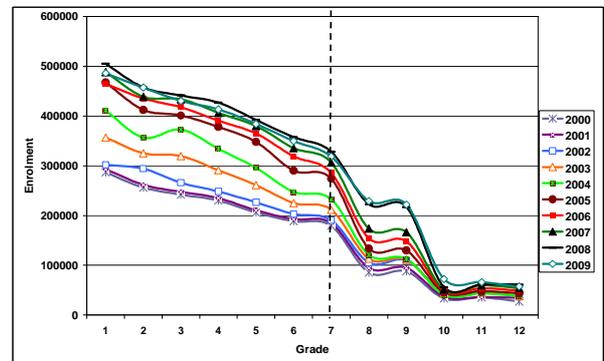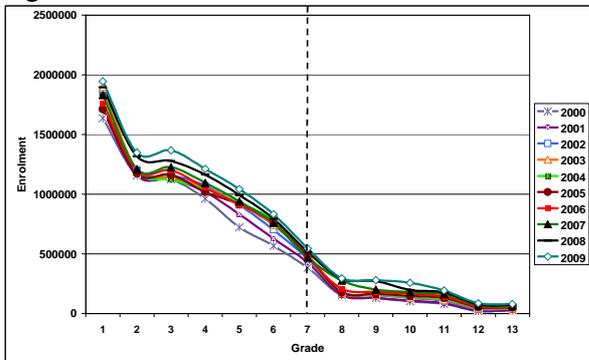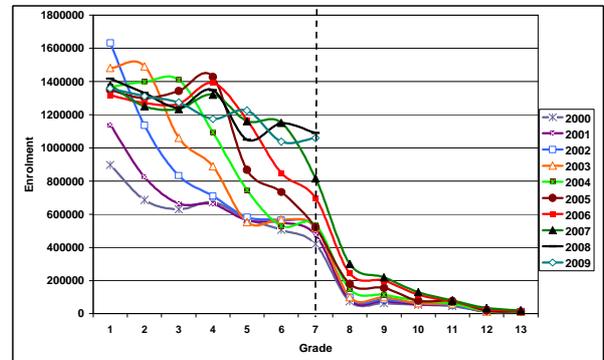
Figure 3: Evolution of enrolments (continued)

Benin
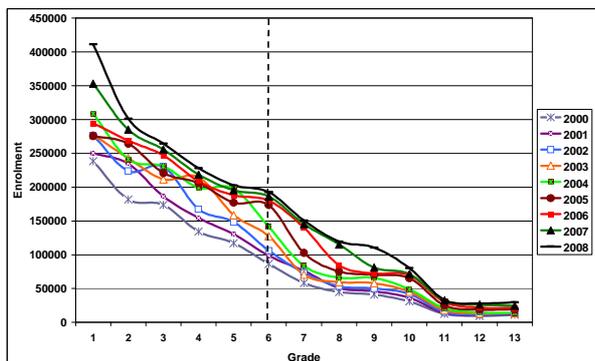
Mali
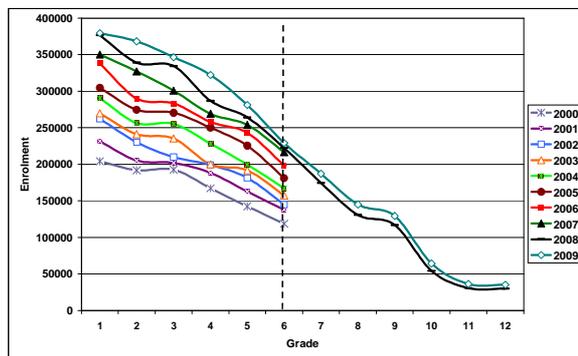
Burkina Faso
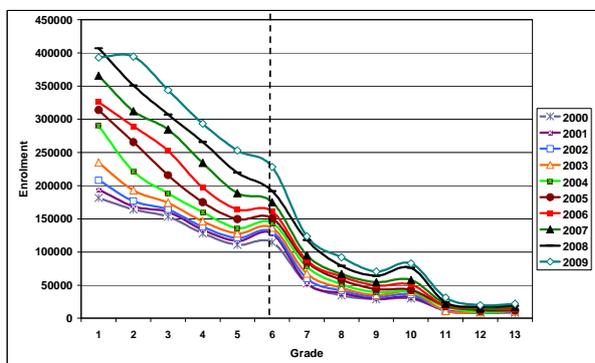
Niger
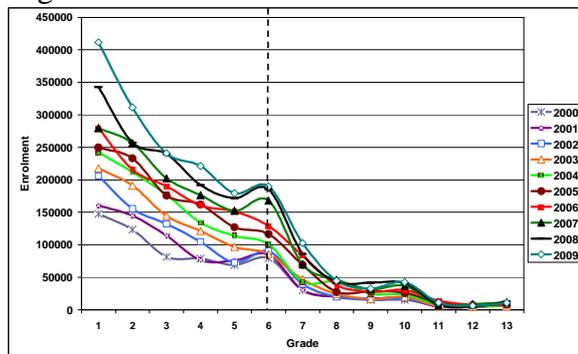
Cameroon
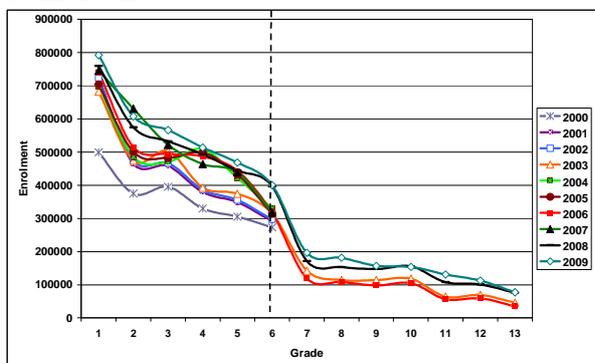
Senegal
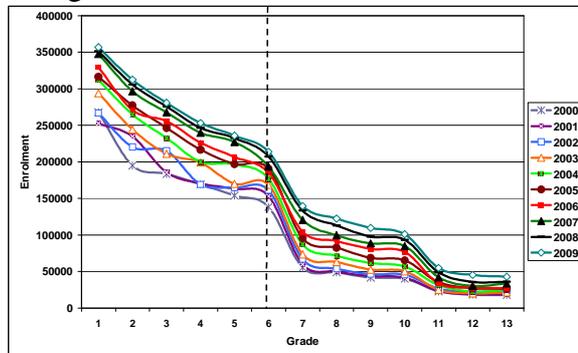
Madagascar
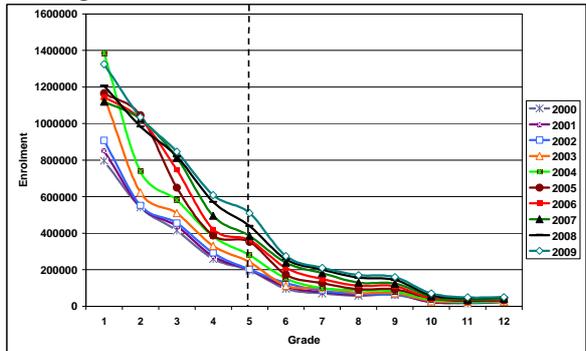
Malawi has strikingly different patterns of participation. It announced UPE in 1994 after the election of a new government which ended more than three decades of stasis in educational development. In 1995 enrolments in Grade 1 increased from about 600,000 to over 1 million and created a typical Type 2 enrolment pattern. Enrolments in Grade 1 at that time were more than six times those in Grade 8 at the end of the primary system (Lewin, 2009). Figure 3 shows the evolution of enrolment rates since 2001. Strikingly a Type 2 pattern has persisted over a long time. Enrolments in Grade 1 have remained year on year about 250% of the number of six year olds. By Grade 8 the ratio is below 50% and has not been rising significantly. In 2001 there were 161,000 enrolled in Grade 8; in 2007 the number was just 166,000 – a 3% increase over six years which was far less than population growth in the age group. Consistently up to Grade 5 there are more children enrolled than there are in the appropriate age group (suggesting that many remain over age). In Malawi EFA programmes have not succeeded in changing the shape of the participation curve, though more are attending in absolute numbers.

Uganda saw UPE announced in 1996. Enrolments in Grade 1 increased from about 800,000 to over 2.2 million in one year. This generated a Type B enrolment pattern. In that year Grade 1 enrolments were about nine times those in Grade 7 at the end of the primary system. Figure 3 shows that the pattern of over age enrolment in Grade 1 and high attrition has persisted with little change over the last seven years. There are consistently about twice as many children in Grade 1 as there are 6 year olds in the population and participation falls such that by Grade 7 enrolments are only 60% of the age group and must still include many who are over age. The output of Grade 7 has increased from 2001 to 2007 from about 428,000 to 470,000, an increase of 10% only. Moreover there is clear evidence that queuing is now taking place in Grade 6 as schools appear to be holding back children from Grade 7, the primary school leaving certificate year, to maximise apparent pass rates. Grade 6 now has more than 90% more children enrolled than take the Grade 7 certificate.

Nigeria first introduced its UPE programme in 1976. The Universal Basic Education (UBE) programme was announced in 1999 with nine years of education as the target for full enrolment. Nigeria has a participation pattern which did not change greatly from 2001 to 2005. Enrolment rates in Grade 1 are persistently about 120% and in Grade 6 about 80%. Some flattening of the enrolment rate curve is noticeable in 2005 suggesting that the numbers over age may be falling and the drop out rate reducing. However, the data for Nigeria is highly aggregated and really needs to be considered at regional and state level since policy on UPE and its implementation differs between states.

Free primary education was announced in Zambia in 2002. Zambia's pattern of enrolment growth is different to the other countries. Enrolments rates in 2001 were about 85% of the age group in Grade 1 and 65% in Grade 7. From 2003 to 2005 enrolment rates at all grade levels appear to have increased at about the same rate moving the enrolment participation curve upwards without changing its gradient. After 2005 participation rates have reached a plateau. In Zambia the output of the primary system has grown about 58% since 2001, slightly faster than the growth in Grade 1 numbers (54%). However the simple ratio of those in Grade 6 to those in Grade 1 fell from over 70% to 63%.

Enrolments in Tanzania have grown very differently to all the other five cases. Here in 2001 enrolments in Grade 1 were a little over 100% of the age group and fell to about 60% in Grade 7. The implementation of the latest initiative on UPE (there had been one in the 1970s after the Arusha declaration) commenced from 2002. In 2002 enrolments rose rapidly and

consolidated into the Type 3 pattern. Grade 1 now had 160% of the age group enrolled, whilst Grade 7 had the same 60% rate as the previous year. The striking difference between Tanzania and the other countries in the data set that can be seen in Figure 3 is that the enrolment rate gains in Grade 1 were gradually reflected in subsequent grades suggesting that attrition had fallen and that most of those who enrolled persisted to high grade levels. Thus Grade 1 enrolments in 2002 can be seen as being sustained into Grade 2 in 2003, Grade 3 in 2004 and so on.

The evolution of participation rates in Tanzania therefore appears to have followed the pathway that should have been established in the other countries. From a high of Grade 1 specific enrolment rate of 140% numbers fell back to stabilise around 120% (suggesting there were still over age children in the system). But the number reaching higher grades began to increase such that in 2007 the grade specific enrolment rates in grades 1 and 7 were both around 120%. Tanzania appears to have succeeded in retaining the expanded UPE cohort that it enrols and evolving towards a Type 2 and then Type 1 system.

Benin and Madagascar both display concave patterns of attrition as enrolments drop rapidly after Grade 1. Madagascar has the sharper decline with enrolments falling by over 60% by Grade 5 at the end of the short primary cycle. In Benin attrition at the end of the primary cycle in Grade 6 is about 50% after six years and there is evidence that year on year participation has been improving as the enrolment curves gradually increase. However, it is striking that the profile of attrition remains similar indicating that drop out has not fallen substantially though enrolments have increased. In both countries enrolment increases in secondary grades are minimal. Benin has seen greater growth at secondary level (Lewin, 2008:171) than Madagascar where enrolment in secondary Grade 9 is less than 15% of that in Grade 1.

Niger also has a concave pattern of enrolment attrition which has developed most strongly in the last three years with rapid increases in enrolment in the lowest grades. It shows a stronger inflection that Madagascar and Benin around the selection point for secondary schooling indicating high levels of repetition to improve examination grades for entry to secondary school. This may be exacerbated by the very low transition rates into the secondary grades with less than 15% of Grade 6 children entering Grade 7 secondary. Senegal has a pattern where attrition is slightly concave through primary grades. Selection into secondary school allows more than half the children to enter Grade 7 secondary and it is clear that secondary participation has been growing rapidly unlike Niger.

Mali, and Burkina Faso display attrition patterns that are convex or tending towards convex through the primary grades. Burkina Faso shows an inflection around the end of primary that has been diminishing as secondary enrolments rise. This is likely to be because with greater primary completion rates more of those graduating from primary decide not to repeat to improve grades since if they are low scoring their chances of selection probably will not improve. The primary entry rate has been rising fast in Burkina Faso, but attrition also seems to have risen rapidly. In Mali enrolments in all grades in primary have increased dramatically. Attrition has remained similar to its historic levels with enrolments in Grade 6 being about 60% of those in Grade 1. In Cameroon growth in numbers in primary has been less than in Mali and selection into secondary has remained at around 50% of those completing Grade 6. Secondary enrolments have grown more slowly than the output of the primary cycle.

In summary these patterns show substantial differences in form and in evolution over time. The current pattern provides the starting point for policy dialogue around priorities relating to improved access as reflected by increases in enrolments. As the time series develops there are indications of different dynamic patterns which suggest different profiles of intervention may be needed.

3. Over Age Enrolment

The patterns of enrolment described and analysed above conceal the extent of over age enrolment and the interactions between repetition, promotion and drop out rates that generate the different curves. This paper has a special concern with the evolution of age in grade relationships. There are several reasons for this. First, children who enrol above the normal age of entry will miss learning experiences at a time when they are most receptive to learning basic skills and establishing secure foundations for subsequent cognitive development. Second, those who repeat Grade 1 or subsequent grades will become over age for their grade. The more over age a child is within a grade the more it is likely that they will underachieve. Third, where older children are taught in class groups with younger children there may be psycho-social issues (e.g. of self esteem, bullying, sexual harassment), and problems of matching learning to cognitive capabilities (especially with monograde curricula where all pupils are taught the same things at the same time). Fourth, over age children will be late to arrive at the last grade of primary or junior secondary school. Where the age of initial entry is six or seven, primary school leavers in a six grade system will be 12 or 13. If they are two years over age, they will be 14 or 15. In many societies this approaches the ages of entry to the labour market and/or marriage. Children who are two or more years over age will be in their late teens before reaching the end of junior secondary school making it unlikely most will persist further in formal education.

Data on age in grade enrolment is not widely available and is often not very reliable. Some children and care givers do not know birthdates and registration of births may not be practiced or habitually late. Where there are age limits on participation and repetition, children and parents may be economical with the truth to ensure access for older children. Schools may complete school census forms on age in grade with no proper cross checking with children. The issues raised by over age students are very important. Data from four of the Anglophone and four of the Francophone case study countries is illustrative of some of the issues[3]. These charts (Figure 4) are based on administrative data collected from schools and subject to the errors generally associated with this method of collecting data.

Malawi has a pattern of over age enrolment where the spread of ages within a grade increases greatly from Grade 1 to Grade 8. At the same time there is considerable attrition with only a small minority surviving to Grade 8. Some children in Grade 8 are likely to be 15 or 16 and would thus not complete junior secondary until they are 19 or 20 years old. Zambia has a similar pattern with less attrition since it has higher grade specific enrolment rates in the higher grades. Children in Grade 7 appear to be between 11 and 17 years old. In Kenya a somewhat different pattern prevails with age in grade widening from Grade 4 and above. This may be the result of repetition and years lost with school transfers. By Grade 8 children are between the ages of 12 and 18 years old.

The pattern in Tanzania shows a dramatic change in the lower grades, which is likely to be a result of the most recent drive for universal enrolment. In the low grades most children are now within a year of the nominal age for their grade. Above Grade 3 (2004 data) there is a wider dispersion of ages in grade reflecting a previous pattern similar to that in Zambia. It remains to be seen if the age in grade relationships have now been regularised in Tanzania and will work through to Grade 7 and beyond.

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[3] Age in grade data on the other countries is unavailable from comparable sources.

Madagascar has massive over enrolment in Grade 1 which includes many children over age with at least a five year spread. This dispersion persists and appears to widen up to Grade 6. At the same time enrolments within grades decline dramatically from Grade 1 to Grade 2 and then more slowly. Niger and Senegal have similar patterns to each other with less dispersion than the Anglophone countries and a fairly consistent rate of attrition between grades. Mali has a different pattern with relatively wide dispersion of age in grade but lower attrition than the other countries.

Thus it is important to regularise the age in grade relationships for the reasons given above. If age in grade remains wide it is inevitable that most will not complete primary and junior secondary. All countries which succeed in universalising enrolment and completion of primary and junior secondary have low dispersions of age in grade.

Figure 4: Age-in-grade distributions

Malawi
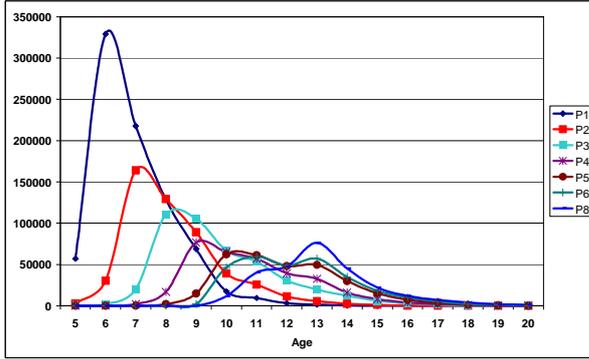
Kenya
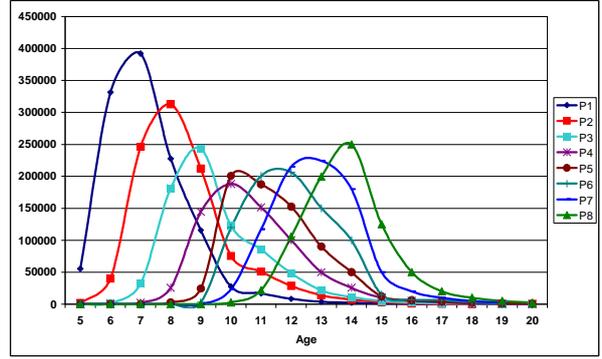
Zambia
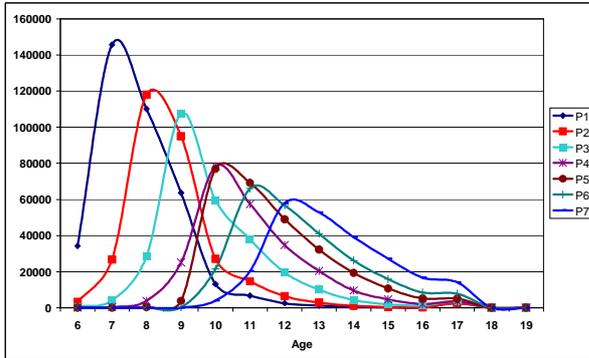
Tanzania
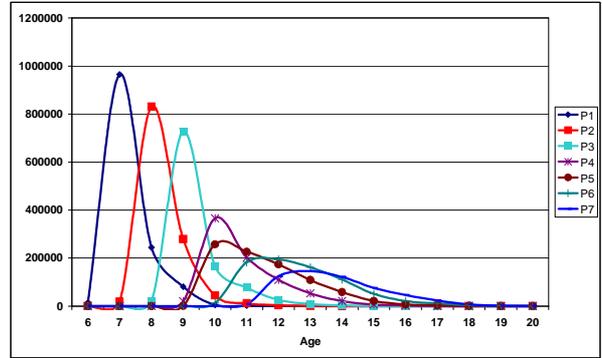
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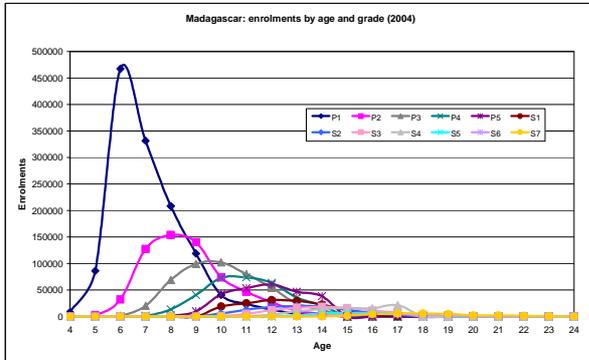
Niger

Mali

Senegal

14
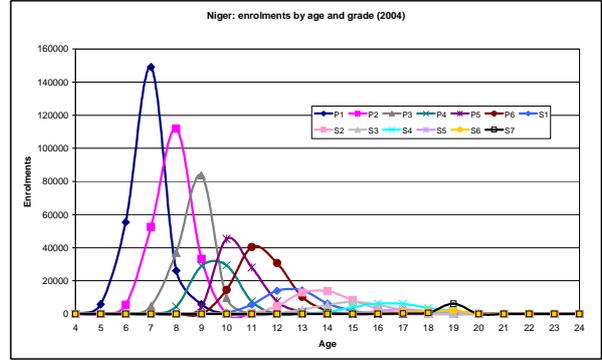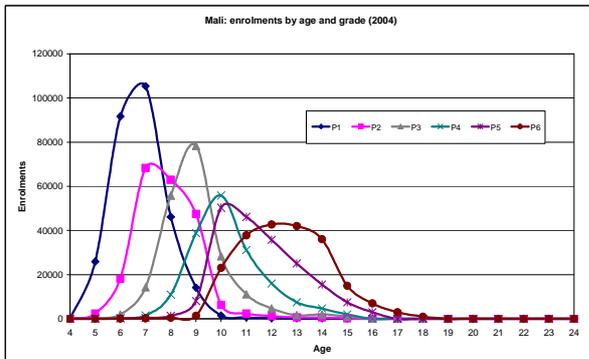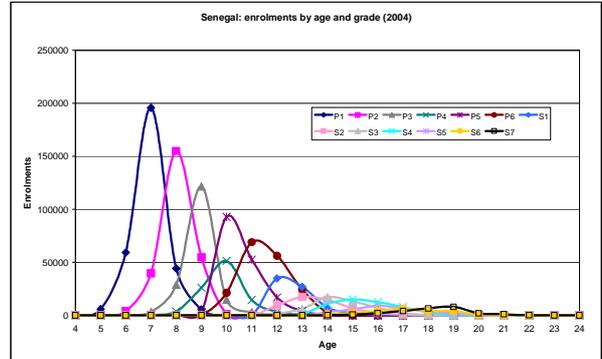
4. Data and Samples

Data for this paper come from two rounds of Demographic Health Surveys (DHS) in six Anglophone African countries (Kenya, Malawi, Nigeria, Tanzania, Uganda, and Zambia) and seven Francophone African countries (Benin, Burkina Faso, Cameroon, Madagascar, Mali, Niger and Senegal). One of the DHS surveys for these countries took place in the early nineties (1990 for Nigeria; 1991 for Cameroon; 1992 for Madagascar, Malawi, Niger and Senegal; 1993 for Burkina Faso and Kenya; 1995 for Uganda; 1996 for Benin, Mali, Tanzania and Zambia). The others took place between 2003 and 2007 (2003 for Burkina Faso, Kenya, Madagascar and Nigeria; 2004 for Cameroon and Malawi; 2005 for Senegal; 2006 for Benin, Mali, Niger and Uganda; 2007 for Tanzania and Zambia). There is therefore at least a 10 year gap between these rounds of data collection allowing for comparison over time.

All these DHS surveys are intended to be nationally representative, with the exception of Kenya. The 1993 Kenya DHS excluded all districts in the North Eastern Province and four districts in other provinces (Samburu and Turkana in Rift Valley Province, and Isiolo, and Marsabit in Eastern Province). In order to make the 1993 sample as comparable as possible to the 2003, we omitted the North Eastern Province from the 2003 survey. However, since the 2003 survey does not contain a variable to identify district of residence, it was impossible to drop individuals from the four districts that were not included in the 1993 survey. In all countries, two-stage sample selection procedures are followed and appropriate weights are derived, which we use in our empirical analyses.

In all countries except Malawi and Zambia, we had to make adjustments to the areas selected from the DHS. This is because geographical boundaries changed between surveys, so we adjust the regional variables to make these comparable across time. In Nigeria, for example, we aggregated state level indicators provided in 2004 to obtain regions comparable to the ones in 1990 (Northeast, Northwest, Southeast and Southwest)[4]. In Benin, the 2006 geographical division was aggregated into 6 regions to match those in 1996 (Atacora, Atlantique, Borgou, Mono, Oueme and Zou). In Tanzania, homogenous regions were selected according to the 1996 geographical limits (Central, Northern, Eastern, Dar Es Salaam, Southern, Southern Highlands, Western, Lake and Zanzibar). In Uganda, regions in 2006 were aggregated to match geographical regions in 1995 (Central, Eastern, Northern and Western). The rest of the countries followed the same procedure; geographical areas in 2000 were matched to those in 1990.

For each of the DHS, we selected children from the age of 6 or 7 years, depending on the official age at which compulsory schooling starts, to age 15 (see Table 1). The compulsory schooling age is 6 years for Kenya, Malawi, Nigeria, Uganda, Benin and Cameroon and 7 for the rest of the countries. Children aged 6/7 to 15 in the early nineties experienced schooling before the initiatives arising from the World Conference on Education for All in 1990 had time to have much effect. For these children, DHS contains information about their schooling, their parents' education, household expenditure and other demographic characteristics. Children of the same age group in the same countries have been selected from DHS samples at least a decade later to explore how access to education has changed. The

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[4] All regions in 1999 and 2003 can be matched to the 4 main regions in 1990 except for the state of Kogi, which did not exist in 1990. In 1991, parts of the states of Kwara in the northwest and of Benue in the southeast were divided to form Kogi. For this report, all individuals in Kogi are included as part of the northwest region.

time lapse between samples varies from 10 years to 14 years with a mean of 11.3 years. The data is cross sectional since the two cohorts of children are different. However, since both are national samples using the same methods the assumption that they are comparable is reasonable.

In the mid 2000s some effects of the Education for All (EFA) initiatives that followed the World Conference at Jomtien (1990) and the Global Forum at Dakar (2000) should be evident. The data cannot attribute causality of changes to the impact of the EFA initiatives, not least because these have taken different forms in different countries at different times. Nevertheless if EFA has had effects we should see trends in the data consistent with the goals of EFA. If they are not then further enquiry is needed to explore possible reasons.

Table 1*: **Sample size from DHS, children aged 6/7 to 15**

Country	Year	Boys	Girls
Anglophone countries			
Kenya	1993	6,047	6,287
	2003	5,323	5,019
Malawi	1992	3,678	3,828
	2004	8,940	9,011
Nigeria	1990	7,359	7,139
	2003	4,744	4,625
Tanzania[(*)]	1996	5,000	4,849
	2007	5,626	5,660
Uganda	1995	5,054	5,283
	2006	7,268	7,343
Zambia[(*)]	1996	4,962	4,982
	2007	4,619	4,786
Francophone countries			
Benin	1996	4,328	3,951
	2006	14,167	12,832
Burkina Faso[(*)]	1993	4,464	4,425
	2003	8,372	7,856
Cameroon	1991	2,856	2,914
	2004	7,260	7,078
Madagascar[(*)]	1992	3,882	3,761
	2003	4,676	4,691
Mali[(*)]	1996	6,245	6,284
	2006	9,341	9,469
Niger[(*)]	1992	4,270	4,418
	2006	6,540	6,496
Senegal[(*)]	1992	4,078	3,944
	2005	8,574	8,581

(*) Compulsory age for starting schooling is 7 years.

4.1 Variables

Access to education: Our outcome variable is a proxy for access to education. The DHS data allows us to classify children in four categories: (i) children who have never been to school and children who have dropped out from school at the time of the survey; (ii) children in school but who were over age for the grade they were enrolled by three or more years; (iii) children in school but over age for the grade they were enrolled by two years; and finally (iv) children who were in school at the appropriate age-in-grade.[5]

To identify children who have never been to school or have dropped out we used the questions in DHS surveys that ask "*has the child ever been to school?*" and "*is the child still in school?*". Since there are large differences in normal development through stages of cognition during childhood, over age was defined by children who were two years older than their appropriate age-in-grade as well as children who were 3 years older or more than their appropriate age-in-grade[6]. For example, in Kenya, where the official age of entry into school is 6, children aged 8 enrolled in Grade 1 were considered over age. Children aged 9 and above were also considered over age, but we treat them as a separate group for analytical purposes as being three or more (3+) years over age. In Tanzania, where the official age of entry into school is 7, children aged 9 enrolled in Grade 1 were considered over age by two years and children aged 10 and above were considered over age by three or more years.

Table 2 shows the proportion of 6/7 to 15 year old children in Anglophone countries not in education, over age enrolment by three or more years, over age enrolment by two years and appropriate age-in-grade, by gender, over the 10 year period. The proportion of children not in education decreased over this period in all Anglophone countries. However, this reduction was accompanied by an increase of over age enrolment in schools in most countries, except in Tanzania and, on the margin, in Zambia. In Tanzania it appears that the numbers out of school fell dramatically as did the numbers who were over age. Here the announcement of free universal primary education in 2001, and its implementation in 2002, is likely to be the main reason. With a rapid rise in enrolment rates, and automatic promotion, over age enrolment had to fall as the system expanded. In Zambia enrolment rate growth has been slower and the proportion of over age children in school has not changed much.

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[5] Unfortunately, it was impossible to separate children who dropped out from those who have never attended school for some datasets. Although a question on whether the person has ever attended school is available from the questionnaires, it is not always available in the datasets provided by the DHS archive. If we were able to access this information, we could generate a more meaningful indicator of access to schooling, where we differentiate between children who have never been to school, those who have been to school but dropped out, those in school but not in age-in-grade, and those in school at appropriate age-in-grade.

[6] The data set only yields age in terms of whole years. Depending on the time of the year the survey was conducted some who enter at e.g. age 6 years, will turn 7 years old. It is therefore better to think of the category two years over age as "between 1.5 and 2.5 years over age", and for those over age by three years as "by 2.5 years".

Table 2: Proportion of 6/7 to 15 year old children in Anglophone countries by educational status, gender and year

		Early 1990		Early 2000	
		Male	Female	Male	Female
Kenya	Not in school	21%	22%	13%	16%
	Over age 3+	26%	21%	30%	23%
	Over age 2	18%	18%	19%	18%
	In school	34%	39%	37%	43%
Malawi	Not in school	32%	34%	20%	18%
	Over age 3+	26%	23%	30%	28%
	Over age 2	11%	12%	15%	15%
	In school	30%	31%	35%	39%
Nigeria	Not in school	37%	44%	26%	33%
	Over age 3+	12%	10%	17%	15%
	Over age 2	8%	7%	11%	10%
	In school	42%	39%	45%	42%
Tanzania[(*)]	Not in school	46%	44%	22%	17%
	Over age 3+	25%	21%	12%	8%
	Over age 2	12%	14%	15%	13%
	In school	16%	21%	51%	61%
Uganda	Not in school	27%	32%	13%	14%
	Over age 3+	31%	23%	36%	33%
	Over age 2	14%	13%	18%	18%
	In school	29%	31%	32%	34%
Zambia[(*)]	Not in school	34%	35%	19%	19%
	Over age 3+	15%	10%	14%	12%
	Over age 2	13%	13%	14%	13%
	In school	38%	42%	53%	56%

Source: DHS. Notes: (*) In Tanzania and Zambia children aged 7 to 15 were selected.

For Francophone countries, Table 3 shows the proportion of children by educational status, gender and year. Compared with Anglophone countries, Francophone countries had very low levels of participation in the early 1990s. For example, the proportion of children out of school was as large as 68% of boys and 78% of girls in Niger in 1992. Similarly, 65 and 75% of boys and girls were out of school in Mali in 1996, respectively. But Francophone countries had a much lower proportion of over age children in school compared with Anglophone countries. So, although fewer children had access to school, those who did were likely to be in age in grade appropriate. For example, in Burkina Faso, the proportion of girls who were over age by 3 or more years in 1993 was only 1%, but 67% of girls were out of school in the same year.

Over time, there has been an increase in the proportion of children who access education in most Francophone countries. The proportion of children out of school was reduced significantly in Madagascar, nearly 50% fewer children were out of school at the end of this 10 year period. In Senegal, the proportion of girls not in school was reduced from 71% in 1992 to 45% in 2005. In addition, the proportion of children who were over age in school has remained relatively unchanged in these Francophone countries. Progress in access to education has been slow in some Francophone countries. For instance, in Burkina Faso the proportion of children out of school appears to have increased over the 10 year period. In Mali and Niger there are still over 50% of children not in school (see Table 3).

Table 3*: Proportion of 6/7 to 15 year old children in Francophone countries by educational status, gender and year.

		Early 1990		Early 2000	
		Male	Female	Male	Female
Benin	Not in school	48%	69%	34%	43%
	Overage 3+	14%	7%	10%	8%
	Overage 2	9%	5%	8%	7%
	In school	28%	19%	49%	42%
B.Faso[(*)]	Not in school	57%	67%	64%	71%
	Overage 3+	2%	1%	2%	1%
	Overage 2	4%	2%	3%	2%
	In school	37%	30%	31%	26%
Cameroon	Not in school	24%	30%	15%	19%
	Overage 3+	15%	13%	22%	18%
	Overage 2	11%	9%	13%	12%
	In school	50%	48%	50%	50%
Madagascar[(*)]	Not in school	39%	40%	21%	21%
	Overage 3+	16%	12%	15%	12%
	Overage 2	9%	10%	11%	10%
	In school	36%	39%	53%	58%
Mali[(*)]	Not in school	65%	75%	53%	60%
	Overage 3+	6%	4%	6%	5%
	Overage 2	6%	3%	7%	6%
	In school	23%	18%	35%	29%
Niger[(*)]	Not in school	68%	78%	53%	64%
	Overage 3+	3%	1%	4%	2%
	Overage 2	4%	3%	6%	4%
	In school	25%	18%	37%	30%
Senegal[(*)]	Not in school	62%	71%	42%	45%
	Overage 3+	3%	2%	11%	9%
	Overage 2	4%	3%	9%	9%
	In school	31%	24%	38%	37%

Source: DHS. Notes: (*) In Burkina Faso, Madagascar, Mali, Niger and Senegal children aged 7 to 15 were selected.

Household Wealth: A major concern of this paper is to explore changing patterns of indicators of access to basic education and equity in terms of household wealth. To address this issue, we focus on progress made by children living in poor households compared with children living in rich households. In order to generate an indicator of poverty we use household wealth as derived from information about the characteristics of the household

dwelling and ownership of various assets. Filmer and Pritchett (1999, 2001) suggest using information from more than twenty of these asset variables and principal component analysis to obtain a total score which represents the wealth index for each household and have shown that the index is a good proxy for long-run wealth and it can be compared both over time and across countries[7].

Other variables: We use several variables in the analysis among which we include family characteristics and regional controls. Family characteristics are defined by the gender, age and education of the head of the household. The latter uses information about the highest educational grade achieved which is translated into years of schooling. Other household level controls included are household size, the number of children under the age of 5 living in the household, and the structure of the household, which is defined by the number of adults living in the household. Regional controls include indicators for urban and rural areas as well as specific regional indicators from each country, which were explained above.

4.2 Estimation Method

In order to investigate changing patterns of access to education we use a multinomial probit model. This estimation technique is useful for understanding which factors increase (or decrease) the probability of being in one specific category of access to schooling. The multinomial probit model is the generalisation of the probit model when there are more than two alternatives for the outcome variable and when this variable has an unordered structure (see Greene, 2008, for a detailed description of this estimation method). In particular, we estimate the likelihood of being in one of the four categories for access to education. When using multinomial probit regression, one category of the dependent variable is chosen as the comparison category. In our case, we omit the category in school at an appropriate age-in-grade. Therefore, all estimated coefficients are interpreted as the association of the explanatory variable on the likelihood that the individuals are in a given category for access to education (not in school, over age by three or more years, over age by two years) instead of in the reference category (age-in-grade appropriate).

The multinomial probit model is derived by assuming that the errors in the discrete choice model are normally distributed. A significant advantage of the multinomial probit model is that the errors can be correlated across choices, which eliminates the assumption of the independence of irrelevant alternatives that is imposed by the multinomial logit model (Long, 1997). Although the estimation of parameters for the multinomial probit model is computationally complex, it is feasible in our case as we only have four possible alternatives for educational access (Wooldridge, 2002). As in other non-linear models, estimation of the parameters is enough to know the direction of the association between our explanatory variables and access to schooling. But in order to estimate the magnitude of the impact, we had to compute marginal effects, partial changes or predicted probabilities.

The marginal effect for continuous explanatory variables is computed by taking the partial derivative of the probability that the child is in a particular outcome for educational access with respect to each of the explanatory variables, holding other variables constant. For discrete variables, the alternative to the marginal effect is to compute the change in the probability for a discrete change in the explanatory variable. It is important to highlight that the partial change does not equal the marginal effect and only under certain assumptions will

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[7] All wealth indices were available in the data.

these measures be close. Similarly, the derivation of the marginal effect and partial change depends on the value of the other variables, so for example if we are estimating the change in the probability of access to education for boys relative to girls, we need to hold all other variables constant.

Another way to interpret our results is to estimate the predicted probabilities. The predicted probability is obtained by evaluating the probability that each child will have of falling into each of the categories using the estimated parameters of the model. In our case, predicted probabilities are useful as we can estimate the predicted probability for a combination of variables, in particular wealth, gender and region and the changes of these variables over time, and hold the rest of the variables constant.

4.3 Hypothesis

The changes in educational access over time can be linked to some of the key variables, in particular household wealth, gender of children and location. The estimated parameter for time captures the average change in access over the time period. The estimated parameter for the variable household wealth (gender and location), captures average differences in access between households of different wealth groups (or between boys and girls or rural and urban locations). The interaction between time and each of these variables captures progress in educational access for different wealth groups, boys and girls, and in rural and urban areas.

Using a hypothesis of proportional changes in access to education, we expect that the coefficients for these interactions will be statistically insignificant. In other words, access to education for all groups is assumed to change at the same rate over the time period. If there are increasing inequalities in access to education, the sign of the coefficient for the interactions will be the same as the sign of the initial gap and it will be statistically significant. For example, girls could have worse access to schooling than boys initially and in 10 years their access could deteriorate further. Conversely, if there are decreasing inequalities, the sign of the coefficients for the interactions will be opposite to the sign of the coefficient for initial gap and it will be statistically significant. In the example above, girls could have worse access to education than boys initially, but over time they would have been closing the gap.

5. Results

5.1 Unconditional differences in access to schooling over time between richest and poorest children

Figures 5 and 6 show the unconditional average differences in access to education for the six Anglophone and seven Francophone African countries. These estimations are based on children from the lowest 20th and top 20th percentiles of the wealth distribution and access is calculated as the proportion of children, poorest and richest, in each of the four categories for enrolment status for each of the two years. Conditional averages, based on estimates from the multinominal probit model, which takes other variables into account, are presented later.

In each year and for all countries, the proportion of children living in the poorest households who do not have access to school is higher than the proportion of children living in the richest households. This comes as no surprise as this result has been previously shown by other empirical research (Behrman, 1987; Filmer and Pritchett, 1999). Over time, there appear to be an important downward shift in the proportion of children from the poorest households not in schooling in both Anglophone and Francophone countries. For example, in Malawi, the proportion of children from the poorest households not in schooling dropped from 54% in 1992 to 27% in 2004. In Madagascar, the proportion of children from the poorest households not in schooling dropped from 57% to 41% between 1992 and 2003.

In two countries, one Anglophone (Kenya) and one Francophone (Burkina Faso), the proportion of children from the poorest households out of schooling remained almost unchanged. However, the situation of these countries is strikingly different. In 1993, the proportion of children from the poorest households not in schooling in Kenya was relatively small in Kenya (32%), while in Burkina Faso it was extremely high (86%). Over the 10 year period, the proportion of poor children not in school in Kenya increased marginally to 34% and in Burkina Faso it decreased marginally to 85%. These changes are both disappointing given the efforts invested in improving access under EFA programmes.

Figure 5: Access to education over time, children in the richest 20th percentile and poorest 20th percentile of the household wealth distribution only.
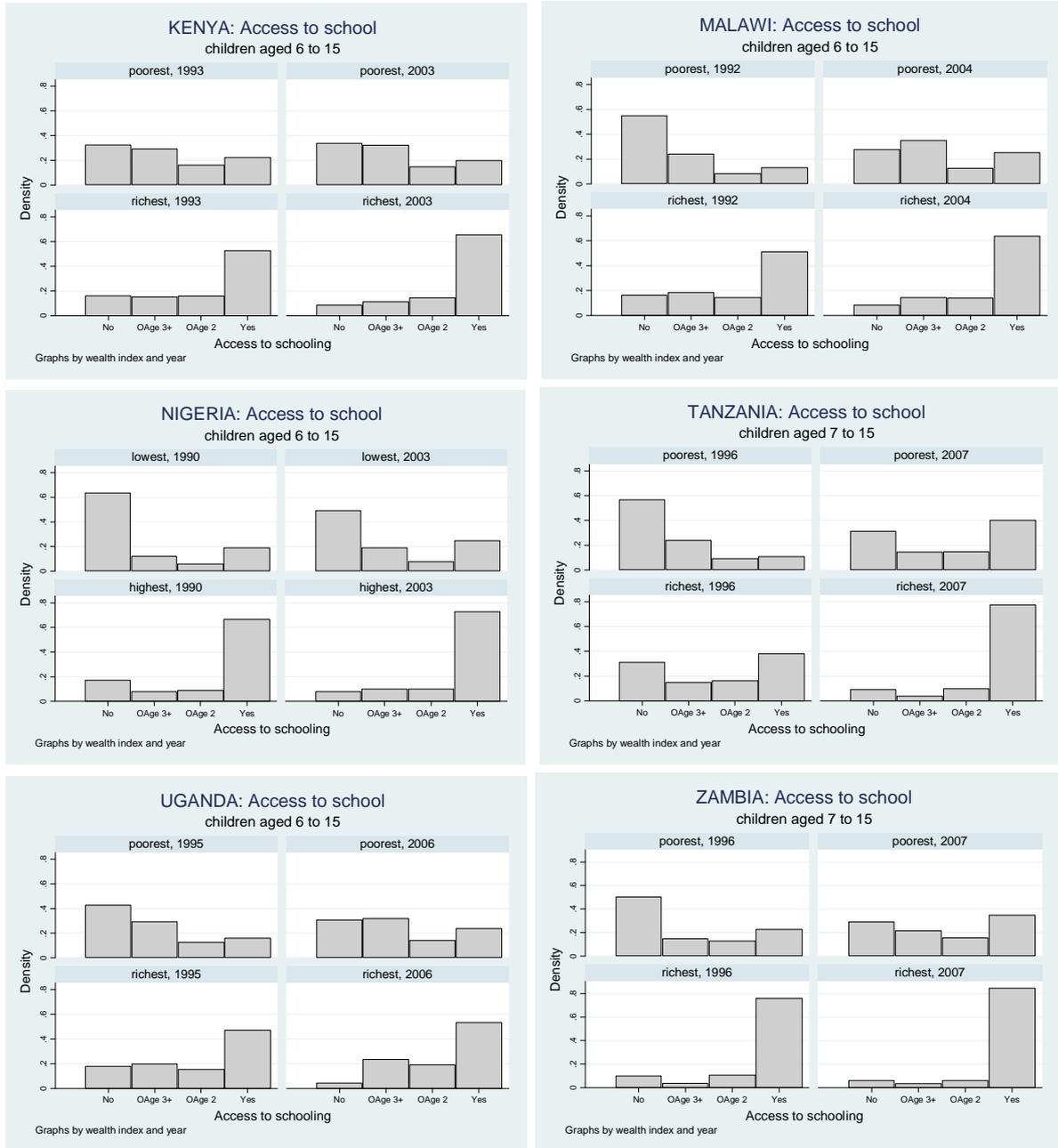
Key:
No = not in school
O Age 3+ = overage by 3 or more years
O age 2 = overage by 2 years
Yes = enrolled and less than 2 years overage.

Figure 6: Access to education over time, children in the richest 20th percentile and poorest 20th percentile of the household wealth distribution only.
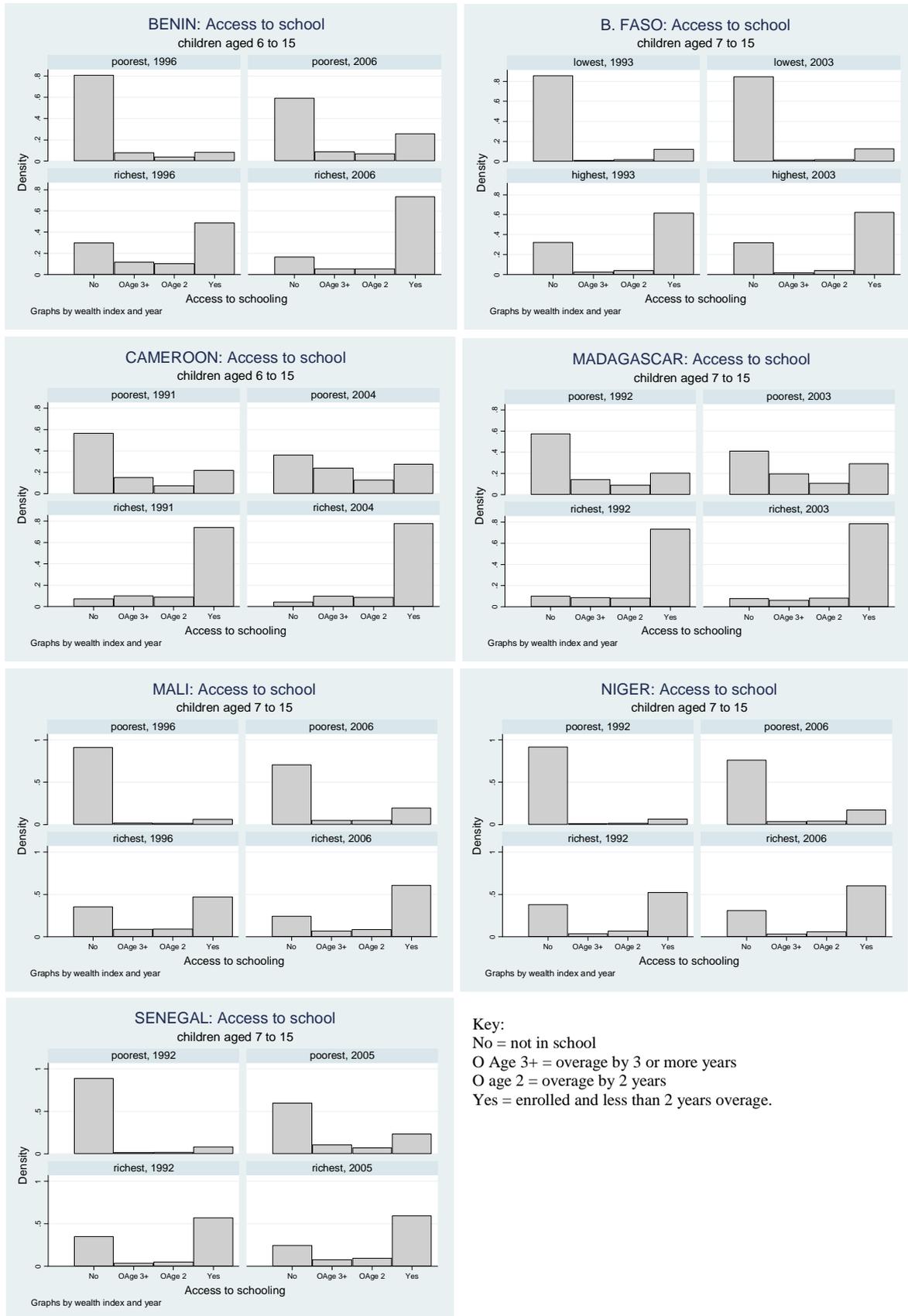
Countries differ in the overall level of their enrolment rates. The higher these are the less scope there is likely to be for improved access and conversely the lower these are the greater the scope for gains in access. This analysis is concerned with relative changes in access to schooling over time. These relative changes are measured in terms of wealth, and whether the gap between the rich and the poor has widened or narrowed over time within a country. In Uganda, for instance, 43% of children from the poorest households were not in school in 1995 and only 18% of children from the richest households were not in school. Therefore, children from the poorest households had more than twice the probability of being out of school relative to children from the richest households in 1995. By 2006, the situation had improved in different magnitudes, as the proportion of children from the poorest households not in school decreased to 30% and the proportion of children from the richest households decreased to 4% (as shown in Figure 4). The likelihood of children from the poorest households being out of school relative to children from the richest households was more than seven times higher in 2006, largely as a result of gains in richer households. The statistical significance of this pattern for Uganda, and for the rest of the countries, is tested below.

5.2 Conditional differences: access and wealth

The results from the analysis using the multinomial probit model on the four different outcomes of access to education are shown in the Annex - Table 1A and Table 2A. For each country, the first column reports the association of the explanatory variable and the probability of not accessing schooling relative to the probability of accessing schooling (age appropriate). The second column reports the association of the explanatory variable and the probability of being in school, over age by three of more years, relative to the probability of accessing school (age appropriate). Finally, the last column reports the association of the explanatory variable and the probability of being in school, over age by two years, relative to the probability of accessing school (age appropriate).

The first four variables indicate wealth quintiles for households, from the poorest 20th percentile of the wealth distribution to the richer 60th-80th percentile. The richest quintile is used as a comparison group. The parameter associated with these variables measures the relative difference in the likelihood of accessing school between the children of households at different levels of wealth. The next variable is time, which captures average changes in the likelihood of accessing school between the two DHS surveys. Finally, the last set of variables indicates the interactions between time and wealth. These capture average differences in the likelihood of accessing schooling over time by wealth groups.

Tables 1A and 2A in the annex can be interpreted as follows: In Kenya, those living in the poorest households have a higher probability of being out of school relative to being in school at age-in-grade appropriate compared to children living in the richest households (first estimated parameter 0.98). Also, compared to the richest children, children in the poorest households are more likely to be over age by three or more years or by two years (estimated parameters 0.87 and 0.60 for over age by three or more years or by two years, respectively). All these results are statistically significant at the 1% level.

In all Anglophone countries, children living in the poorest households continue to experience a greater likelihood of not being in school relative to children from the richest households. In addition, in all countries except in Kenya, we found that the poorer the family, the higher the value for the estimated parameter measuring the likelihood that the child would not be in

school. These parameters are statistically significant for all wealth quintiles. In Kenya, children living in families whose wealth falls into the 60th to the 80th percentile of the wealth distribution do not differ in their likelihood of not accessing school from children from the top 20th percentile richest households (estimated parameter 0.103, not statistically significant). The kind of school they are enrolled in undoubtedly does differ but that is a subject others have explored (Somerset, 2010). But poorer children do differ in their likelihood of not accessing schooling relative to children living in the richest households.

Similarly, in all Francophone countries, children living in the poorest households experience a higher likelihood of being out of school than children from the richest households. In all Francophone countries, there is also a clear gradient whereby the richer the household where the child lives the lower the probability that the child will be out of school.

Turning now to the likelihood of being over age and in school by three or more years, we found, again, that in all Anglophone countries the poorest children are more likely to fall into this category than the richest children. This result holds across the whole wealth distribution, since we found that, compared with the richest children, children living in households with less wealth are more likely to experience over age in schooling by three or more years. To a lesser extent, we also found that children from the poorest households are more likely to be over age in school by two years relative to the wealthiest children in Anglophone countries. This result holds for most wealth groups when compared with children living in the richest families. However, children from the richer households (that is from the 60th to the 80th percentile of the wealth distribution) are not more likely to be in school over age by two years relative to children from the richest households in Malawi.

The problem of over age children in school according to household wealth is less pronounced in Francophone countries. Still, we found that the poorest children are more likely to be over age in school by three or more years. However, in Burkina Faso and in Senegal, children from the 40th to the 80th percentile of the wealth distribution have the same chances of being in school over age by 3 or more years than children living in the richest households. To some extent we also find differences in the likelihood of being over age by 2 years in Francophone countries. In all countries except for Niger and Mali, we found that the greater the wealth of the child's household the lower the chances of being in school over age by 2 years. In Niger, differences in over age by 2 years with respect to the richest children are only significant with the poorest children and those from the 60th to 80th percent of the wealth distribution. In Mali, there are no differences in the likelihood of over age by 2 years between children living in the richest households and those living in the 60th to 80th richer households.

5.3 Conditional differences: access and wealth gradients over time

The interesting parameters to analyse are the interactions between wealth and time, which indicate whether there have been changes over time in access to schooling according to household wealth. In one Anglophone country, Nigeria, access to school has deteriorated for children from the poorest families (Table 1A), but this has not been the case in Francophone countries (Table 2A). In Nigeria, we found that children living in the poorest households had a lower likelihood of access to school (estimated parameter 1.09), but this situation worsened over time (estimated parameter of interaction poorest-year 0.51). This result holds also for children in the lowest two quintiles (20th to 40th percentiles), where we found the likelihood of not having access to schooling relative to the richest children (estimated parameter 0.93) is increasing over time (estimated parameter of interaction poorer-year 0.53).

Another contrasting result is that in only two Anglophone countries (Malawi and Zambia) children of the poorest households have seen an improvement with respect to their access to schooling relative to children of the richest households, but in all Francophone countries we found improvements. In Zambia, for example, Table 1A shows that the likelihood of not accessing schooling for the poorest children relative to the richest children (estimated parameter 1.65) decreased from 1996 to 2007 (estimated parameter of interaction poorest-time (-0.43). The wealth gap was also reduced for children in the 20th to 40th percentile and in the 40th to 60th percentile relative to children living in the richest households. For children in the 20th to 40th percentile of the wealth distribution, the initial difference in the likelihood of not accessing school (estimated parameter 1.42) decreased from 1996 to 2007 (estimated parameter of interaction poorer-time -0.35). In addition, for children in the 40th to 60th percentile, the initial estimated difference in their likelihood of not accessing school relative to the richest children (estimate parameter 1.20) decreased over the decade (estimated interaction between middle-time -0.34).

In Francophone countries significant changes in the wealth gradient of access to schooling were estimated in Benin and Burkina Faso for children living in poorest households 20th to 40th percentile and for those in the 40th to 60th percentile (compared with richest). In Cameroon, Madagascar and Senegal we found significant changes in the wealth gradient over time across the whole spectrum of the distribution, the gradient become flatter. Finally, in Mali and Niger, significant changes to the gradient were only found for the children living in the poorest households, but this was enough to estimate that the wealth gradient in these two countries also became flatter

The estimated gradient for the probability of being out of school by wealth groups is shown in Figure 7 for Anglophone countries and in Figure 8 for Francophone countries. These figures are interpreted as follows. The height of the bars is the estimated probability for each group being out of school. Thick bars estimate for the early 1990's and thin bars one decade later. The five bars indicate the five wealth quintiles including the richest reference category. The key issue to highlight here is the change in the wealth gradient in access to education. Two lines are fitted to the predicted probabilities, indicating the steepness of the gradient. In Kenya, for example, the wealth gradient in access to education did not change between 1993 and 2003 (this is also in accordance with our estimated parameters for the interactions between wealth and time, which were found not to be statistically significant).

Figure 7: Marginal effect of wealth on likelihood of not being at school over time in Anglophone countries

Wealth Gradient in Access to School (Drop out vs. In school)

Graphs by Country
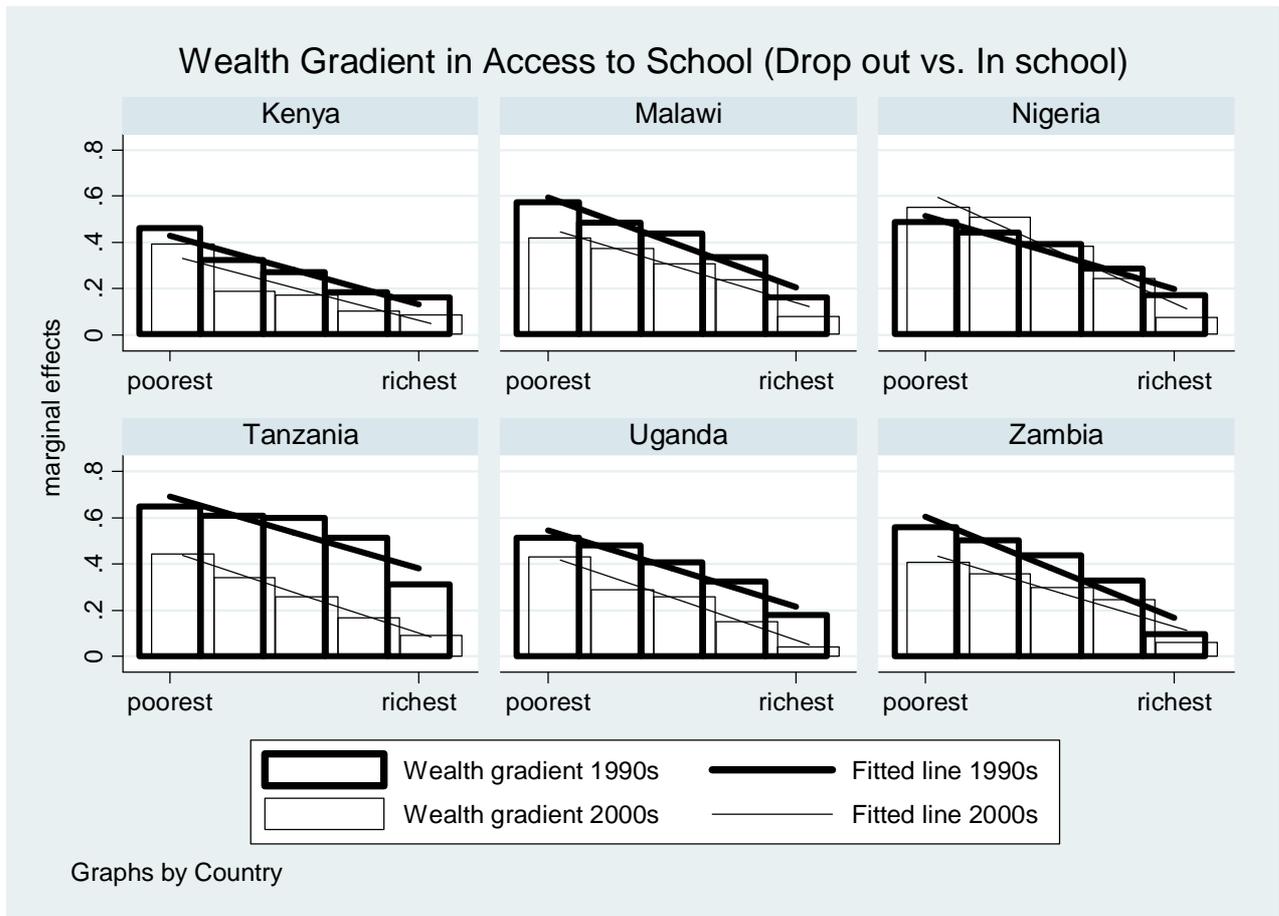
In Anglophone Malawi and Zambia, not only did children have a lower probability of being out of school during the 2000's, but the wealth gradient became flatter. Thus between 1992 and 2004 for Malawi and between 1996 and 2007 for Zambia there was a reduction in the relative wealth gap that was estimated using our empirical model. In Nigeria, the wealth gradient in access to schooling became steeper, indicating that poorest children in 2003 had greater differences in access to schooling than they had in 1990. In Tanzania, the wealth gradient also became steeper in 2007 compared to 1996 because children living in richer households narrowed their difference in not accessing schooling with respect to children living in the richest families. Finally, in Uganda, the wealth gradient did not change between 1995 and 2006, although overall children in 2006 had a lower probability of being out of school than in 1995.

In Francophone countries, improved access has been equitable, as children from the poorest quintile of the wealth distribution had improved access more rapidly than children from the richest quintile (Figure 8). This was however from a low base well short of universal levels of participation. In Benin and Burkina Faso, the wealth gradient for accessing schooling became flatter as a result of the poorer 20th to 40th and 40th to 60th quintiles in the wealth distribution increasing access more rapidly than the richest children. In Cameroon, Madagascar and, to a lesser extent in Senegal, the wealth gradient became flatter due to improvements across all

quintiles of the distribution[8]. In Mali and Niger, the main changes in the wealth gradient were as result of the poorest children having increasing access to schooling relative to the richest children.

Figure 8: Marginal effect of wealth on likelihood of not being at school over time in Francophone countries
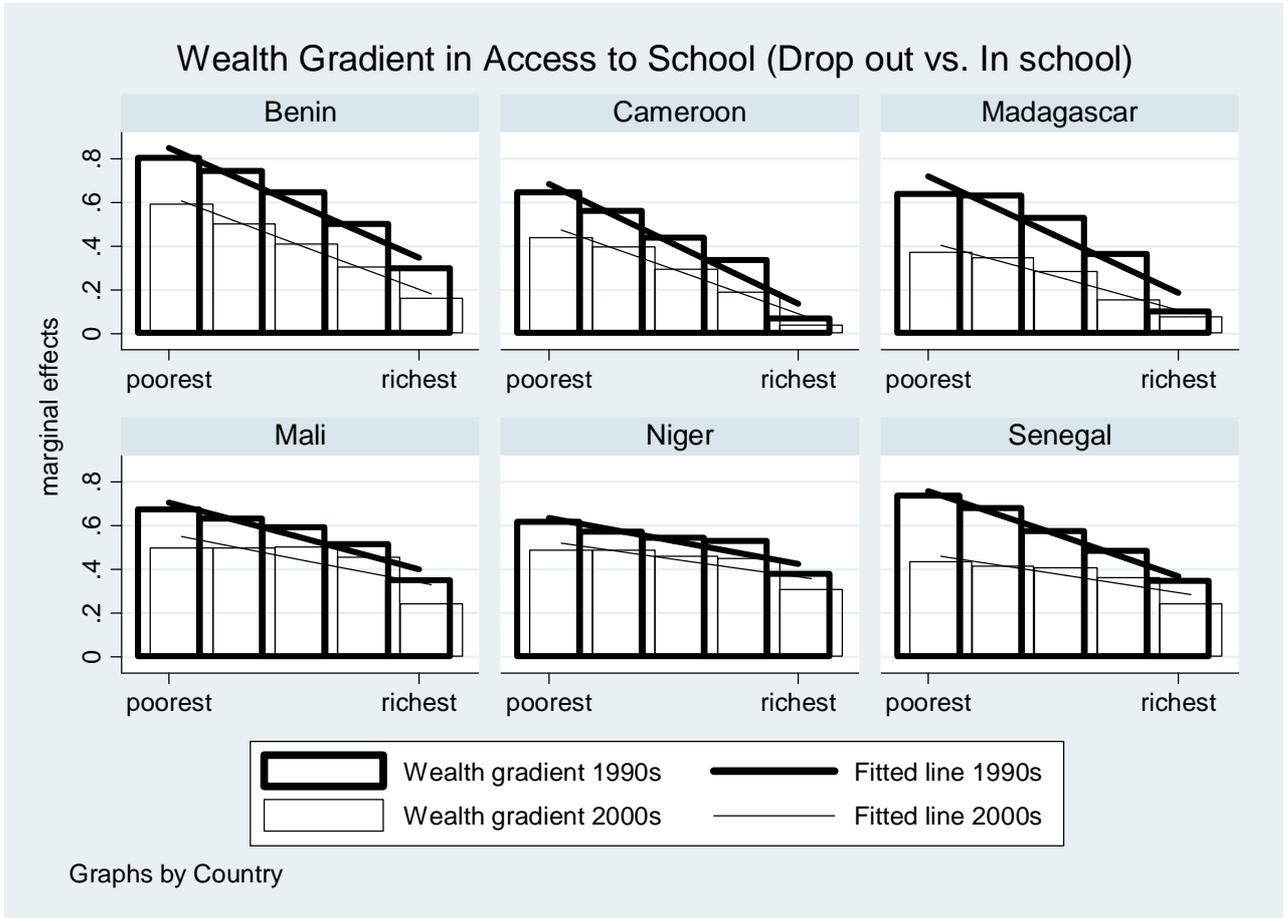
Note: The graph for Burkina Faso is shown in the Appendix as the marginal effects over time were too close to be able to differentiate trends when combined with other countries.

The improvement in the wealth gradient for the poorest children was accompanied by an increase in the likelihood of being over age in school, more so in Anglophone than in Francophone countries. In two Anglophone countries, Malawi and Nigeria, the probability of being over age in school by three or more years has increased over time. That is, children in these countries have a higher probability of being over age by three or more years than a decade or so ago. In Tanzania the situation is different, since all children have a lower probability of being over age by three or more years in 2007 compared with 1996, but the richest children gained much more rapidly. In Kenya, Uganda and Zambia the situation remained almost unchanged (see Figure 9). Therefore, the wealth gradient for over age by three or more years has become steeper in Malawi, Nigeria and Tanzania and remained unchanged in Kenya, Uganda and Zambia.

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[8] In Senegal, statistical differences in interactions between wealth and time were found for all quintiles except for the 60th to 80th quintile of the wealth distribution.

Figure 9: Marginal effect of wealth on likelihood of over age by three or more years at school over time in Anglophone countries
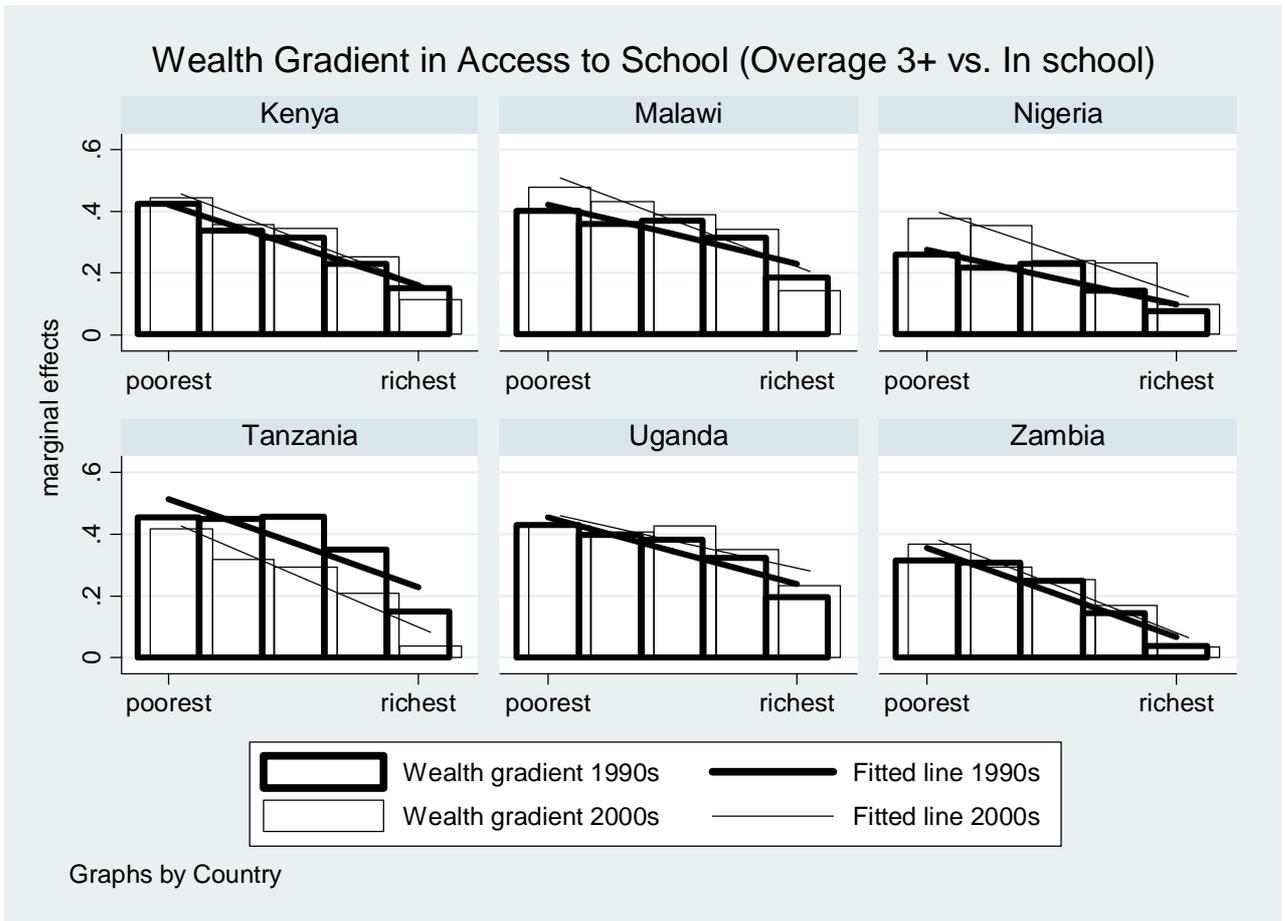
In Francophone countries there is a lower probability of children being over age by three or more years compared with Anglophone countries. This situation has not changed in Cameroon and in particular it has not deteriorated in Burkina Faso, Mali and Niger where the proportion of children over age by three or more years in 1990 was relatively small and remained small a decade later. Hence, Figure 10 shows that the wealth gradient has not changed for these countries. Madagascar saw further improvements as the proportion of children over age by three of more years was reduced and children from the poorest households benefited more than children from the richest households. In fact, in Table A2, in the Annex, all the interactions between wealth and year for Madagascar were statistically significant and with a negative sign, indicating that the initial differences in 1990 were smaller 10 years later. Only in Senegal we found that the situation of over age children by three or more years had deteriorated, not only in 2005 there is a higher probability for children of being over age in school by three or more years, this probability is much higher for children from the poorest households.

**Figure 10: Marginal effect of wealth on likelihood of over age by three or more years at school over time in Francophone countries**
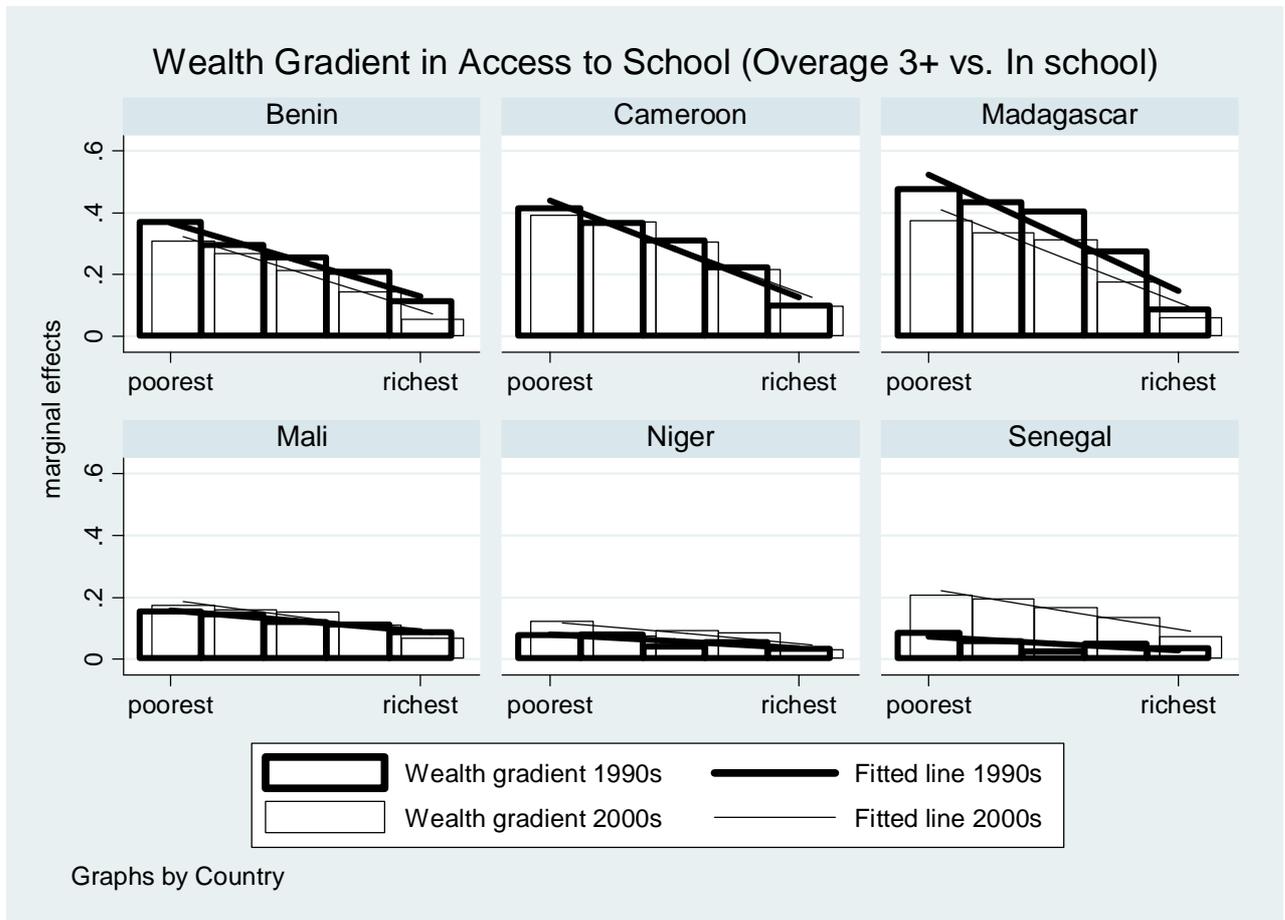
Note: The graph for Burkina Faso is shown in the Appendix as the marginal effects over time were too close to be able to differentiate trends when combined with other countries.

We now turn to the gradient in over age by two years in school by wealth of the household (Figure 11). In Anglophone countries, we found no change over time in the wealth gradient of access and over age by two years in Kenya and Uganda. In the rest of the countries the wealth gradient became steeper (higher inequality). In Malawi, for example, children were more likely to be over age in school by two years in 2004 than in 1992, whereas in Nigeria, children were also more likely to be over age in school in 2003 than in 1990. In Malawi, the slope of the gradient was affected by changes from all wealth groups (as shown by all statistically significant interactions between wealth and year), whereas in Nigeria, the slope of the gradient was affected by the second and fourth wealth quintile. In both cases, the slope of the gradient did not change over time. Finally, Tanzania shows a radical change in the wealth gradient according to over age in school by two years. The gradient in 2007 is steeper than in 1996, with children from the poorest families in 2007 being more likely to be over age by two years than they were in 1996, and children from middle and higher wealth groups showing the opposite result.

Figure 11: Marginal effect of wealth on likelihood of over age by two years at school over time in Anglophone countries
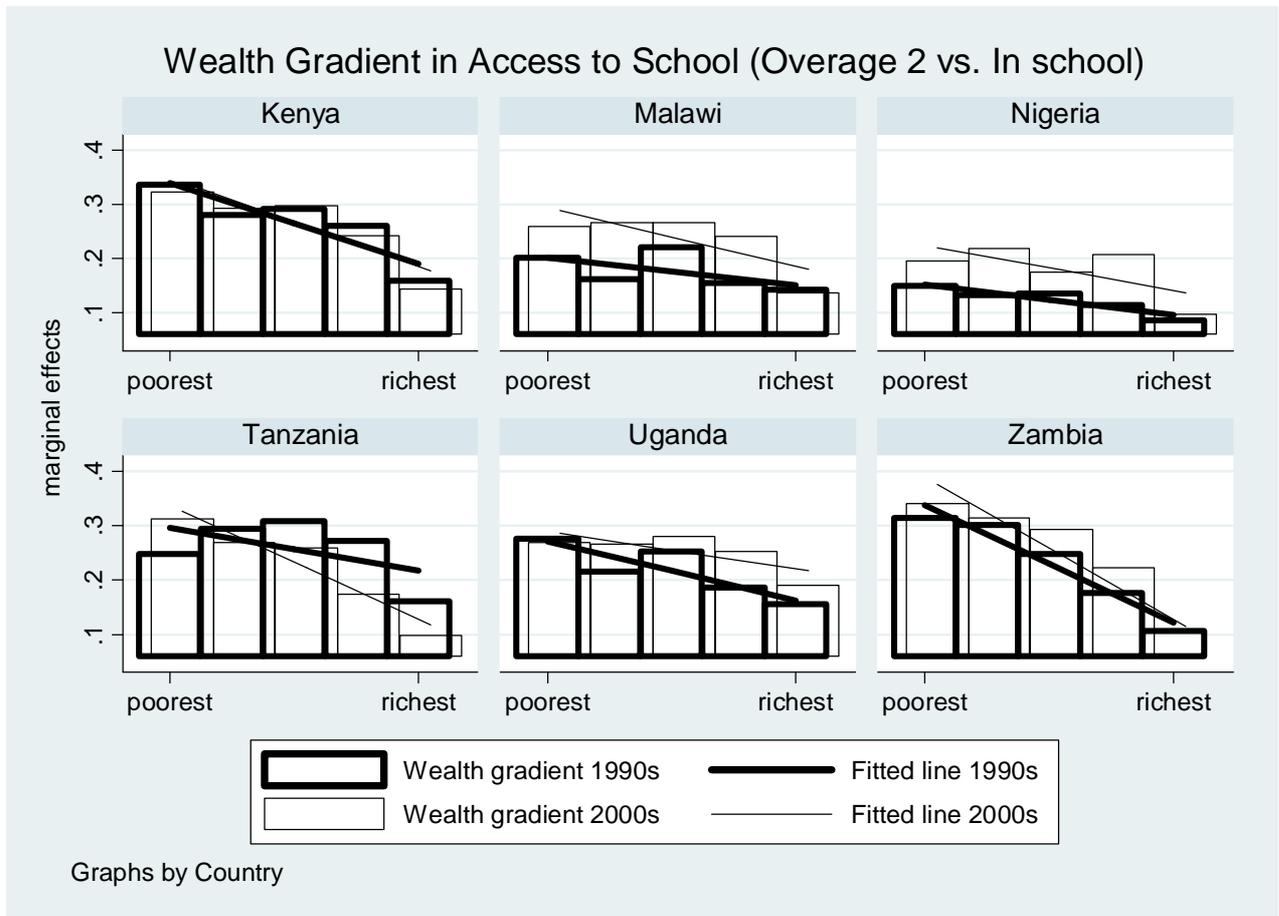
For Francophone countries, the situation is different (Figure 12). Of all countries, only Benin showed an increase in the steepness of the wealth gradient between 1996 and 2006 since children living in the poorest households were more likely to be in school over age by two years relative to children from the richest households in 2006 relative to 1996. In Burkina Faso, Cameroon, Mali, Niger and Senegal the situation has not changed over the last 10 years. Nevertheless, this should not be seen as problematic, as it is in the case of Anglophone countries, since there are a relatively small proportion of children who are over age by two years in school in Francophone countries. In Mali, Niger, Burkina Faso and Senegal less than 10% of the children are over age in school by two years. In Kenya and Uganda, which were the Anglophone countries where we estimated no change in the wealth gradient over time for over age by two years, the proportion of children who were over age by two years was nearly 20%.

In addition, we estimated that children in Madagascar had a lower probability of being over age in school by two years in 2003 relative to 1992. Children from across the whole wealth distribution benefited, more so that children from the richest households in terms of the reduction in over age by two years. As indicated in Table A2, all interactions between wealth and time for over age by two years were statistically significant and with negative sign. In particular, for the poorest children (bottom 20th percentile of the wealth distribution), the initial difference in the likelihood of being in school over age by two years (estimated parameter 1.05) decreased from 1992 to 2003 (estimated parameter of interaction poorest-

time -0.46). For children in the 20th to 40th percentile of the wealth distribution, the initial difference in the likelihood of not accessing school (estimated parameter 0.94) also decreased during this time (estimated parameter of interaction poorer-time -0.58). These results are shown by the flatness of the gradient for Madagascar in Figure 12.

Figure 12: Marginal effect of wealth on likelihood of over age by two years at school over time in Francophone countries
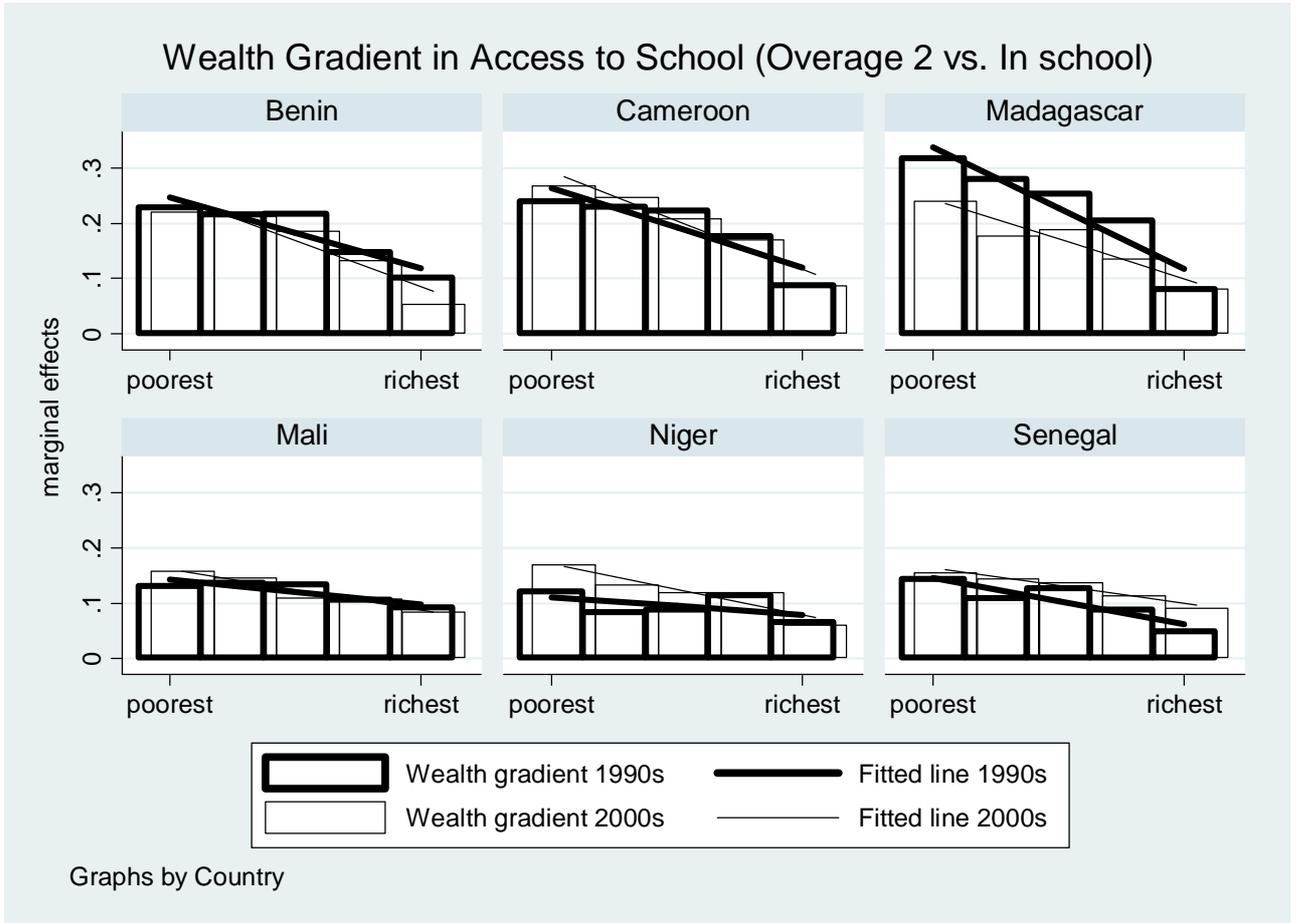

Note: The graph for Burkina Faso is shown in the Appendix as the marginal effects over time were too close to be able to differentiate trends when combined with other countries.

5.4 Conditional differences: access and gender over time; access and location over time

We now turn to progress in access to schooling for boys and girls and in urban and rural areas in Anglophone and Francophone countries. Table 3A and Table 4A in the Annex show results of parameter estimates for gender and location and changes over time[9]. Table 4 and Table 5 shows an estimate of the magnitude for these changes.

5.4.1 Gender

In all Francophone countries, except Madagascar, girls continue to have a greater likelihood of being out of school relative to boys. This result was only found for two Anglophone countries, Nigeria and Uganda. We did not find gender differences in the likelihood of girls being out of school relative to boys in Kenya, Malawi, and Zambia (Anglophone), and in

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[9] Interpretation of the estimated parameters in this table is the same as for wealth groups explained above.

Madagascar (Francophone). In fact, for one Anglophone country, Tanzania, we found that girls were, on average, 7.6% less likely to be out of school relative to boys.

There have been some improvements in terms of access to education for girls in Anglophone and Francophone countries. In two Anglophone countries (Malawi and Uganda) and in five Francophone counties (Benin, Burkina Faso, Mali, Niger and Senegal), the likelihood of girls being out of school has reduced over time. In Malawi, for example, we estimate that girls were 4.6% less likely not to be in school in 2004 than they were in 1992 relative to boys. In Niger, girls were 3.3% less likely not to be in school in in 2006 than they were in 1992 relative to boys. In particular, in the five Francophone countries the changes over time in the likelihood of girls being out of school relative to boys implies that the initial gender differences are being reduced. For the rest of the Anglophone and Francophone countries, gender differences did not change over time.

In terms of over age schooling, we found that, in general, girls are less likely to be over age in school by two years or by three or more years in Anglophone countries – partly because such girls leave the system. In Francophone countries, we did not find large gender differences in the likelihood of being over age in school (again, we did not find a high proportion of the sample being over age in Francophone countries). Zambia is an interesting case. Although girls were 6.5% less likely to be over age by three or more years relative to boys, over time there has been a reduction of this difference by 3.2%, indicating that boys are now closing the gender gap in over age schooling. A similar result was found for two Francophone countires, Niger and Madagascar. In Niger, girls were 4.3% more likely to be over age by two years relative to boys. But, the gender difference has decreased by 5.3% between 1992 and 2006.

Table 4: Estimated partial change for gender and region in Anglophone countries

	Kenya			Malawi			Nigeria		
	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2
Girls	-0.016	-0.087***	-0.033***	-0.007	-0.036*	-0.009	0.098***	0.003	-0.020
Girls*Year	0.020	0.001	-0.018	-0.046***	-0.006	-0.008	0.019	0.020	0.018
Rural	-0.054**	0.031	-0.036	0.079**	0.162***	0.076***	0.018	0.063**	0.014
Rural*Year	0.010	-0.012	0.030	-0.044	-0.041	-0.045	0.065	-0.087**	-0.032
	Tanzania			Uganda			Zambia		
	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2
Girls	-0.076***	-0.096***	-0.035**	0.039***	-0.049***	-0.013	-0.012	-0.065***	-0.019*
Girls*Year	-0.011	0.013	-0.034**	-0.024**	0.017	0.001	0.009	0.032**	-0.003
Rural	0.040	0.064**	0.024	-0.071***	0.109***	0.080***	-0.007	0.063***	0.010
Rural*Year	-0.028	0.001	-0.012	0.161***	0.074***	0.059**	0.021	-0.027	-0.023
Source: DHS. Notes: Estimated partial change.									
Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% level, respectively.									

5.4.2 Location

Finally, we found differences in access to schooling by location between Francophone countries and Anglophone countries. In all Francophone countries we found that children living in rural reas are more likely to be out of school relative to children living in ruban areas. But this was not the case for Anglophone countries. Only in Malawi we found that children living in rural areas were 7.9% more likely to be out of school relative to those living in urban areas. In fact, in two Anglophone countries (Kenya and Uganda) we found that children living in rural areas were less likely to be out of school than those in urban areas and in the rest of these Anglophone countries (Nigeria, Tanzania and Zambia) we did not find significant differences in the likelihood of children being out of school by location.

Four out of the seven Francophone countries (Cameroon, Mali, Niger and Senegal) have seen the initial rural-urban differences reduced over time. In Mali, for instance, children in rural areas were, on average, 17.4 more likely to be out of school relative to children in urban areas. Over time, this average differences decreased by 11.6%. In two Francophone countries, Benin and Madagascar, the average rural-urban differences in access to school have not changed over time and in Burkina Faso, the situation has deteriorated over time. Except Uganda, we found no significant changes in the differences between access to schooling for children living in rural and urban areas in Anglophone countries. In Uganda, children living in rural areas were, on average, 7.1% less likely to be out of school relative to children in urban areas. However, between 1995 and 2006, there was a deterioration in the likelihood of access to school in rural areas, estimated to be 16.1%.

In both Anglophone and Francophone countries, children living in rural areas are more likely to be over age by two years or by three or more years relative to children living in urban areas. We found average differences in over age schooling in Malawi, Nigeria, Tanzania, Uganda and Zambia (Anglophone countries) and in Benin, Burkina Faso, Cameroon, Niger and Senegal (Francophone countries). Over time, however, the situation has only improved in Cameroon (change only significant at 10% level) and Nigeria. In Uganda, we found that the situation of over age in school has deteriorated over time. The average difference of 10.9% gives a higher probability of being over age by three or more years in schooling for children living in rural areas relative to children living in urban areas. This has deteriorated by further 7.4% over time. Similarly, the situation of over age by two years has deteriorated by 5.9% over time.

Table 5: Estimated partial change for gender and region in Francophone countries

	Benin			Burkina Faso			Cameroon		
	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2
Girls	0.261***	-0.006	0.007	0.123***	-0.007	-0.002	0.076***	-0.014	-0.018
Girls*Year	-0.127***	0.006	0.002	-0.048***	0.001	-0.004	-0.014	-0.001	0.019
Rural	0.088***	0.027**	0.006	0.176***	0.021**	0.016*	0.066***	0.071***	0.040***
Rural*Year	-0.029	-0.015	0.007	0.045*	0.014	0.005	-0.057*	-0.114*	-0.093
	Madagascar			Mali			Niger		
	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2
Girls	-0.002	-0.067***	-0.003	0.110***	-0.019	-0.027	0.138***	-0.029	0.043***
Girls*Year	-0.026	0.011	-0.053**	-0.023***	0.024	0.025	-0.033**	0.017	-0.053***
Rural	0.082***	0.024	0.026	0.174***	0.009	-0.022	0.224***	0.060***	0.030*
Rural*Year	-0.045	0.004	-0.003	-0.116***	-0.029	0.021	-0.089***	-0.026	-0.014
	Senegal								
	Out Sch.	OAge3+	OAge2						
Girls	0.129***	-0.042	-0.018						
Girls*Year	-0.099***	0.031	0.02						
Rural	0.226***	0.068***	0.030**						
Rural*Year	-0.083***	-0.021	0.009						

Source: DHS. Notes: Estimated partial change.

Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% level, respectively.

6. Conclusions and Policy Implications

The data we have described and analysed produces a range of conclusions that apply differently to different countries. We can distil some general observations that lead to some tentative conclusions that can be introduced into policy dialogue in these and similar countries. However, in every case the general analysis we have undertaken needs to be supplemented by more robust national data validated in country. It is also of considerable interest to explore data sets which allow regional and district analysis of key parameters that is beyond the scope of this paper. These could point the way to interventions that could be tailored to local circumstances and actions at the community and school level. Some key conclusions are listed below.

First, grade specific participation rates illustrate how widely differentiated the starting points and recent progress are for universalising primary schooling across thirteen SSA countries. We have discussed four main types of enrolment patterns. If we extend the analysis it will become clear that there are other patterns which also need to be taken into account in other groups of countries. These patterns are starting points for understanding what is going wrong with attempts to universalise access and successful completion. They are also a reminder that tomrrows out of school children are todays chidren enrolled but at risk. In all the countries analysed the profile of enrolments by grade shows that most who start do not finish a full cycle of basic education.

Second, there are lessons to be learned from the patterns of changes in enrolment that indicate grade specific enrolment rates has changed little over time and the numbers exiting the system at the end of primary have remained almost constant despite large increases in enrolments in lower grades. Often completers remain a small fraction of the age group. This is the case in Malawi and to a lesser extent Uganda. This stalled progress is unacceptable, especially with the resources that have been made available for EFA. In contrast to this stalled growth Tanzania has made rapid progress towards higher enrolments, albeit from a low base, and these have been accompanied by a reduction in drop out. Time will tell if these gains are sustained, unlike the last time Tanzania approached full enrolment in the 1970s.

Third, age in grade issues are often invisible in policy dialogue yet are central to the sustained achievement of universal access. Not only is it striking that wide age ranges in grades persist, it is also curious that such dispersion is not often linked to discussions that surround curriculum, pedgagogy, learning and cognition. It is even more curious that a clear implication – that monograde pedagogy is ill suited to mixed age classrooms and that multigrade might be – is so little discussed. As noted above no high participation system with good completion rates and high level of achievement on international achievement tests a has high age in grade dispersion. Either dispersion is reduced or multi-grade is mainstreamed.

Fourth, the analysis of age in grade repeatedly shows that age in grade has been increasing more often than decreasing and that the poorest groups have experienced greater increases in age in grade in some countries. Though it might be expected that high rates of expansion were necessarily accompanied by increased ages as over age children are retained in school or attracted back, this should of course be a transient effect. If at a point in time – say 1996 - a commitment is made to UPE whereby all children are encouraged to enter school at 6 years old and repetition is minimised, then by ten years later in 2006 almost all over age children should have exited the system one way or another, This does not seem to have happened. It should.

Fifth, there has been progress closing gaps in participation between boys and girls. These have largely disappeared in the Anglophone data sets but remain in the Francophone countries where girls remain more likely to be out of school. Girls are less likely to be overage in Anglophone countries but not in Francophone, perhaps because more overage children leave prematurely. However there are still large numbers overage with consequences for completion rates. The reasons include the fact that school boarding places are sometimes skewed in favour of boys, distance to school is generally of more significance for female enrolment, rural schools may receive the least motivated and efficient teachers and the fewest female teachers as role models. In some systems on which there is data, girls out enrol boys age for age in grade until they are between 14 and 16 years old. Beyond this in SSA boys almost invariably show more persistence and drop out less. If all girls reached the end of primary and lower secondary on age in grade much of the difference in enrolments currently seen in low enrolment countries would disappear. It is also the case that enrolment differences related to sex in secondary schools in SSA are highly correlated with overall levels of enrolment – most SSA countries with Gross Enrolment Rates over 50% at secondary enrol more girls than boys and most below 50% enrol more boys (Lewin 2008). Fixing age in grade dispersion should have a major impact on partipation and gender equity.

Sixth, urban rural differences remain but the magnitude of these is declining. This is happening alongside high rates of urbanisation in many countries which will ensure that the majority of children are or will soon be urban, and that those living in informal settlements, recent internal urban migrants, and cross border migrants may come to outnumber rural populations. This changes patterns demand for schooling and has implications for kinds of educational exclusion experienced by the urban rather than rural poor.

Seventh, household wealth remains the strongest predictor of never enrolling and being over age in school. This is despite programmes to make primary school fee free in most countries, and widespread experiments with capitation systems to lessen the incentive for schools to raise money from other fees and charges. Compared to the ideal distribution by wealth quintile whereby there should be no difference in participation, actual distributions show there is a long road to travel to achieve equal chances of being enrolled and of not being over age. The programmes of Education for All should have had more impact on the children from the poorest households who are disproportionately excluded from basic education. If EFA, which is explicitly pro-poor, fails to improve the chances of participation of those in the lowest quintiles of household income more than those in the highest, hard questions need to be asked. Universalising access by 2015 is only feasible if the chances of the poorest being enrolled increase faster than those in richer households. It is time that this analytic truth was placed in the foreground of policy dialogue, target setting and EFA implementation strategies.

Some policy implications are suggested by the analysis in this paper. In short they include:

- Encourage age of entry policy at six years (or below where pre-school facilities exist) and offer incentives to enrol children at the correct age.

- Ensure all children have a school identity number that allows their progress to be tracked and monitored. Make sure that every child has a birth certificate and "every child has a birthday" which is known and perhaps celebrated in an appropriate way in

classes. This should help sensitise schools and communities to the importance of age in grade.

- Track grade specific enrolment rates and abandon targets linked to cycle GERs and NERs which often mislead and can fall as well as rise when systems are improving (Lewin, 2011). Establish school level monitoring of progress related to child identity numbers and link to learning support and intervention systems to reduce drop out.

- Set normative expectations for repetition rates and for on age progression. If repetition rises above a maximum level, (say 5%) then expect a curricular and pedagogic response to keep children on track to achieve learning norms for their grade. Where more than, for example, 5% are over age by two years or more, act to reduce age in grade slippage. Provide incentives to increase internal efficiency.

- Make less use of the Gender Parity Index as a measure of unequal participation in favour of grade specific enrolments and completion rates by sex coupled with demographic data (Lewin, 2011) and link these to measures that capture distributional effects and interactions of wealth and gender.

- Where grade specific participation is not improving, and is compromised by high proportions of over age children, undertake analytic studies to establish causes of exclusion and identify reforms that would improve the impact of EFA policy and related investment of resources.

- Discuss and agree objectives and measurable outcomes that would reduce the gaps in participation and attainment of children from different quintiles of household expenditure. Devise and promote targets and indicators that assess changes in equity and distribution of educational access by household wealth. Set targets to reduce wealth gradients in participation. Monitor progress annually.

- Accompany commitments of resources and target setting with pro-poor measures to reduce costs to urban and rural households, provide incentives for attendance especially for girls, and improve quality of schools accessed by the poorest in order to act on both the supply and demand sides of access to basic education for those currently excluded and likely to drop out.

This paper raises important questions about how growth in educational access has been evolving in thirteen countries in SSA. It is important to extend this analysis to include a wider set of countries at risk of not achieveing universal access.

EFA should have resulted in:

- high completion rates with most who start Grade 1 reaching Grade 6 (or in some cases Grade 7 or 8);
- lower proportions of over age children in every grade;
- reductions in gaps in participation by those from poor and richer households;
- the diminution of differences correlated with gender and location.

Too often it appears these expectations have not been met despite commitment of domestic and international resources of magnitude to EFA. This paper profiles how participation has and has not changed and provides an analytic basis for dialogue in context to accelerate progress informed by an understanding of patterns over the last two decades. Achieving universal access, and sustaining it beyond 2015, is only possible if flows of children onto and out of school systems are understood. The MDGs for education cannot be met unless the patterns of particpation identified in this analysis change, and future interventions transform rather than replicate systems that fail to achieve universal levels of initial enrolment at an appropriate age, minimal reptition, negligible drop out, and unacceptable rates of successful completion of the basic education cycle.

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Appendices

Table 1A: Parameter estimates [standard errors] for access to education by wealth, over time, in six Anglophone SSA countries

	Kenya			Malawi			Nigeria			Tanzania			Uganda			Zambia		
	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2
Comparison category (richest group)																		
Poorest quintile	0.985***	0.868***	0.597***	1.391***	0.621***	0.226**	1.109***	0.700***	0.392***	1.070***	0.953***	0.329***	1.037***	0.725***	0.398***	1.655***	1.181***	0.882***
0-20th pctile	[0.081]	[0.081]	[0.082]	[0.129]	[0.115]	[0.112]	[0.145]	[0.125]	[0.132]	[0.126]	[0.139]	[0.126]	[0.089]	[0.088]	[0.097]	[0.145]	[0.158]	[0.131]
Poorer	0.550***	0.603***	0.417***	1.058***	0.507***	0.113	0.935***	0.552***	0.315***	0.922***	0.960***	0.466***	0.920***	0.630***	0.242***	1.416***	1.164***	0.848***
20-40th pctile	[0.079]	[0.078]	[0.079]	[0.122]	[0.129]	[0.112]	[0.125]	[0.111]	[0.115]	[0.116]	[0.132]	[0.120]	[0.082]	[0.081]	[0.089]	[0.135]	[0.151]	[0.119]
Middle	0.392***	0.542***	0.454***	0.886***	0.551***	0.277**	0.758***	0.591***	0.316***	0.887***	0.975***	0.498***	0.706***	0.577***	0.334***	1.205***	0.979***	0.666***
40-60th pctile	[0.077]	[0.076]	[0.074]	[0.117]	[0.109]	[0.117]	[0.114]	[0.109]	[0.103]	[0.119]	[0.127]	[0.112]	[0.080]	[0.078]	[0.086]	[0.129]	[0.144]	[0.110]
Richer	0.103	0.285***	0.340***	0.536***	0.401***	0.08	0.384***	0.298***	0.187**	0.625***	0.698***	0.396***	0.442***	0.395***	0.142*	0.811***	0.579***	0.386***
60-80th pctile	[0.078]	[0.078]	[0.075]	[0.094]	[0.108]	[0.096]	[0.101]	[0.088]	[0.093]	[0.099]	[0.123]	[0.105]	[0.077]	[0.075]	[0.084]	[0.104]	[0.130]	[0.097]
Year	-0.782***	-0.084	-0.127	-0.660***	-0.485***	-0.221**	-1.390***	0.018	-0.09	-1.551***	-1.793***	-1.173***	-1.435***	-0.387***	-0.158*	-0.477***	-0.282*	-0.454***
	[0.110]	[0.105]	[0.102]	[0.155]	[0.125]	[0.104]	[0.177]	[0.149]	[0.130]	[0.123]	[0.139]	[0.111]	[0.107]	[0.087]	[0.091]	[0.127]	[0.157]	[0.125]
Poorest*Year	0.136	0.240*	0.024	-0.304*	0.463***	0.294**	0.506**	0.392**	0.222	0.19	0.526***	0.614***	0.080	-0.066	-0.113	-0.429**	0.316	0.365**
	[0.145]	[0.137]	[0.130]	[0.164]	[0.136]	[0.129]	[0.240]	[0.191]	[0.188]	[0.171]	[0.198]	[0.166]	[0.128]	[0.113]	[0.124]	[0.204]	[0.217]	[0.183]
Poorer*Year	-0.096	0.225*	0.128	-0.144	0.430***	0.405***	0.529***	0.455**	0.354**	-0.004	0.14	0.297*	-0.219*	-0.043	0.025	-0.351*	0.012	0.286
	[0.147]	[0.134]	[0.125]	[0.157]	[0.147]	[0.131]	[0.201]	[0.181]	[0.165]	[0.164]	[0.188]	[0.151]	[0.122]	[0.104]	[0.114]	[0.194]	[0.206]	[0.178]
Middle*Year	0.017	0.266**	0.096	-0.177	0.254**	0.243*	0.268	0.013	0.134	-0.257	-0.002	0.203	-0.053	0.078	-0.023	-0.338*	0.085	0.395**
	[0.146]	[0.132]	[0.122]	[0.151]	[0.126]	[0.132]	[0.208]	[0.156]	[0.158]	[0.165]	[0.184]	[0.145]	[0.120]	[0.100]	[0.110]	[0.178]	[0.195]	[0.166]
Richer*Year	0.048	0.208	0.021	-0.017	0.256**	0.339***	0.185	0.284*	0.373**	-0.341**	-0.015	-0.057	-0.111	-0.006	0.083	-0.123	0.156	0.392**
	[0.143]	[0.130]	[0.119]	[0.137]	[0.127]	[0.117]	[0.175]	[0.146]	[0.146]	[0.145]	[0.180]	[0.139]	[0.118]	[0.096]	[0.105]	[0.155]	[0.180]	[0.162]

Source: DHS. Notes: Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% level, respectively. All estimations control for region, gender, rural areas and household characteristics. Estimations weighted and adjusted for survey design. Comparison outcome: In school at appropriate age-in-grade.

Table 2A: Parameter estimates [standard errors] for access to education by wealth, over time, in seven Francophone SSA countries

	Benin			Burkina Faso			Cameroon			Madagascar			Mali			Niger			Senegal		
	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2
Comparison category (richest group)																					
Poorest quintile	1.958***	0.937***	0.702***	1.401***	0.358*	0.483***	2.122***	1.119***	0.775***	1.967***	1.389***	1.054***	1.845***	0.473***	0.376***	1.577***	0.505**	0.476**	1.765***	0.503***	0.636***
0-20th pctile	[0.096]	[0.114]	[0.125]	[0.101]	[0.216]	[0.186]	[0.117]	[0.109]	[0.121]	[0.104]	[0.110]	[0.121]	[0.086]	[0.132]	[0.131]	[0.115]	[0.225]	[0.195]	[0.095]	[0.168]	[0.154]
Poorer	1.639***	0.767***	0.651***	1.428***	0.077	0.624***	1.755***	0.995***	0.702***	1.953***	1.274***	0.941***	1.507***	0.378***	0.317***	1.196***	0.479**	0.291	1.431***	0.313**	0.460***
20-40th pctile	[0.090]	[0.105]	[0.114]	[0.094]	[0.226]	[0.166]	[0.109]	[0.100]	[0.110]	[0.103]	[0.109]	[0.120]	[0.075]	[0.111]	[0.113]	[0.106]	[0.207]	[0.181]	[0.088]	[0.159]	[0.142]
Middle	1.190***	0.623***	0.621***	1.200***	0.274	0.726***	1.348***	0.820***	0.650***	1.495***	1.181***	0.838***	1.220***	0.285***	0.274***	0.996***	0.229	0.271	0.905***	0.128	0.477***
40-60th pctile	[0.083]	[0.099]	[0.104]	[0.096]	[0.204]	[0.160]	[0.109]	[0.097]	[0.103]	[0.101]	[0.105]	[0.116]	[0.070]	[0.100]	[0.101]	[0.102]	[0.204]	[0.171]	[0.074]	[0.133]	[0.113]
Richer	0.673***	0.432***	0.318***	0.728***	0.231	0.344**	0.969***	0.494***	0.454***	0.905***	0.750***	0.618***	0.754***	0.192**	0.136	0.936***	0.292**	0.356***	0.522***	0.16	0.260**
60-80th pctile	[0.077]	[0.090]	[0.095]	[0.081]	[0.166]	[0.140]	[0.107]	[0.096]	[0.100]	[0.092]	[0.094]	[0.101]	[0.061]	[0.088]	[0.086]	[0.076]	[0.147]	[0.114]	[0.073]	[0.126]	[0.114]
Year	-0.636***	-0.906***	-0.801***	-0.11	-0.226	-0.055	-0.173	-0.069	-0.154	0.643***	0.439***	0.533***	-0.283***	-0.311***	-0.245**	-0.154**	-0.135	-0.014	-0.021	0.266**	0.288***
	[0.074]	[0.087]	[0.091]	[0.072]	[0.146]	[0.111]	[0.116]	[0.090]	[0.094]	[0.112]	[0.131]	[0.127]	[0.080]	[0.104]	[0.098]	[0.073]	[0.124]	[0.104]	[0.079]	[0.113]	[0.109]
Poorest*Year	-0.079	0.189	0.254*	0.039	0.202	-0.001	-0.841***	-0.052	0.072	-0.892***	-0.337*	-0.459**	-0.311**	0.186	0.114	-0.296**	0.229	0.195	-0.726***	0.192	-0.257
	[0.108]	[0.132]	[0.142]	[0.128]	[0.272]	[0.229]	[0.147]	[0.132]	[0.144]	[0.158]	[0.177]	[0.190]	[0.125]	[0.185]	[0.167]	[0.142]	[0.263]	[0.233]	[0.119]	[0.192]	[0.178]
Poorer*Year	-0.205**	0.246**	0.240*	-0.297**	0.252	-0.3	-0.546***	0.032	0.078	-0.992***	-0.326*	-0.581***	-0.144	0.198	0.099	-0.072	0.001	0.223	-0.585***	0.325*	-0.109
	[0.102]	[0.122]	[0.130]	[0.121]	[0.272]	[0.211]	[0.140]	[0.123]	[0.132]	[0.155]	[0.174]	[0.183]	[0.117]	[0.168]	[0.153]	[0.135]	[0.250]	[0.224]	[0.111]	[0.181]	[0.165]
Middle*Year	-0.197**	0.145	0.104	-0.300**	0.144	-0.322	-0.511***	-0.01	-0.041	-0.780***	-0.286*	-0.378**	0.053	0.267*	-0.017	-0.064	0.301	0.158	-0.236**	0.379**	-0.186
	[0.095]	[0.116]	[0.121]	[0.119]	[0.247]	[0.200]	[0.139]	[0.117]	[0.123]	[0.152]	[0.164]	[0.176]	[0.114]	[0.158]	[0.143]	[0.131]	[0.249]	[0.214]	[0.100]	[0.158]	[0.138]
Richer*Year	-0.122	0.011	0.136	-0.003	0.041	-0.061	-0.500***	0.004	-0.027	-0.644***	-0.348**	-0.382**	0.201*	0.115	0.08	-0.057	0.189	0.063	-0.083	0.187	-0.092
	[0.089]	[0.107]	[0.112]	[0.108]	[0.223]	[0.183]	[0.139]	[0.116]	[0.119]	[0.142]	[0.152]	[0.156]	[0.113]	[0.163]	[0.128]	[0.107]	[0.193]	[0.161]	[0.102]	[0.155]	[0.144]

Source: DHS. Notes: Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% level, respectively. All estimations control for region, gender,

rural areas and household characteristics. Estimations weighted and adjusted for survey design. Comparison outcome: In school at appropriate age-in-grade.

Table 3A: Parameter estimates [standard errors] for access to education by gender and area, over time, in six Anglophone SSA countries

	Kenya			Malawi			Nigeria			Tanzania			Uganda			Zambia		
	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2
Girls	-0.052	-0.270***	-0.118***	-0.004	-0.101*	-0.022	0.332***	0.018	-0.059	-0.228***	-0.341***	-0.116**	0.145***	-0.171***	-0.045	-0.038	-0.312***	-0.093*
	[0.042]	[0.041]	[0.043]	[0.054]	[0.056]	[0.062]	[0.051]	[0.051]	[0.055]	[0.048]	[0.050]	[0.056]	[0.046]	[0.046]	[0.051]	[0.042]	[0.050]	[0.049]
Girls*Year	0.019	-0.020	-0.050	-0.171***	-0.031	-0.037	0.059	0.080	0.074	-0.070	-0.017	-0.185**	-0.132**	0.068	0.004	0.024	0.155**	-0.004
	[0.069]	[0.061]	[0.063]	[0.066]	[0.066]	[0.072]	[0.075]	[0.081]	[0.080]	[0.070]	[0.075]	[0.077]	[0.063]	[0.058]	[0.064]	[0.068]	[0.074]	[0.070]
Rural	-0.182**	0.045	-0.126	0.251**	0.508***	0.302***	0.115	0.241**	0.070	0.162	0.245**	0.077	-0.185***	0.317***	0.264***	-0.042	0.314***	0.046
	[0.091]	[0.090]	[0.091]	[0.110]	[0.101]	[0.084]	[0.112]	[0.109]	[0.088]	[0.109]	[0.107]	[0.101]	[0.066]	[0.065]	[0.071]	[0.105]	[0.114]	[0.086]
Rural*Year	0.039	-0.010	0.108	-0.067	-0.082	-0.160	0.170	-0.358**	-0.138	-0.110	0.002	-0.026	0.543***	0.271***	0.225**	0.081	-0.136	-0.100
	[0.127]	[0.123]	[0.117]	[0.166]	[0.139]	[0.109]	[0.171]	[0.147]	[0.126]	[0.156]	[0.163]	[0.137]	[0.115]	[0.097]	[0.103]	[0.151]	[0.155]	[0.128]
Year	-0.782***	-0.084	-0.127	-0.660***	-0.485***	-0.221**	-1.390***	0.018	-0.090	-1.551***	-1.793***	-1.173***	-1.435***	-0.387***	-0.158*	-0.477***	-0.282*	-0.454***
	[0.110]	[0.105]	[0.102]	[0.155]	[0.125]	[0.104]	[0.177]	[0.149]	[0.130]	[0.123]	[0.139]	[0.111]	[0.107]	[0.087]	[0.091]	[0.127]	[0.157]	[0.125]

Source: DHS. Notes: Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% level, respectively. All estimations control for region, gender, rural areas and household characteristics. Estimations weighted and adjusted for survey design. Comparison outcome: In school at appropriate age-in-grade.


Table 4A: Parameter estimates [standard errors] for access to education by gender and area, over time, in seven Francophone SSA countries

	Benin			Burkina Faso			Cameroon			Madagascar			Mali			Niger			Senegal		
	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2	Out Sch.	OAge3+	OAge2
Girls	0.915***	0.002	0.101	0.557***	0.006	0.068	0.338***	-0.068	-0.085	-0.020	-0.219***	-0.023	0.468***	-0.042	-0.057	0.693***	-0.076	0.299***	0.470***	-0.117	-0.017
	[0.050]	[0.060]	[0.065]	[0.048]	[0.106]	[0.082]	[0.060]	[0.062]	[0.067]	[0.047]	[0.055]	[0.059]	[0.041]	[0.060]	[0.062]	[0.055]	[0.109]	[0.090]	[0.047]	[0.086]	[0.075]
Girls*Year	-0.461***	0.049	0.000	-0.204***	-0.006	-0.059	-0.089	-0.009	0.085	-0.094	-0.005	-0.221**	-0.114**	0.112	0.095	-0.154**	0.074	-0.301***	-0.360***	0.060	0.033
	[0.056]	[0.068]	[0.072]	[0.061]	[0.135]	[0.107]	[0.074]	[0.073]	[0.079]	[0.075]	[0.083]	[0.089]	[0.057]	[0.083]	[0.081]	[0.068]	[0.129]	[0.110]	[0.059]	[0.097]	[0.088]
Rural	0.298***	0.151**	0.049	0.712***	0.385**	0.228*	0.249***	0.273***	0.192***	0.278***	0.110	0.122	0.683***	0.109	-0.022	0.970***	0.486***	0.252*	0.816***	0.421***	0.235**
	[0.060]	[0.071]	[0.077]	[0.076]	[0.155]	[0.132]	[0.060]	[0.052]	[0.055]	[0.068]	[0.074]	[0.081]	[0.055]	[0.077]	[0.078]	[0.080]	[0.149]	[0.132]	[0.061]	[0.108]	[0.094]
Rural*Year	-0.100	-0.101	0.015	0.195*	0.203	0.093	-0.194***	-0.074*	-0.029	-0.121	0.000	-0.031	-0.489***	-0.173	0.033	-0.467***	-0.129	-0.080	-0.314***	-0.157	-0.011
	[0.067]	[0.081]	[0.086]	[0.101]	[0.206]	[0.169]	[0.054]	[0.044]	[0.048]	[0.097]	[0.103]	[0.104]	[0.085]	[0.120]	[0.104]	[0.103]	[0.187]	[0.166]	[0.076]	[0.123]	[0.109]
Year	-0.636***	-0.906***	-0.801***	-0.110	-0.226	-0.055	-0.173	-0.069	-0.154	0.643***	0.439***	0.533***	-0.283***	-0.311***	-0.245**	-0.154**	-0.135	-0.014	-0.021	0.266**	0.288***
	[0.074]	[0.087]	[0.091]	[0.072]	[0.146]	[0.111]	[0.116]	[0.090]	[0.094]	[0.112]	[0.131]	[0.127]	[0.080]	[0.104]	[0.098]	[0.073]	[0.124]	[0.104]	[0.079]	[0.113]	[0.109]

Source: DHS. Notes: Asterisks *, **, ***, represents statistical significance at 10, 5 and 1% level, respectively. All estimations control for region, gender, rural areas and household characteristics. Estimations weighted and adjusted for survey design. Comparison outcome: In school at appropriate age-in-grade.

Figure A1: Marginal effects of wealth on likelihood of school access in Burkina Faso

Wealth Gradient in Access to School (Drop out vs. In school)

Wealth Gradient in Access to School (Overage 3+ vs. In school)

Wealth Gradient in Access to School (Overage 2 vs. In school)

Create
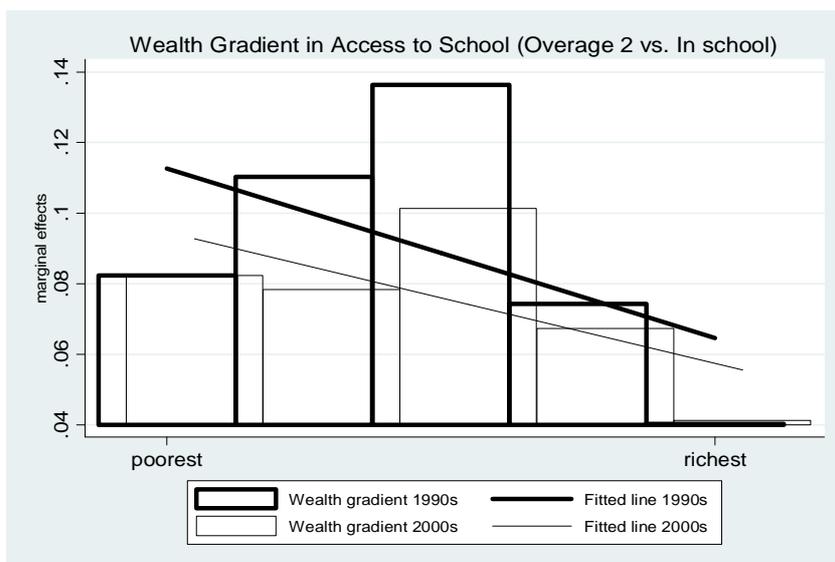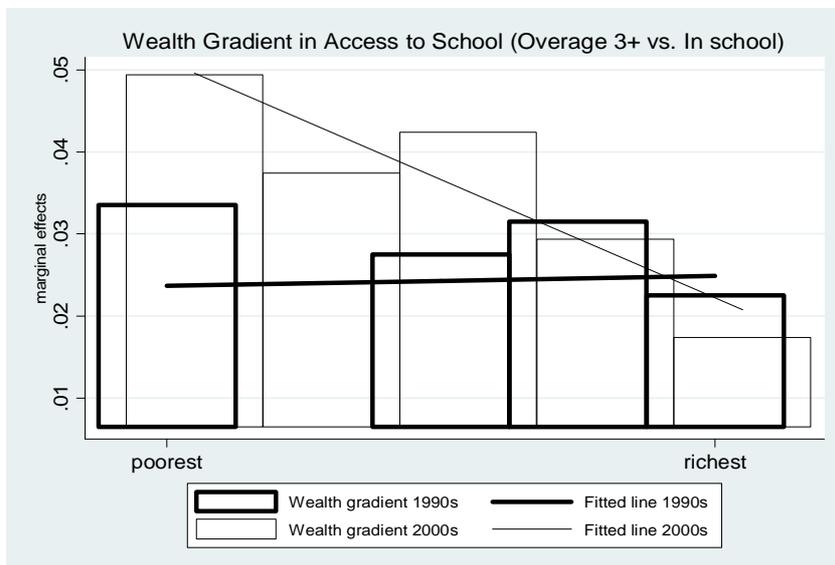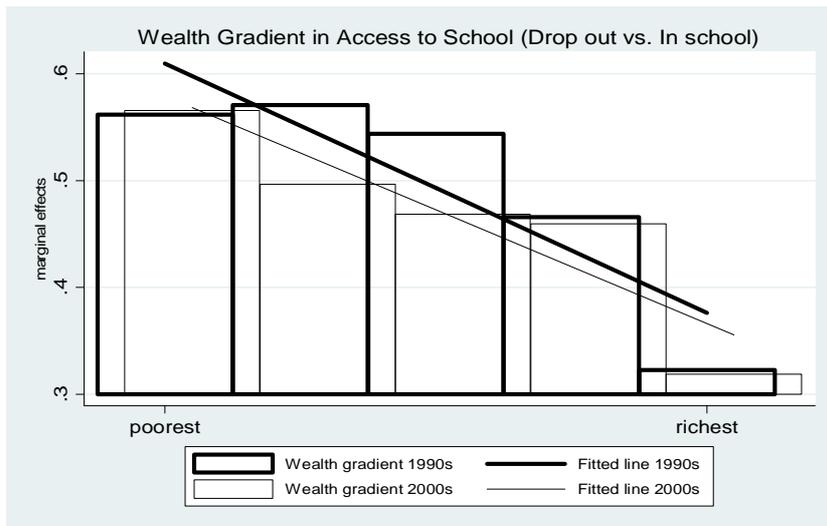
Consortium for Research on Educational Access, Transitions & Equity

Funded by DFID

Report summary:

This paper explores patterns of growth in participation in six Anglophone and seven Francophone countries in SSA. The countries are Kenya, Malawi, Nigeria, Tanzania, Uganda, Zambia, Benin, Burkina Faso, Cameroon, Madagascar, Mali, Niger and Senegal. These countries all have large scale Universal Primary Education programmes and all have demographic and health survey (DHS) data sets collected at least ten years apart. These allow comparisons over time to see how participation has been changing. The results show that progress has been patchy and sometimes disappointing. Access remains strongly associated with household wealth despite commitments to pro-poor policies. The chances of the poorest being enrolled relative to the richest have generally not improved substantially, and in some cases have deteriorated. Reductions in numbers of out of school children have in some cases been accompanied by increases in the proportion over age. Poorer children and rural children are more likely to be over age and unlikely to complete schooling, especially if they are girls. The message is clear. Though there has been progress, it falls far short of the gains that were anticipated. Much more progress is needed to achieve universal access with equity and to close the gap between the poorer and richer households.

Keywords: Educational Access, Wealth, Inequality, Over age, Basic Education, Participation, SSA.

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Professor Keith Lewin is Director of the Centre for International Education at the University of Sussex and Director of the CREATE research partnership. He has extensive experience of school systems in Sub-Saharan Africa, South and South East Asia, and China, has published 18 books and over 100 scholarly articles and chapters, and has supervised 40 D Phil students. He has worked extensively with the International Institute of Educational Planning, and with the World Bank, DFID, DSE/GTZ, UNICEF, and UNESCO and with many national governments. Keith made invited contributions to the world education conferences at Jomtien and Dakar, and has subsequently been directly involved in national sector development planning in Uganda, Tanzania and Rwanda, and in India supporting DFID's bilateral programmes. His research interests include the economics of education and educational financing, educational policy and planning for EFA, teacher education, educational innovation and implementation, science education policy, assessment, and aid to education.

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