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The hidden crisis: Armed conflict and education

How do violent conflicts affect school enrolment? Analysis of sub-national evidence from 19 countries

Education Policy and Data Center

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Education for All Global Monitoring Report 2011

How do violent conflicts affect school enrolment? Analysis of sub-national evidence from 19 countries.

Author: Education Policy and Data Center¹

1. Background

The Education for All Global Monitoring Report (GMR) annually assesses progress towards the achievement of the six goals of Education for All agreed at the World Education Forum in Dakar in 2000. The Report aims to inform and influence education and aid policy through an authoritative, evidence-based review of progress and a balanced analysis of critical challenges facing countries. It is the result of a broad research exercise, including gathering evidence from background papers prepared by researchers and institutes around the world.

The 2011 EFA Global Monitoring Report focuses on how violent conflict affects education goals and how education affects conflict. This study contributes to the report by analyzing, at the sub-national level, the impact of armed conflict on education systems. The study compares patterns in primary school participation at the provincial, state, or regional level in 19 countries identified as having been or still being affected by conflict. In particular, the study investigates whether it is possible to develop a model of attendance rate changes in conflict areas to anticipate attendance changes when new conflicts occur. The study presents the following findings: 1) on average, attendance rates are lower in conflict areas than in peaceful areas, but the range of differences is broad, and it is not possible to establish whether the differences are caused by the conflict; 2) the *trends* in attendance over a period of conflict (pre-, during, and post-) do not show that conflict areas experience weaker attendance growth/greater declines; 3) the weak relationship between schooling and conflict holds true for primary and secondary attendance and pupil teacher ratios; 4) there are various factors that explain why a schooling-conflict relationship might remain unobserved with the data used for this study.

2. Summary of Findings

23 countries were initially selected for the study based on the criterion of having at least one region affected by conflict presently or in the recent past. Four countries had to be dropped from the study because sub-national data on school enrolment and attendance are available for 19 of these countries.

Twelve of the 19 countries included in the study were identified as currently (in 2010) experiencing conflict – Afghanistan, Chad, Colombia, the Democratic Republic of the Congo, Iraq, Myanmar, Pakistan, Philippines, Rwanda, Somalia, Sudan, and Uganda. In total, 7.9 million children are out of school in the conflict affected areas of these 12 countries. Two of the twelve countries, Iraq and Somalia, were considered entirely in conflict with no peaceful regions identified. In the remaining

¹ www.epdc.org. Contributors to this paper are: Ania Chaluda, Ben Sylla, Peifeng Yan, Annababette Wils

10 countries, **weighted net attendance rates for primary schools are on average 11 percentage points lower in conflict areas than in non-conflict regions, but with a broad range.**

In addition, in these 10 countries, **the lower the overall attendance rates in the country, the greater the difference between attendance in conflict and non-conflict areas.** The greatest relative difference between conflict and non-conflict regions was in Chad, the country with the lowest overall attendance rates. In Chad, primary school gross attendance was 3.7 times higher in non-conflict regions than in conflict affected regions. At the other extreme, there are almost no attendance differentials between the conflict and non-conflict regions in Rwanda, Uganda, the Philippines and Colombia (all countries with high primary attendance rates). **This suggests – possibly – that regions in countries that already have a weak school attendance pattern are more vulnerable to attendance declines when conflicts erupt.** However, the evidence available for this paper did not allow us to test this hypothesis. A simple time-shot showing a differential does not indicate whether the lower attendance rates are due to the conflict itself, or whether lower attendance rates are indicative of a broader, underlying cause that mediates conflict.

An analysis of time series data – which covered all 19 conflict affected countries -- shows no strong evidence that primary attendance rates, enrollment rates, pupil numbers, and pupil teacher ratios decline dramatically in conflict areas as compared to non-conflict regions.

Even though the time series data in this study don't show a strong negative correlation between violent conflict and the provision of education, it is still possible that there is an *unobserved* relationship. An unobserved conflict-attendance relationship may exist if:

- The data lack sufficient detail, omits regions of conflict, or is not comparable over time.
- The concept of conflict is specified too broadly and overlooks particular qualities of conflict that have an important effect on education.
- The conflict affects education indicators not measured by the data, such as absenteeism, attentiveness in class, and learning.
- Regions identified as “peaceful” are also directly or indirectly affected by conflict and therefore, are not appropriate control groups for measuring the effect of conflict on participation.

The study is organized as follows. The data sources are discussed below including considerations of why the data may miss the effects of conflict on education. This is followed by an analysis of attendance rates in conflict vs. non-conflict areas in countries currently experiencing conflict; an analysis of time series data for a larger group of countries that have been affected by conflict at some point between 2000 and 2010; rate of change in the number of pupils enrolled in primary, primary school pupil-teacher ratios, and secondary school gross attendance rates. Final recommendations for further avenues of research that may succeed in measuring the effects of violent conflict on education are included in the last section.

3. Conflict Data

The Global Monitoring Report team identified 23 countries in which one or more subnational entities had been affected by violent conflict at some point between the years 1998 and 2010. The EPDC obtained sub-national enrollment or attendance data for 19 of these countries (sub-national

data were not available for the Palestinian Autonomous Territories, Sri Lanka, Timor-Leste, and Yemen). Sub-national education patterns were analyzed in these 19 countries. The data sources are gross and net attendance rates (GAR and NAR) calculated from 37 household surveys; and data from national administrative systems for pupil enrolment, teachers and classroom ratios.

In some cases, the sub-national entities used in this study correspond to nationally-designated state or province boundaries; in other cases, they correspond to groupings of states or provinces. In either case, EPDC refers to sub-national entities as 'regions'. For Indonesia, Philippines, and Uganda, the sub-national units used to delineate areas of conflict did not correspond with the sub-national units for which education data were available (for example, conflict data were aggregated at the province level and education data were aggregated at a broader 'region' level). In these cases, the sub-national conflict regions were mapped to the corresponding sub-national regions in the education data.

Information on the conflicts investigated in this study is provided in Table 1.

Table 1 List of conflicts analyzed in this study

Country	Areas experiencing violent conflict	Areas not experiencing violent conflict	Duration of conflict
Afghanistan	Helmand, Kandahar, Khost	Badakhshan, Baglan, Balkh, Bamyan, Farah, Faryab, Ghazni, Ghor, Herat, Jawzjan, Kabul, Kabul City, Kapisa, Koarha, Kunduz, Lagman, Logar, Nangahar, Nimroz, Nooristan, Paktika, Parwan, Raktia, Samangan, Sar-i-Pol, Takhar, Wardak, Warozgan, Zabul	2003 – Present
Burundi	Buja Rural, Bubanza, Cibitoke	Bururi, Cankuzo, Gitega, Karuzi, Kayanza, Kirundo, Mairie de Bujumbura, Makamba, Muramvya, Muyinga, Mwaro, Ngozi, Rutana, Ruyigi, Nord, Ouest	1994 - 2006
Central African Republic	Vakaga, Ouham, Ouham-Pende	Bamingui-Bangoran, Bangui, Basse-Kotto, Haute-Kotto, Haut-Mbomou, Kmo, Lobaye, Mambr-Kadei, Mbomou, Nana-Grebizi, Nana-Mambere, Ombella-M'poko, Ouaka, Sangha-Mbaere	2001 - 2006
Chad	Ouddai, Autres Villes	B. E. T., Bar Azoum, Centre Est, Chari Baguirmi, Logone Occidental, Mayo Kebbi, Moyen Chari, N'Djamna	1997 - Present
Colombia	Caqueta, Meta, Arauca	Atlantica, Bogota, Pacifica, Amazonas, Antioquia, Bolivar, Boyaca, Caldas, Casanare, Cauca, Cesar, Choco, Cordoba, Cundinamarca, Guainia, Guaviare, Huila, La Guajira, Magdalena, Narino, Norte Santander, Putumayo, Quindio, Risaralda, San Andres, Santander, Sucre, Tolima, Valle del Cauca, Vaupes, Vichada	1964 - Present
Congo, Dem. Rep.	Nord-Kivu, Sud-Kivu, Orientale, Katanga	Bandundu, Bas-congo, Equateur, Kasai Occidental, Kasai Oriental, Kinshasa, Maniema	1996 - Present
Côte d'Ivoire	Nord	Abidjan, Centre, Centre Est, Centre Nord, Centre Ouest, Nord Est, Nord Ouest, Ouest, Sud, Sud Ouest	2002 - 2004
Ethiopia	Oromia, Tigray, Somali	Addis Ababa, Afar, Amhara, Benishangul-Gumuz, Dire Dawa, Gambela, Harari	

Country	Areas experiencing violent conflict	Areas not experiencing violent conflict	Duration of conflict
Indonesia	Papua, Irian Jaya, Aceh, North Sumatra, South Sumatra, Riau, Jambi, West Sumatra, Bengkulu, Lampung	Bali, Bangka Belitung, Banten, Central Java, Central Kalimantan, Central Sulawesi, DI Yogyakarta, DKI Jakarta, East Java, East Kalimantan, East Nusa Tenggara, Gorontalo, North Sulawesi, South Kalimantan, South Sulawesi, Southeast Sulawesi, West Java, West Kalimantan, West Nusa Tenggara, Maluku, North Maluku, Riau Islands, West Irian Jaya, West Sulawesi, Java, Kalimantan, Nusa Tenggara, Sulawesi	1999 - 2005
Iraq	Generalized Conflict		2004 - Present
Liberia	Montserrado, Lofa, Bomi	Bong, Grand Bassa, Grand Cape Mount, Grand Gedeh, Grand Kru, Greater Monrovia, Margibi, Maryland, Nimba, River Cess, River Gee, Sinoe	2000 - 2003
Myanmar	Northern Shan, Southern Shan, Eastern Shan, Kayin	Ayeyarwady, Bago, Chin, Kachin, Kayah, Magwe, Mandalay, Mon, Sagaing, Tanintharyi, Yakhine, Yangon	1948 - Present
Pakistan	NWFP, Balochistan	Azad Kashmir, Northern Areas, Punjab, Sindh	2004- Present
Philippines	ARMM, Caraga, Northern Mindanao, Zaboanga Peninsula, Davao, Soccsksargen	Bicol, Cagayan Valley, Calarbazon, Central Luzon, Central Visayas, Cordillera Admin Region, Eastern Visayas, Ilocos, Mimaropa, National Capital Region, Western Visayas	1970 - Present
Rwanda	Gisenyi, Cyangugu	Butare, Byumba, Gikongoro, Gitarama, Kibungo, Kibuye, Kigali-Rural, Kigali-ville, Ruhengeri, Umutara	1990 - 1994
Senegal	Ziguinchor	Dakar, Diourbel, Fatick, Kaolack, Kolda, Louga, Matam, Saint Louis, Tambacounda, Thies, Tamba	1990 - 2003
Sierra Leone	North, East, South	West	1991 - 2000
Somalia	Generalized Conflict		1978 - Present
Sudan	Central Equatoria, Eastern Equatoria, Western Equatoria	Al-Gadarif, Al-Gazira, Blue Nile, Juba town, Kassala, Khartoum, Malakal town, North, Northern Kordufan, Red Sea, River Nile, Sinnar, Southern Kordufan, Wau town, Western Kordufan, White Nile, Jonglei, Unity, Upper Nile, Lakes, Warrap, Western Bahr El Ghazal, Northern BahrEl Ghazal	1983 - Present
Uganda	Northern, Western	Central, Eastern	1994 - Present


Table 2 maps school attendance data on the periods of conflict for each country: pink bars indicate the duration of conflict in country; text acronyms indicate available attendance rate data and the family of household surveys from which they were calculated; black dots indicate sub-national gross enrollment rates available from a national administrative source. The 'notes' column indicates cases when data are not comparable because the data sources use different region designations.

Table 2 shows that there are only 4 countries for which data were available for times of both peace and conflict: Côte d'Ivoire, for which attendance or enrollment data are available before, during, and after a period of violence; Central African Republic and Pakistan, for which attendance or enrollment data are available before and during a period of violence; and Senegal, for which attendance or

enrollment data are available during and after a period of conflict. There are 12 countries for which available data fall entirely either in periods of peace or in periods of conflict.

Table 2 Sub-national gross attendance rate and gross enrollment data coverage for the 23 countries analyzed in this study

Country	Year										Notes	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009		2010
Afghanistan				MICS					NRVA			NAR's only
Burundi		MICS				MICS						Regions not comparable
C.A.R	MICS						MICS					
Chad	MICS				DHS							Regions not comparable
Colombia	DHS				DHS							
Congo, D.R.	MICS							DHS				
Côte d'Ivoire	MICS		DHS			DHS	MICS					
Indonesia			DHS									
Iraq					●LCS		MICS					
Liberia								DHS				
Myanmar	MICS											
Pakistan		IHS				IHS	LSS	DHS	LSS			
Palestinian A.T.												
Philippines				DHS								
Rwanda	DHS					DHS						
Senegal	●MICS		●	●		DHS						
Sierra Leone	MICS			●IHS					DHS			
Somalia							MICS					
Sri Lanka												
Sudan	MICS						MICS					Regions not comparable
Timor L'este												
Uganda		DHS	NHS				DHS		●			
Yemen												

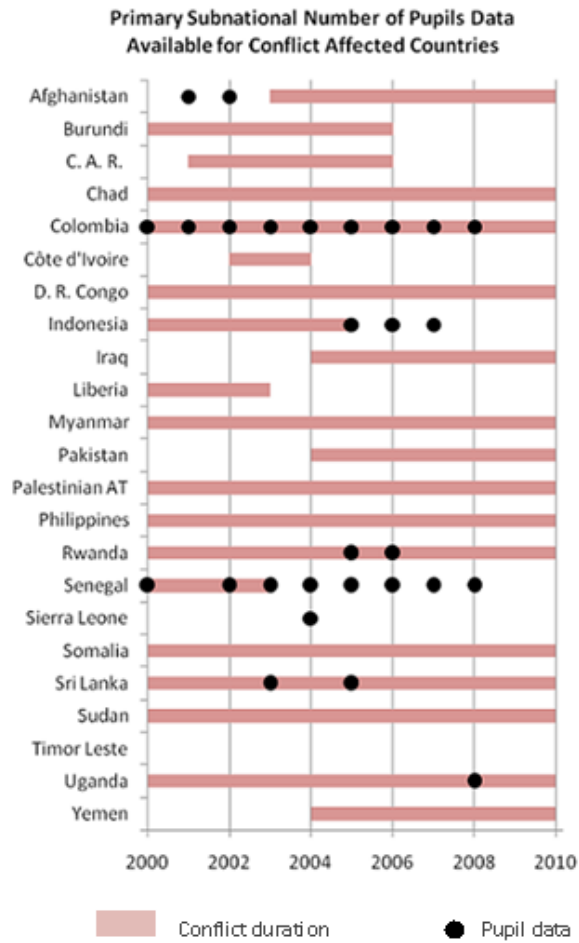
Key:	 Conflict Duration	● Enrollment Data (from an administrative source)
	DHS Demographic and Health Survey	MICS Multiple Indicators Cluster Survey
	LSS Living Standards Survey	IHS Integrated Household Survey
	NHS National Household Survey	NRVA National Risk & Vulnerability Assessment
	LCS Living Conditions Survey	

In addition to primary attendance and enrollment rates, EPDC also looked at the rate of change in the number of primary pupils enrolled in primary and the primary pupil-teacher ratio. Table 3 indicates the availability of pupil and teacher counts, all of which came from national administrative data sources.

Table 3 shows that there are two countries – Senegal and Indonesia – for which sub-national data are available both during and after a period of conflict. Administrative data from the remaining countries all sub-national data are available either exclusively for periods of conflict or exclusively for periods of peace.

For the calculations of the number of the out of school children living in conflict and non-conflict areas, as well as for the calculations of the weighted net attendance rates for countries currently experiencing conflict, EPDC used household survey data from the most recent year available, population estimates from the United National Population Division and sub-national population estimates from Geohive.com.

Table 3 Sub-national Pupil Enrollment data coverage



Possible shortcomings of data – why conflict effects may remain unobserved.

As discussed above, it is possible that a negative relationship between conflict and the provision of education exists but that shortcomings in the data used for the study prevent this relationship from being apparent. A discussion of these possible shortcomings is as follows:

Lack of opportunities for comparison of conflict data and pre/post conflict data: Though sub-national attendance or enrollment data were available for 19 of the 23 countries identified for this study, Table 2 and Table 3 show that data often were available over only a few years for each country. There were only five countries which have attendance or pupil data from times of both conflict and peace (Senegal, Central African Republic, Pakistan, Côte d’Ivoire, Indonesia). This small number of observations is not sufficient to serve as the basis for global generalizations about the relationship between conflict and education.

Units of observation are too large to identify the effects of violence: The school participation data used in this study are aggregated at a fairly high level – regions and provinces. However, violent conflict may flare up very locally. EPDC’s Khyber Pakhtunkhwa study suggests, for example, that the effects of violence can be highly localized. In the case of Khyber Pakhtunkhwa, the effects of violence

in Swat in 2007 and 2009 were not identifiable in education indicators at the province level (Khyber Pakhtunkhwa) or even at the district level (Swat district is one of 24 districts in the province). Effects of violence on the provision of education were only measurable at the Union Council level (there are 65 UC's in the district). If effects of violence on the provision of education are indeed highly localized, then it should not be surprising that education figures aggregated at the province or regional level do not show these effects.

School Participation data may omit conflict-affected locations: Ongoing conflict may make it difficult to collect education data properly. Areas experiencing violence may be left out of the sampling plan for a household survey, and schools in conflict areas may not be covered in school census returns used to populate EMIS data. If survey and EMIS data present information on only the peaceful portions of a region, then the resulting data will be biased.

EPDC review household survey documentation to determine whether survey enumeration plans had been adjusted to work around conflict areas. Documentation on sampling was found for 16 of the 37 household surveys used in the study, and of these 16, five indicated that regions or portions of regions had been left out of survey due to security concerns:

- In the 2006 Central African Republic MICS, Vakanga was omitted from the survey due to security concerns. Vakanga is the main area of conflict for this country, so findings with relation to C.A.R. are compromised. Data for two areas of secondary conflict are available for the 2006 MICS.
- In the 2002 Indonesia DHS, four provinces were excluded from the survey due to political instability: Nanggroe Aceh Darussalam, Maluku, North Maluku and Papua. Because Nanggroe Aceh Darussalam is part of the Sumatra region, and Papua is part of the Western Guinea region, both of which were identified as conflict areas for this study, study findings may not reflect the full effect of conflict on education in this country.
- In the 2001 Uganda DHS, portions of the Western and Northern regions were omitted. Because of this, it is likely that the survey data for these regions do not reflect the effect that violence may have had on education there.
- In the 2007 Pakistan DHS, the Federally Administered Tribal Areas (FATA) and Federally Administered Northern Areas (FANA) were excluded from the survey for security reasons. The investigation in this paper looks at the effects of conflict on education in two other provinces (Balochistan and Khyber Pakhtunkhwa), so this omission does not affect the results.
- In the 2000 Colombia DHS, portions of four regions were left out of the survey due to security considerations. Interestingly, these regions (Choco, Norte Santander, Bolivar, and Bogota) were not the same regions as those that GMR had identified as violence-affected (Caqueta, Meta, Arauca), so the omission is not considered to have affected the study.
- The 2000 Sudan MICS covers only the northern portion of the country while the 2006 Sudan MICS covers only the southern portion of the country. Because the Darfur areas experiencing violence are in northern Sudan, the 2006 survey is not relevant to the study.

The documentation for the other surveys did not suggest that areas had been left out of the enumeration plans. EPDC cannot say whether or not this was the case for the remainder of the surveys. Overall, there is insufficient evidence to clearly show whether or not this had an impact on the results of the study.

Household survey datasets may not be comparable: The sub-national gross attendance rates analyzed in this study were calculated using data from DHS, MICS, IHS, LSS, and other household survey types. Oftentimes, attendance rates for different years for the same country are derived from different types of surveys, and these surveys may use different methodologies to gather their data. Even when the same type survey was utilized in the country over two or more periods of time, it is possible that methodological differences could result in incomparable data. It was beyond the scope of this project to investigate this issue, but it is important that readers keep in mind that when data for the same country come from different sources, apparent trends may be explained by methodological differences as much as by actual changes on the ground. There are some clear examples of instances when survey data are not comparable – the 2000 and 2005 Burundi MICS surveys use different regional groupings, making it impossible to compare regional findings across this period. Table 2 above notes that regions are not comparable for surveys from Burundi, Chad and Sudan.

'Conflict' specified too broadly: This study relies on a broad specification of conflict, with regions being categorized simply as 'in conflict' or 'out of conflict.' This definition may overlook qualities of conflict that affect the provision of education. The duration, intensity, breadth (both in terms of geography and in terms of the proportion of sub-populations within a conflict area who are affected), and level of violence of the conflict are all important factors that may influence how a particular conflict affects the provision of education. These important qualities of conflict vary not only from conflict area to conflict area, but also vary over time for the same conflict area. It can be similarly difficult to assign clear beginning- and end- dates to particular conflicts

4. Analysis

This report takes two approaches towards discerning an effect of violence on school participation. The first is to look at school participation in regions affected by violence as compared to regions of the same country that are unaffected by violence to see if there is a measurable difference. This can be done for any country for which attendance or enrollment rates are available for a single year.

The second approach is to look at trends in school participation over time and determine whether the trends are different for regions affected by conflict and for regions unaffected by violence. This comparison can only be made for countries for which there are data available for at least two years, one of which is a time of peace and one of which is a time of conflict. Because of limited data availability, there were only five opportunities to use this second approach. Neither approach allows causal inferences on whether conflict is a source of any existing differences, although if attendance decreases more in a conflict area than in a peaceful region this suggests that conflict is a cause or mediator.

4.1. Sub-national differentials in net attendance rates in countries currently experiencing conflict

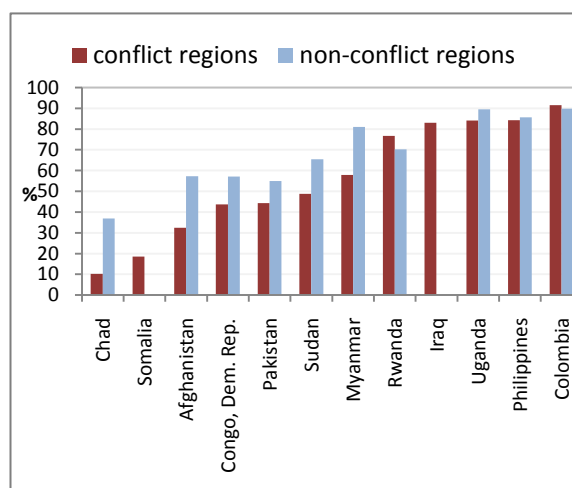
Within many developing countries, there are substantial differentials in the sub-national attendance rates, including in countries experiencing conflict. The additional (possible) effect of conflict-induced reductions may well be obscured by these general sub-national differences, especially if the general sub-national differences are large and the effects of conflict were relatively small.

This section separates all of the countries' regions into two groups – conflict and non-conflict – and presents the average attendance rates for each. As mentioned in the summary, this reveals substantial attendance differentials between conflict and non-conflict areas in some countries; and none in others.

The weighted net attendance rates for the conflict area and the non-conflict area in each country were calculated using a) sub-national net attendance rates from household surveys for the most recent year available and b) sub-national population estimates from Geohive.com. Population estimates are available only for the total population in each region. The sub-national school age populations were calculated using age distributions available at the national level from the United National Population Division. In other words, it is assumed that the age distribution in each region of a country mirrors the age distribution observed at the national level.

The study calculated the weighted net attendance rates for 10 countries identified as currently experiencing conflict with conflict and non-conflict regions. Two additional countries with conflict, Somalia and Iraq, had no peaceful regions. As Figure 1 shows, in most of these 10 countries, primary school attendance rates are higher in non-conflict areas than in regions experiencing conflict. In Rwanda, Uganda, the Philippines and Colombia the differences are very small. The largest differences are shown in Chad, Afghanistan, and Myanmar, where net attendance rates in primary school are about 25 percentage points lower in conflict areas than in regions identified as peaceful. In three other countries, Sudan, the Democratic Republic of the Congo, and Pakistan, the differences are also relatively large and range from 11 to 17 percentage points.

Figure 1 Weighted net attendance rate in conflict and non-conflict regions



Total number of children out of school in conflict vs non-conflict areas.

The total number of out of school children currently living in conflict areas in these 12 countries was estimated at 7.9 million as shown in Table 4. In the cases of Somalia and Iraq, all regions within these countries were identified as experiencing conflict, and therefore, both countries in their entirety were included in the estimate.

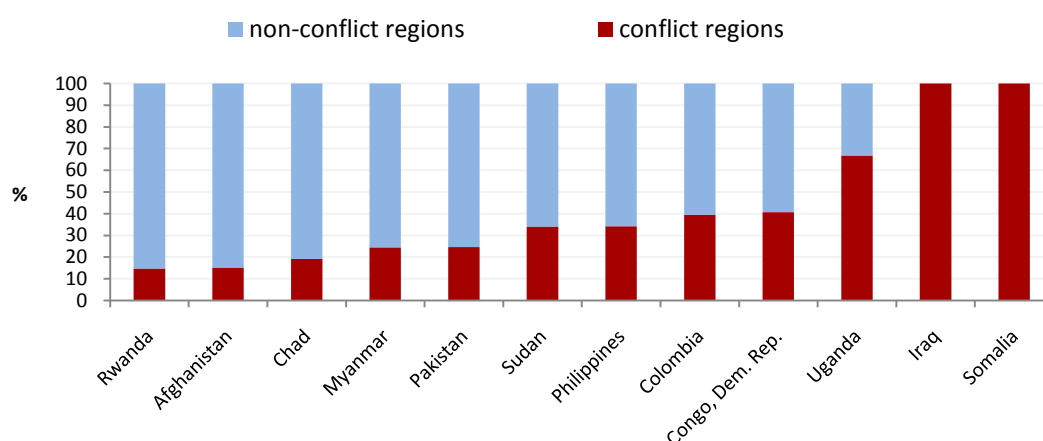
Table 4 and Figure 2 show the percentage of out of school children that are living in conflict areas. In most countries where only certain regions were identified as being affected by conflict, the majority of out of school children live in non-conflict areas. This can be explained by non-conflict regions

accounting for larger portions of these countries' territories but also indicates that even in non-conflict areas in these countries children are likely to face obstacles preventing them from attending school.

Table 4 Out of school children living in conflict areas

Country	# of out of school children in conflict areas (x 1000)	# of children in non-conflict areas (x 1000)	% of out of school children living in conflict areas
Rwanda	63	363	15
Afghanistan	272	1,518	15
Chad	230	971	19
Myanmar	237	733	24
Pakistan	1,643	5,014	25
Sudan	731	1,414	34
Philippines	231	445	34
Colombia	121	184	40
Congo, Dem. Rep.	1,847	2,689	41
Uganda	732	363	67
Iraq	837	-	100
Somalia	924	-	100
Total	7,868	13,695	36

Figure 2 Out of School Children Living in Conflict Affected Countries



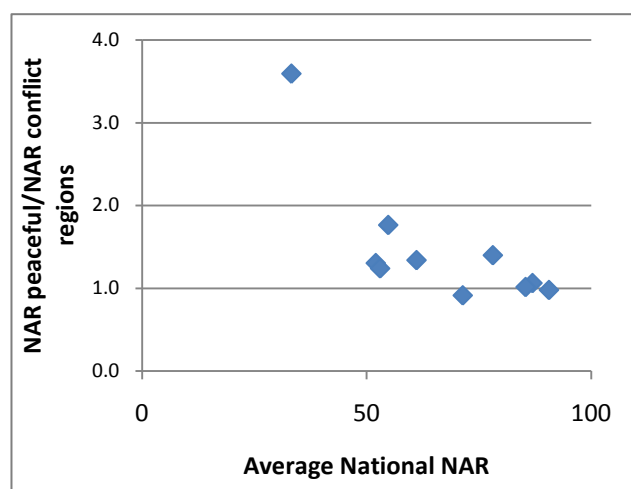
Ratio of school attendance in conflict vs. peaceful areas relative to overall attendance rates

The differentials between attendance rates in conflict vs. non-conflict areas can be summarized in one ratio indicator: NAR in the non-conflict area / NAR in the conflict area. The higher the ratio, the larger the difference between school attendance in peaceful vs. conflict areas – the ratio provides an indication of the vulnerability of the school system in conflict areas relative to peaceful areas. It does not tell us whether this vulnerability is caused by the conflict, mediated the conflict, there is an underlying driver causing both low attendance and conflict, or, the two are unrelated. If there is a clear relationship however, it suggests that one might be able to make guesses about the attendance rates in conflict areas even in the absence of measurements.

For the very small sample of 10 countries with sub-national conflict, there is a clear and strong negative relationship between average national attendance rates and the difference between attendance in the conflict vs. non-conflict areas, as shown in Figure 3. If this relationship could be generalized, it would provide an indication of the out-of-school differentials between areas of conflict and non-conflict even in the absence of recent data.

It should be noted that without controlling for other characteristics of the analyzed regions, such as their economic status, it is impossible to determine the extent to which the observed differences in net attendance between conflict and non-conflict areas in these countries can be attributed to conflict.

Figure 3 Ratio of NAR in peaceful and in conflict areas, relative to the average national NAR. Figure shows that the ratio is significantly higher in countries with a low overall NAR.



4.2. Changes in attendance rates over time in conflict affected countries

The observation in the previous section that attendance rates are, on average, lower in conflict areas than in peaceful conforms to our expectations. However, the simple observation does not show whether conflict caused or mediated the lower attendance rates. This section analyzes attendance rates over time. The hypothesis is that if we see attendance rates *decline* more in the conflict-affected regions than in the peaceful regions *during the conflict* this suggests the violence is causing or mediating that decline.

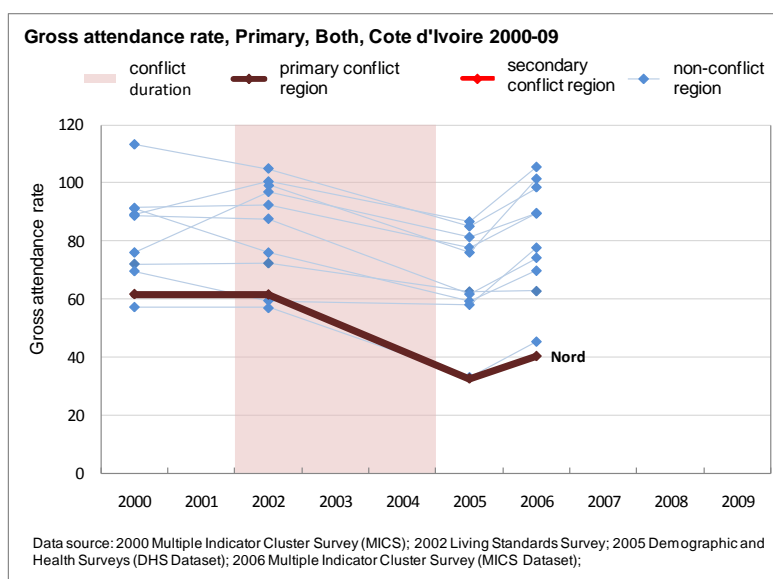
This section analyses patterns in primary gross attendance and enrollment rates at the sub-national level over time in order to determine whether these rates are lower in times or places of violence than in times or places of peace.

There is only one country with data pre-, during, and post-conflict (Côte d'Ivoire); two countries with data pre- and during conflict (Pakistan and the Central African Republic); one country with data during and post-conflict (Senegal); 12 countries with multiple data points but only during the conflict (Uganda, Sudan, Somalia, Rwanda, Philippines, Myanmar, Iraq, Indonesia, D.R. Congo, Colombia, Chad, Burundi); and finally countries with data either pre- or post-conflict (Sierra Leone, Liberia). The countries are discussed in turn.

4.2.1 Côte d'Ivoire - Data available pre-conflict, during conflict, and post-conflict

Sub-national primary school gross attendance data were available pre-conflict, during conflict and post-conflict for only one country, Côte d'Ivoire, as shown in Figure 4. In the North, recognized as being affected by conflict and marked in red on the graph, gross attendance rates are consistently among the lowest in the country. During the conflict period, which runs from 2002 to 2004, attendance rates decline in the north, but also decline by a comparable amount in non-conflict regions. Between 2005 and 2006, following the cessation of violence, attendance rates increase in all regions. It is possible that the period of conflict affected the whole country negatively, not only those areas that were specifically identified as experiencing violence.

Figure 4 Sub-national Primary Gross Attendance Rate for Both Genders



It bears noting that the attendance rate data for Côte d'Ivoire are derived from different types of household surveys. The 2000 and 2006 figures are calculated from MICS survey data whereas the 2002 and 2005 figures come from DHS survey data. Though DHS and MICS are very similar methodologically, their data may not be entirely comparable.

4.2.2 Pakistan and Central African Republic - data available pre-conflict and during conflict

Conflict and pre-conflict primary gross attendance rates are available for the years 2001-2008 in the four main regions of Pakistan. The provinces of Khyber-Pakhtunkhwa (formerly NWFP) and Balochistan have been affected by conflict from 2004 to the present.

Figure 5 shows that gross primary attendance rates for females in Khyber-Pakhtunkhwa and Balochistan are lower than in the two non-conflict regions both before and during the conflict period. However, in 2005 and 2006 attendance rates actually increase by a larger amount in the conflict regions than in the non-conflict areas where it stagnates or even decreases. In 2007, on the other hand, both conflict regions experience a decrease in primary gross attendance rates among girls. Attendance rates for males, shown in Figure 6, show a similar, though less pronounced, pattern.

Figure 5 Sub-national Primary Gross Attendance Rate for Females,

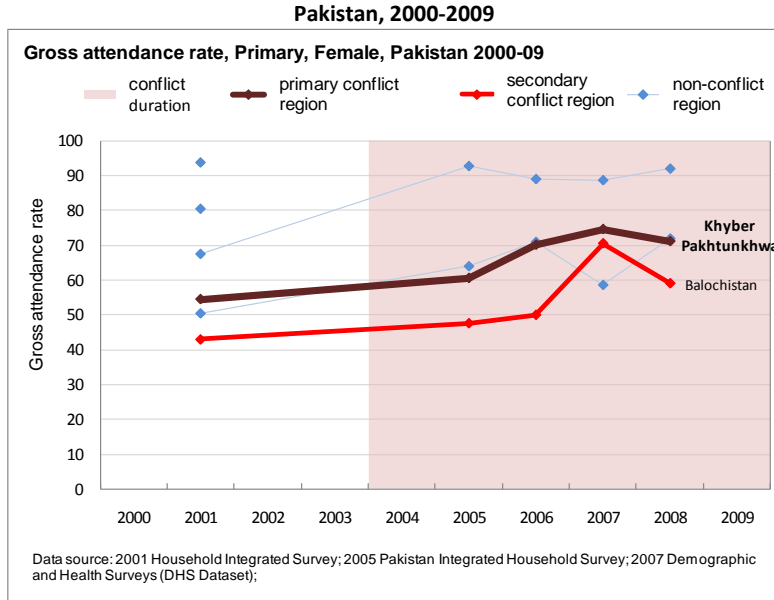
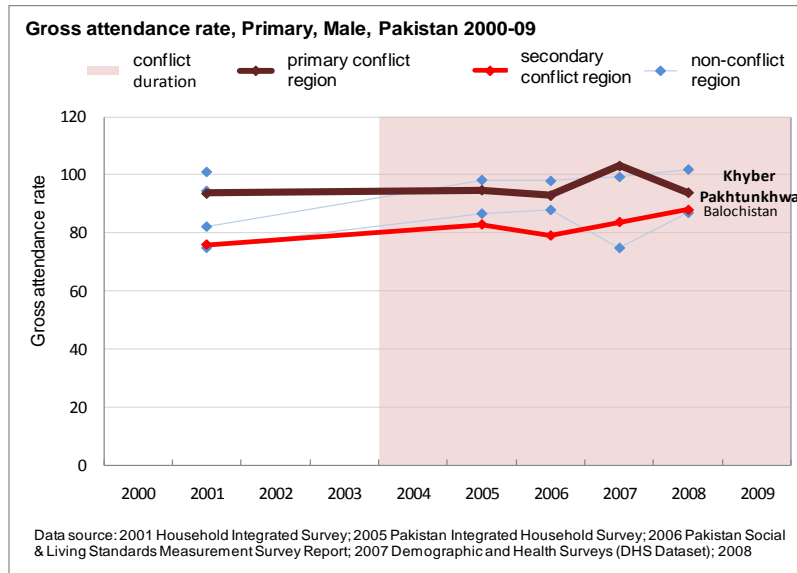


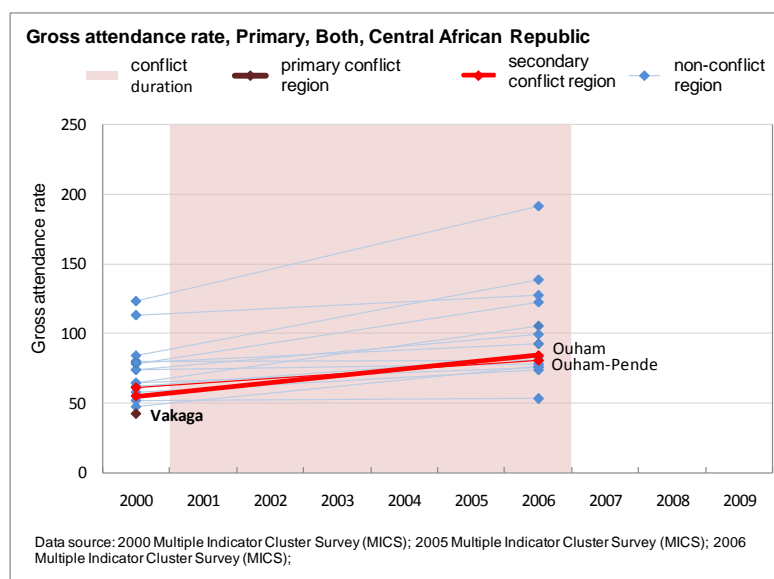
Figure 6 Sub-national Primary Gross Attendance Rate for Males
Pakistan, 2000-2009



Attendance rate data for Pakistan were derived from a variety of different household survey types. The 2001 and 2005 figures were taken from IHS survey reports, the 2006 and 2008 figures taken from LSS survey reports, and the 2007 data were calculated based on DHS survey data. Methodological differences in these survey types may account for fluctuations in data values.

For the Central African Republic, data are available for 2000, one year prior to the initiation of conflict in the country, and 2006, the last year before the cessation of conflict. For Ouham and Ouham-Pende (areas of secondary conflict) data are available for both years, but for Vakaga (primary conflict area) conflict prevented the collection of data in 2006, meaning that data are available only for 2000.

**Figure 7 Sub-national Primary Gross Attendance Rate for Both Genders
Central African Republic, 2000-2009**



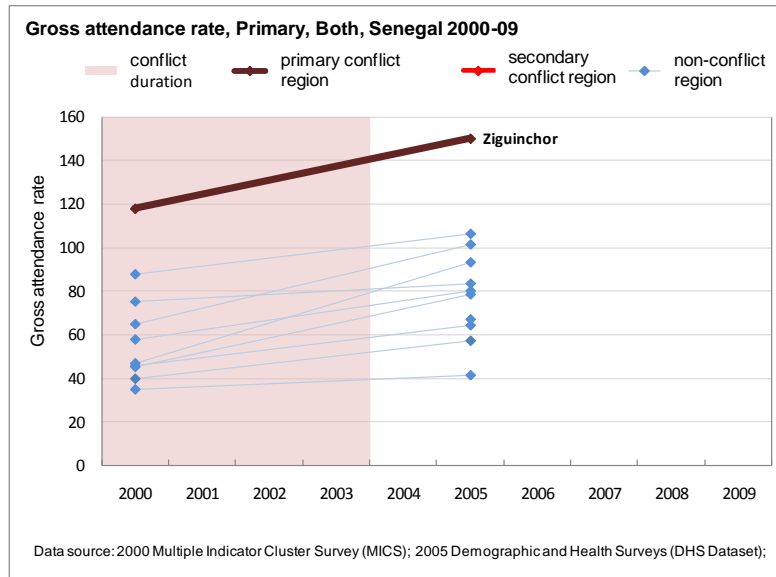
This lack of data makes it impossible to say how conflict affected the provision of education in Vakaga. For the two areas of secondary conflict, it is difficult to draw a conclusion on the effect of violence – the GAR’s for these districts increased between 2000 and 2005, as they did for all other regions. The secondary-conflict regions did not see as dramatic an improvement as some other regions, but they also were not the worst-performing regions over this interval.

4.2.3 Senegal - data available during conflict and post-conflict

Sub-national conflict and post-conflict data were available for Senegal, where Ziguinchor experienced conflict from 1993 to 2003. As shown in Figure 8, during both the conflict and the post-conflict periods, primary gross attendance rates in Ziguinchor are much higher than in the rest of the country. This is true both during the conflict (2000) and two years after the conflict had concluded (2005). It also appears that the attendance rate for Ziguinchor increased more rapidly than for the rest of the country, a bump that may be attributable to the advent of peace in the region.

Because 2000 rates were calculated using data from a MICS survey and 2005 rates were calculated using data from a DHS survey, attendance rates may not be perfectly comparable, though DHS and MICS are very similar methodologically.

**Figure 8 Sub-national Primary Gross Attendance Rate for Both Genders
Senegal, 2000-2009**

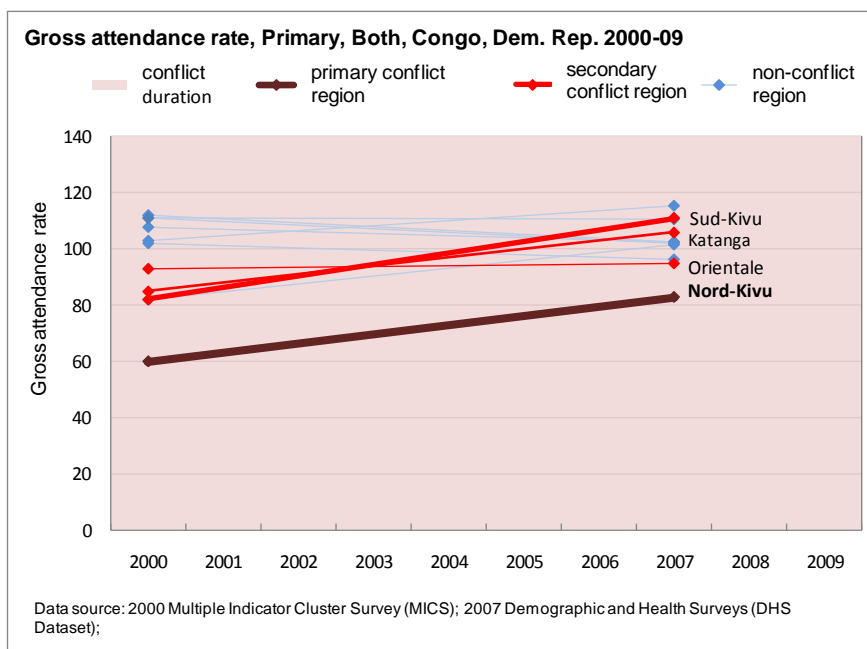


4.2.4 Countries for which data are available only during conflict

Gross attendance data for the conflict period only were found for 12 of the 19 countries with sub-national data: Burundi, Chad, Colombia, Democratic Republic of Congo, Indonesia, Iraq, Myanmar, Philippines, Rwanda, Somalia, Sudan and Uganda. In Sudan and the Democratic Republic of Congo differences between gross attendance rates in the conflict affected regions and non-conflict regions are notable. In the remaining countries, available data do not show any difference between areas affected by conflict and areas considered to be peaceful during the conflict period.

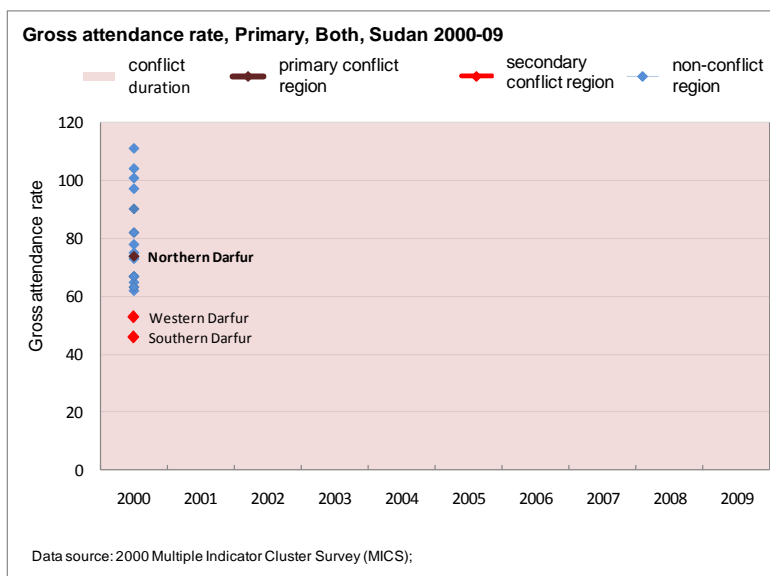
Figure 9 shows how gross attendance rates in primary school changed in the Democratic Republic of Congo between 2000 and 2007 in all regions, including several affected by conflict since 1996. Though it is clear that attendance rates are lowest in conflict-affected regions in the year 2000, the graph shows a convergent trend towards a 100% GAR in 2007. Data are taken from difference sources.

Figure 9 Sub-national Primary Gross Attendance Rate for Both Genders



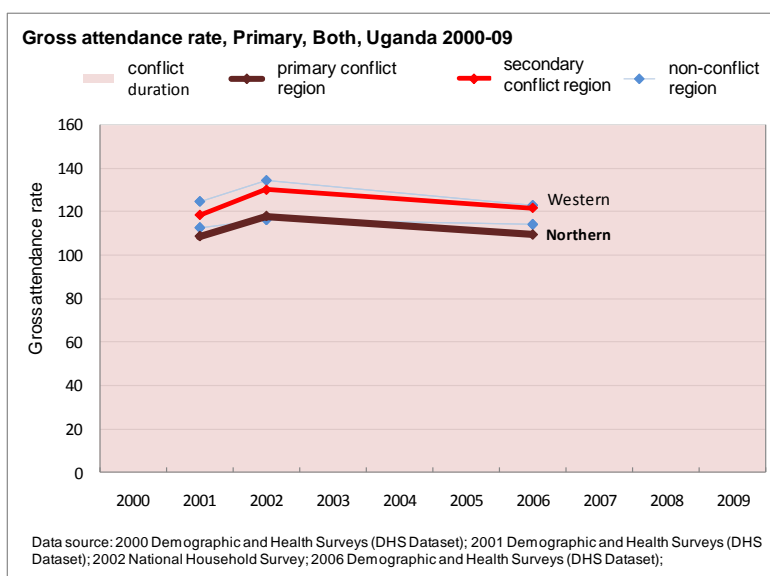
In Sudan (Figure 10), where conflict began in 1986, sub-national primary gross attendance data for regions affected by conflict were available only for 2000, when gross attendance rates in two of three conflict-affected regions are lower than in the rest of the country. This finding is weakened by the fact that gross attendance in Northern Darfur, the region most affected by violence, is higher than gross attendance in several non-conflict regions.

Figure 10 Sub-national Primary Gross Attendance Rate for Both Genders Sudan, 2000-2009



Most countries where sub-national gross attendance data were available only for the conflict period show no significant difference between attendance trends in conflict and non-conflict regions. These include Uganda (Figure 11), Burundi, Chad, Colombia, Indonesia, Myanmar, Philippines, and Rwanda (Figure 12).

Figure 11 Sub-national Primary Gross Attendance Rate for Both Genders Uganda, 2000-2009



Using Uganda as an example, Figure 11 shows primary school gross attendance rates in two regions identified as conflict areas and two regions recognized as peaceful. While primary gross attendance rates do fluctuate in Uganda between 2000 and 2002, their trend does not seem to be different in the conflict regions as compared to non-conflict regions. Graphs for the remainder of the countries in this category are shown in Figure 12.

Figure 12 Sub-national gross attendance rates measured during times of conflict in seven countries for which peacetime comparisons were not available

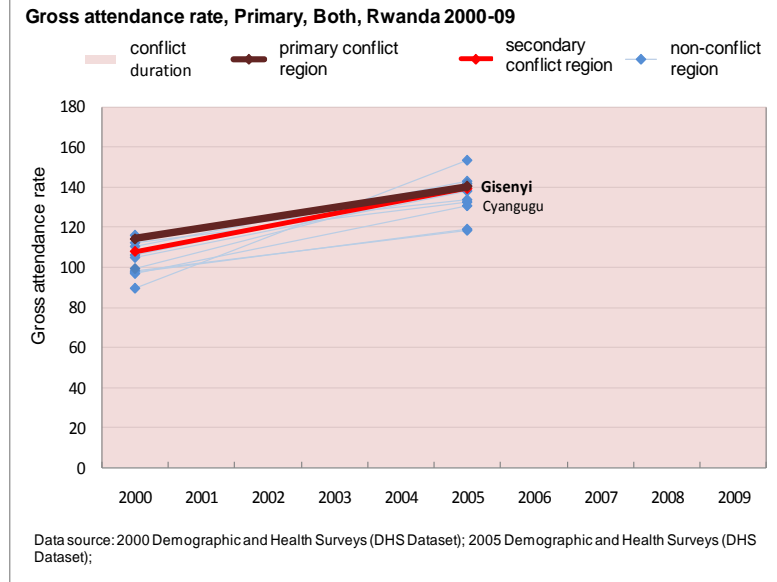
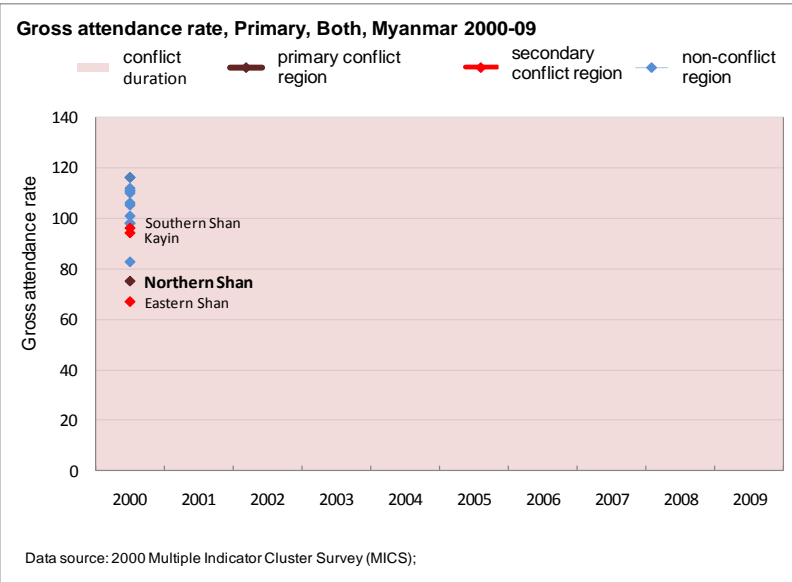
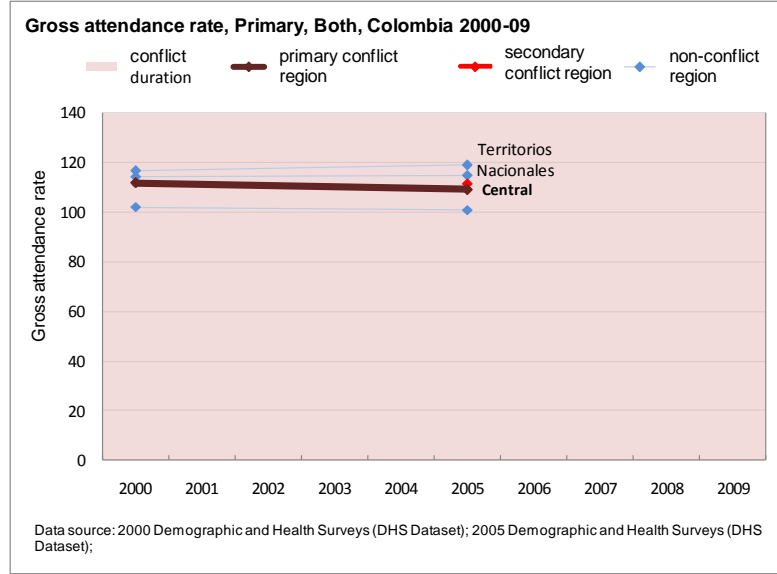
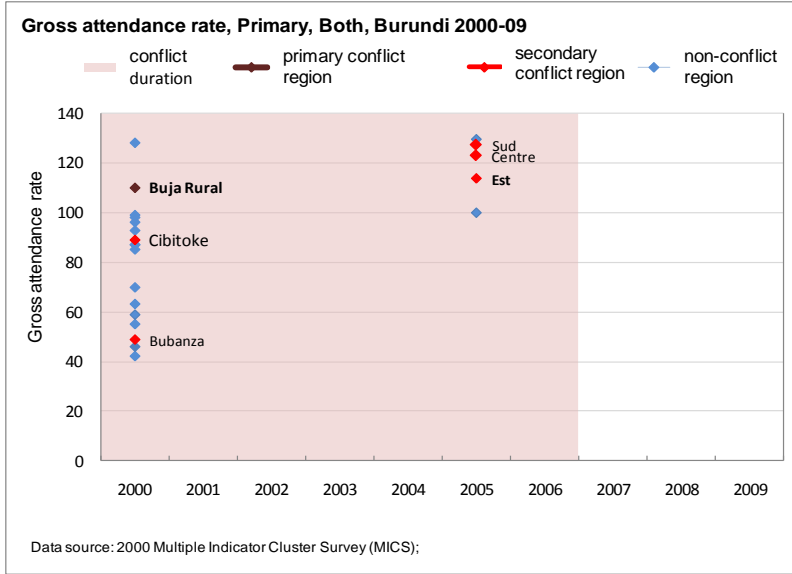
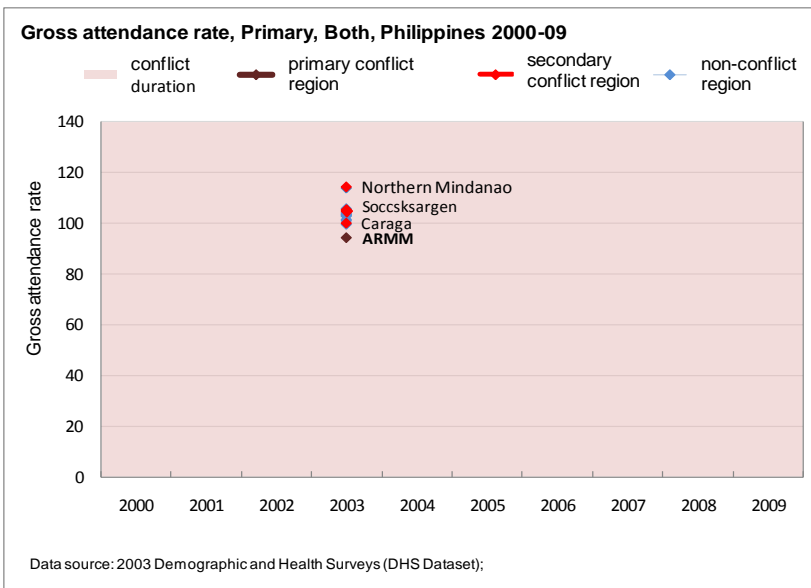
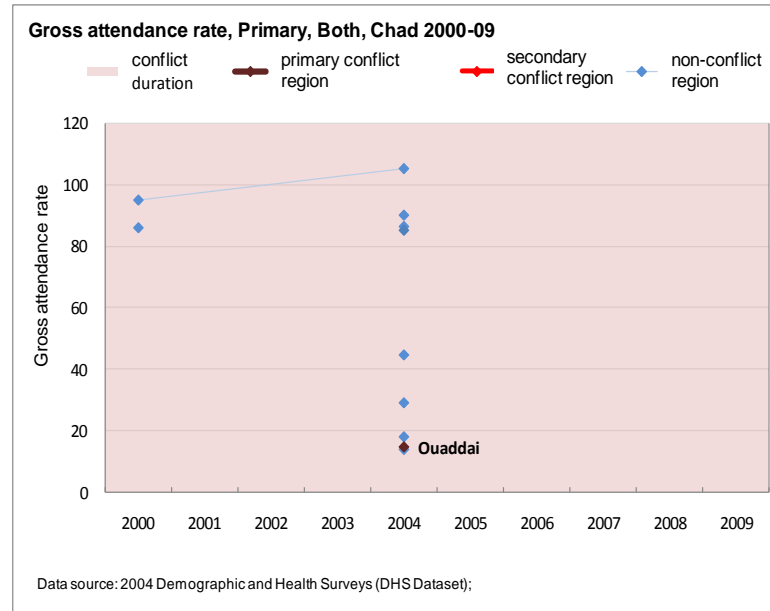
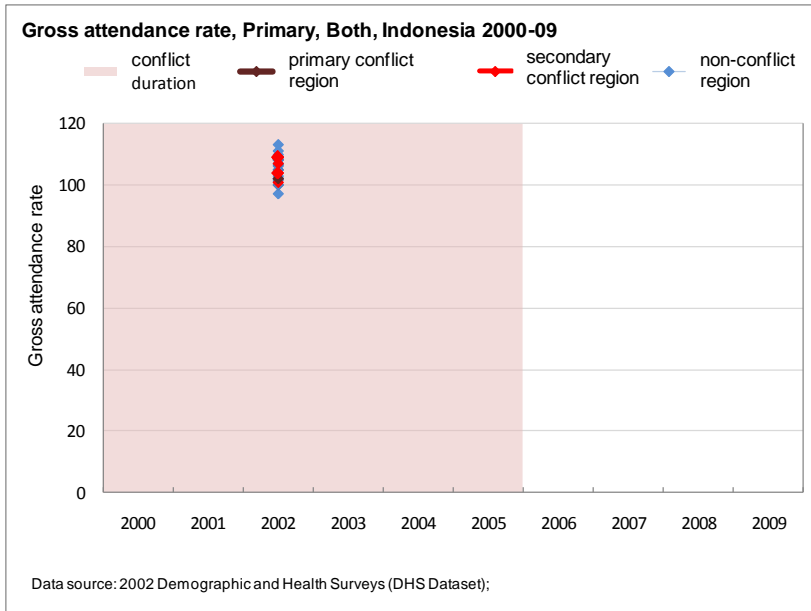


Figure 12 Sub-national gross attendance rates measured during times of conflict in seven countries for which peacetime comparisons were not available (continued)



4.2.5 Liberia and Sierra Leone - data available only post-conflict

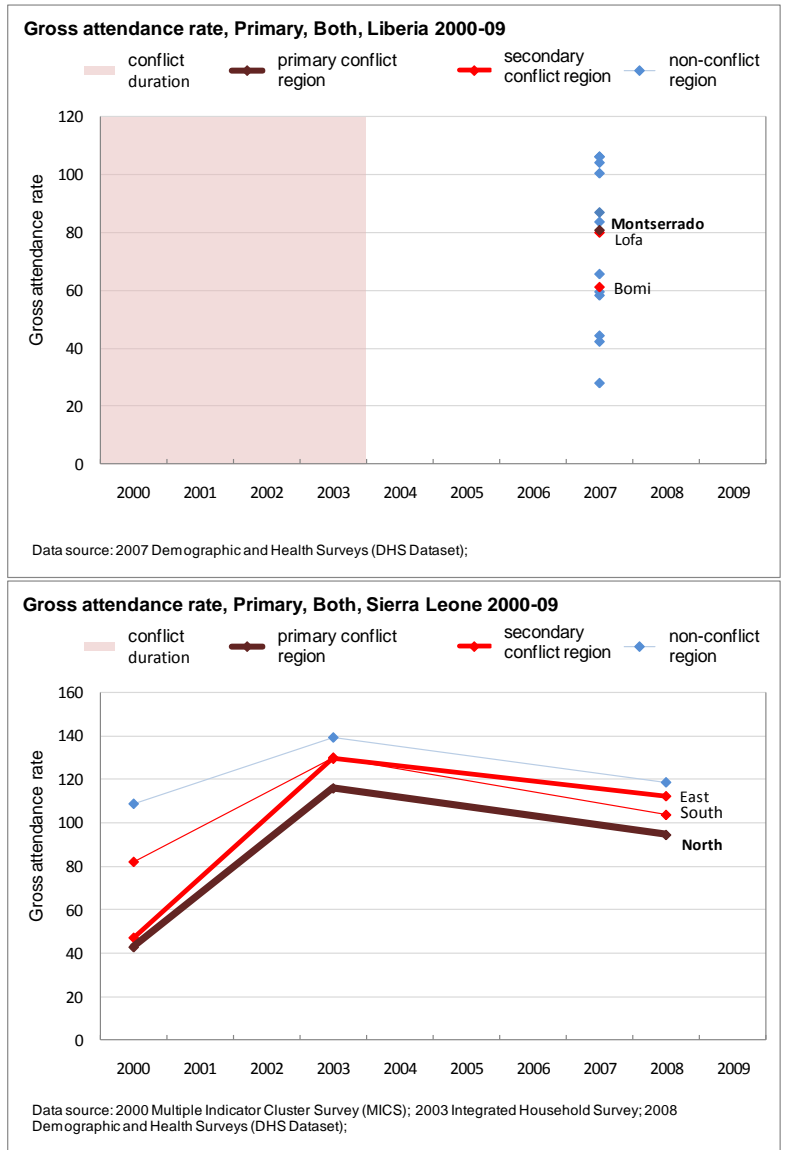
For Liberia, and Sierra Leone, data were available only for either the pre-conflict or the post-conflict period (Table 2).

In Liberia, there is no significant difference between gross attendance rates in primary school in conflict regions versus non-conflict areas.

In Sierra Leone, the most conflict-affected region still has the lowest GAR several years after the conflict, though attendance rates in all conflict-affected areas have made considerable progress towards catching up with non-conflict regions over this period.

One reason that attendance rates may fail to pick up on conflict effects on education is that if families are leaving conflict-affected regions altogether rather than keeping their children home from school, the overall number of pupils attending school may decline even if the attendance rates do not. To ascertain the effect of displacement on enrollment rates, the next section turns to look at trends in the absolute numbers of pupils around periods of conflict.

Figure 13 Sub-national gross attendance rates measured following periods of conflict in Liberia and Sierra Leone.



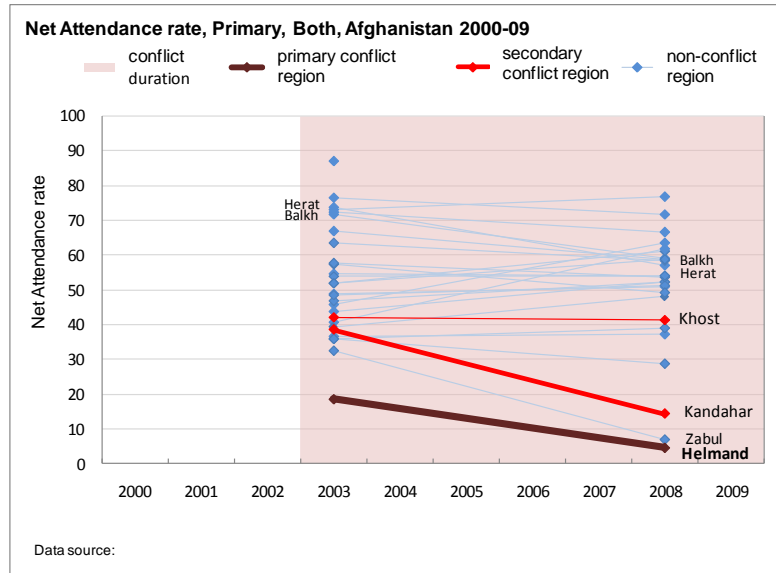
4.2.6 Afghanistan – primary net attendance rate

For Afghanistan, sub-national net attendance rates were available for the years 2003 (the first year of the current conflict) and 2008. The first year's data are taken from a MICS survey while the second year's data are taken from the Afghanistan National Risk and Vulnerability Assessment and data from the two sources may not be perfectly compatible.

Two of the three regions identified as being subject to violence, Kandahar and Helmand, show that dramatic declines in net attendance are relative to many other regions of the country. On the other hand, Khost, the third conflict region, appears to maintain a stable net attendance rate over this period. It may be that conflict in Khost was not as disruptive as conflict in the other regions.

Three regions that are designated as non-conflict show relative declines in attendance that are dramatic as those of Kandahar and Helmand. These regions – Zabul, Balkh, and Herat – are also labeled in the figure. It may be that, despite their non-conflict designation, these regions also experienced significant disruptions due to conflict.

Figure 14 Sub-national primary net attendance rate for Both Genders Afghanistan, 2000-2009



4.3. Primary pupil growth rate in conflict-affected countries

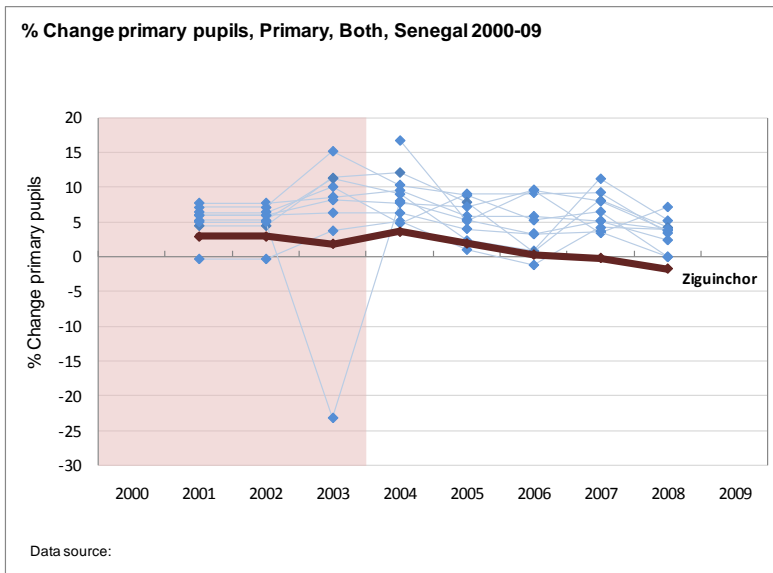
The analysis in the previous section was based on the premise that school attendance rates in conflict areas would be lower than in non-conflict areas if conflict made it necessary for children to stay home rather than attend school. However, it is also possible that conflict may cause households to leave a conflict-affected area altogether. If attending and non-attending children emigrate in equal numbers, then it may be that this effect may not show up in population-balanced indicators such as attendance rates. This section looks at the rate of growth (or decline) in the absolute number of primary pupils in conflict and non-conflict regions in order to determine whether this is in fact the case.

Primary school enrollment data at the sub-national level were available for 8 of the 23 conflict affected countries included in the study: Afghanistan, Colombia, Indonesia, Rwanda, Senegal, Sierra Leone, Sri Lanka, and Uganda. This section examines pupil growth rates in the conflict region versus non-conflict regions to see whether conflict affected regions experience a decrease in the number of pupils enrolled in school prior to the conflict, during conflict or after conflict. **The hypothesis is that pupil growth rates will be reduced in regions experiencing conflict relative to pupil growth in peaceful regions.** Data for Uganda, Rwanda, and Sierra Leone were only available for a single year, so these countries are not

covered in this section. Indicator values shown throughout this section represent the rate of change from the previous year.

4.3.1 Senegal and Indonesia - data available during conflict and post-conflict

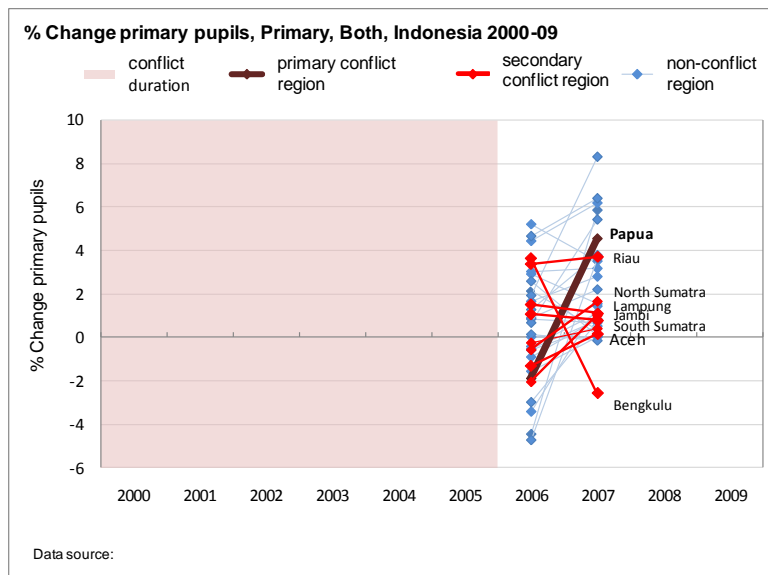
Figure 15 Sub-national % change in number of primary pupils for Both Genders in Senegal, 2000-2009



Primary enrollment data at the sub-national level both during conflict and for the post-conflict period were found for two of the subject countries: Senegal and Indonesia.

The previous section on GAR showed that school participation in the conflict region Ziguinchor in Senegal, the GAR levels were the highest in the country both during and after the conflict period which ended in 2003. *Growth* in the number of pupils was among the slowest in Ziguinchor as compared to the rest of the country. Figure 15 shows that primary school enrollment remained stable between 2000 and 2008, meaning there was no special recovery after the conflict period.

Figure 16 Sub-national % change in number of primary pupils for Both Genders in Indonesia, 2000-2009



Pupil growth rate data for Indonesia show the rate of change from 2006 (the last year of conflict) through 2007. The pupil growth in the primary conflict region of Papua was relatively low for 2005-2006 and relatively high for 2006-2007, which could indicate special post-conflict growth, although Papua was not an outlier in this respect: growth rates increased in the whole country, including three secondary conflict regions. In one secondary conflict province the growth rates were negative in 2006-2007, which is counter to the expected trend of higher-than-normal growth as education is reconstructed in a post-conflict era (Figure 16).

4.3.2 Colombia and Sri Lanka - data available only during conflict

Primary enrollment numbers are also available for Colombia and Sri Lanka, two countries which, according to GMR data, have remained in a perpetual state of conflict. Figure 17 and Figure 18 show that, for these two countries, patterns in the number of pupils enrolled in conflict-affected regions do not differ from those for pupils in non-conflict areas.

Figure 17 % Change in Primary Enrollment for Both Genders in Colombia, 2000-2009

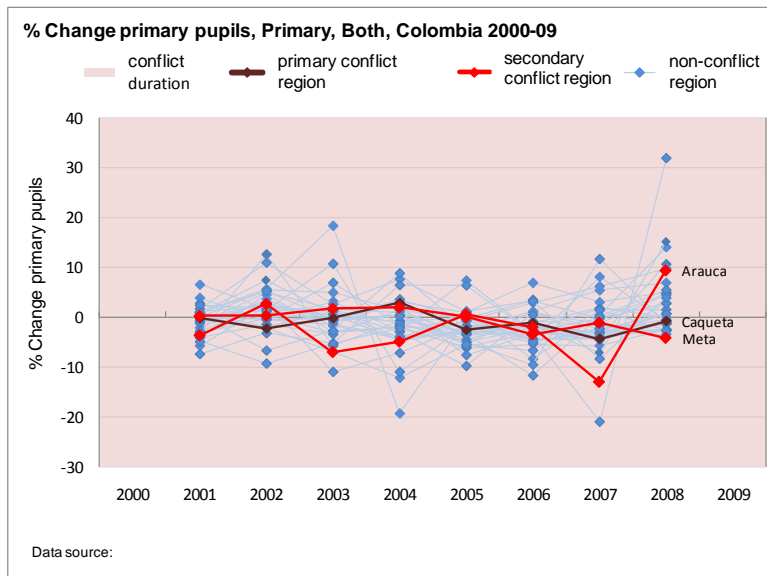
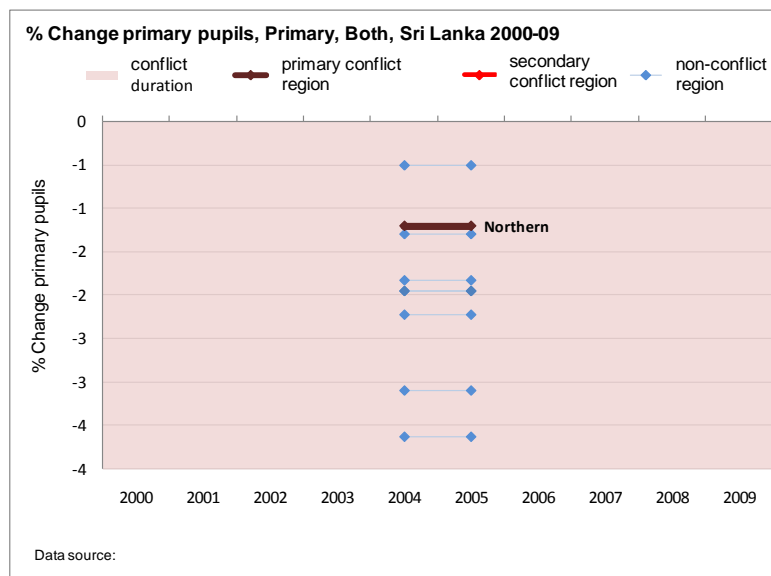


Figure 18 % Change in Primary Enrollment for Both Genders in Sri Lanka, 2000-2009



4.3.3 Countries for which data are available either pre-conflict or post-conflict

For Afghanistan, sub-national primary school enrollment data were available only for 2002, one year before the beginning of conflict. Data were available for only male pupils. The available data do not show a difference in enrollment trends between the conflict and non-conflict regions in these countries.

Figure 19 % Change in Primary Enrollment for Both Genders in Afghanistan, 2000-2009

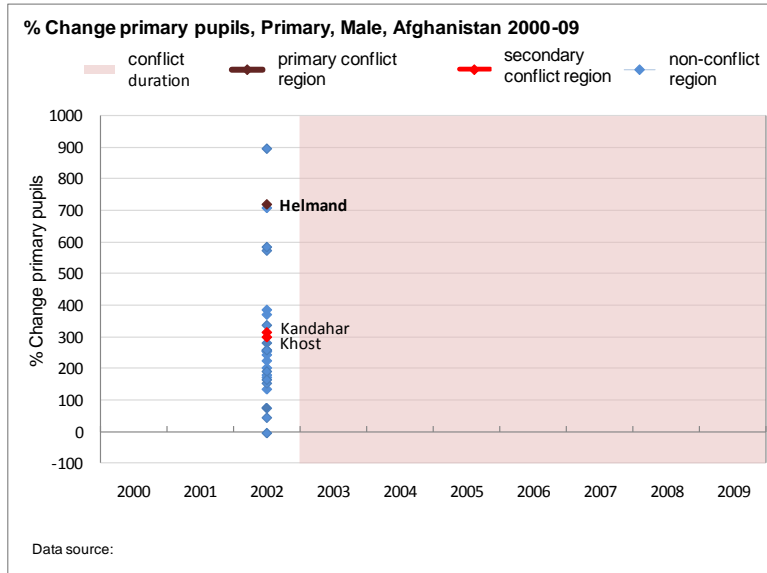
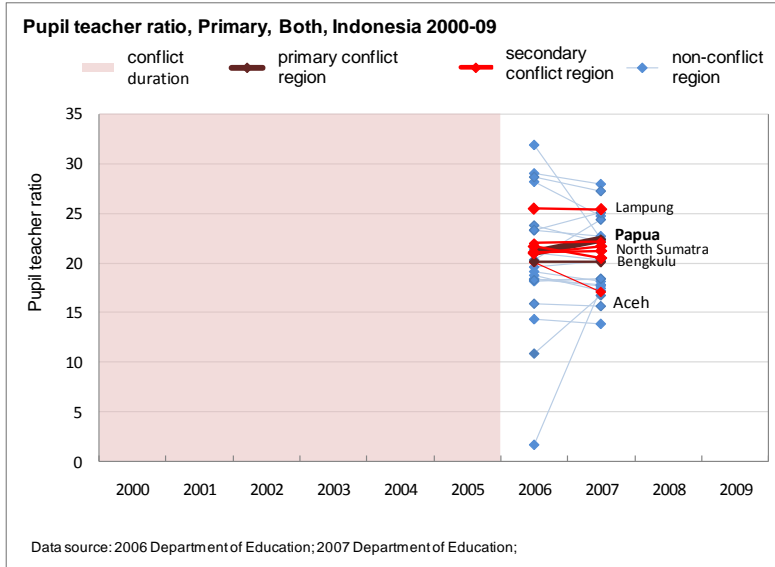
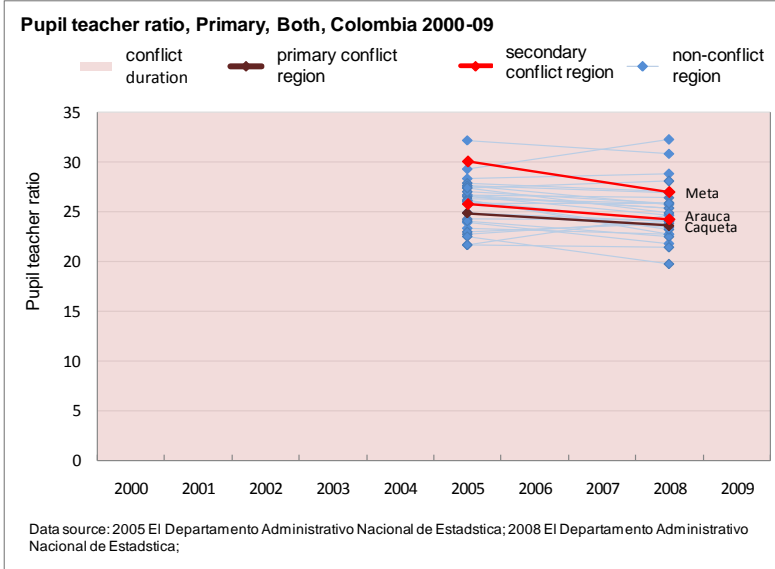
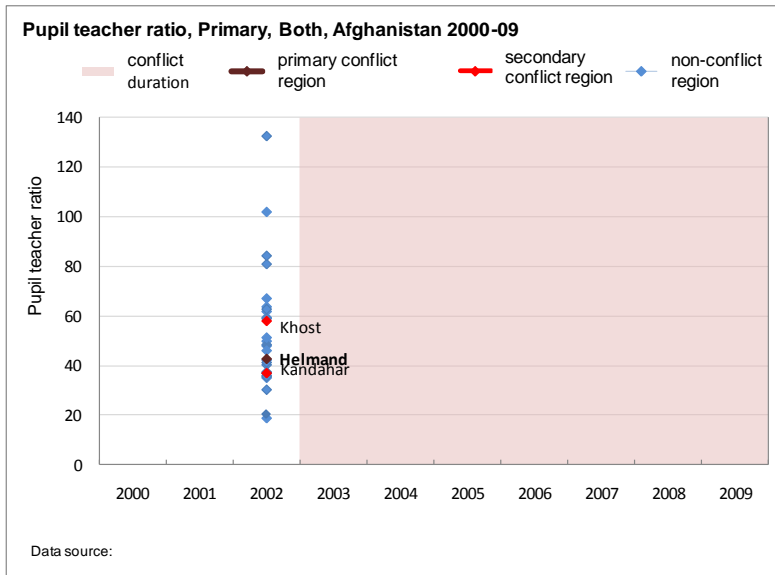


Figure 20 Primary pupil teacher ratios in five conflict-affected countries



4.4. Pupil Teacher Ratios in Conflict Affected Countries

This section looks for differences in pupil-teacher ratios in regions affected by violent conflict and regions unaffected by violent conflict. Sub-national pupil teacher ratios were available for five of the 23 countries investigated in this study.

No clear relationship between primary pupil teacher ratios and violent conflict is apparent in these graphs. PTR's for violence-affected regions of a country do not necessarily have higher or lower PTR's than regions that remain unaffected by violence. PTR's in regions affected by violence do not trend upwards or downwards at a more notable pace than do other regions (Figure 20).

Figure 20 Primary pupil teacher ratios in five conflict-affected countries (continued)

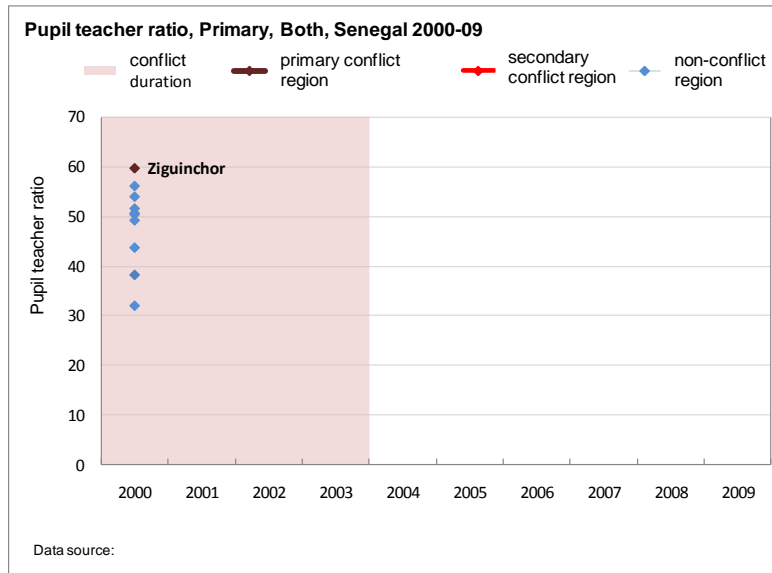
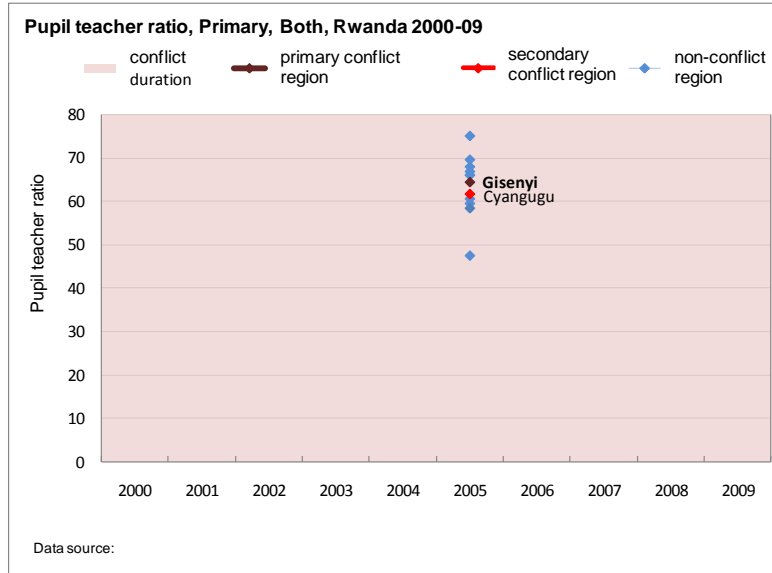
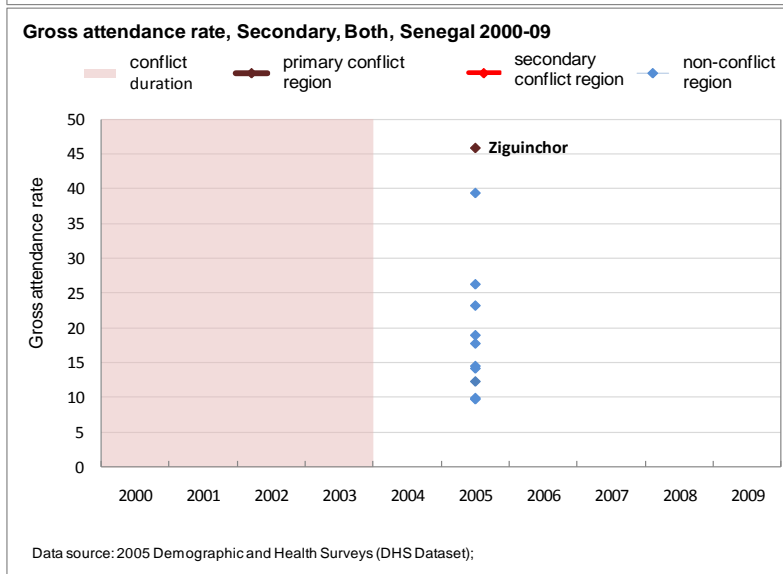
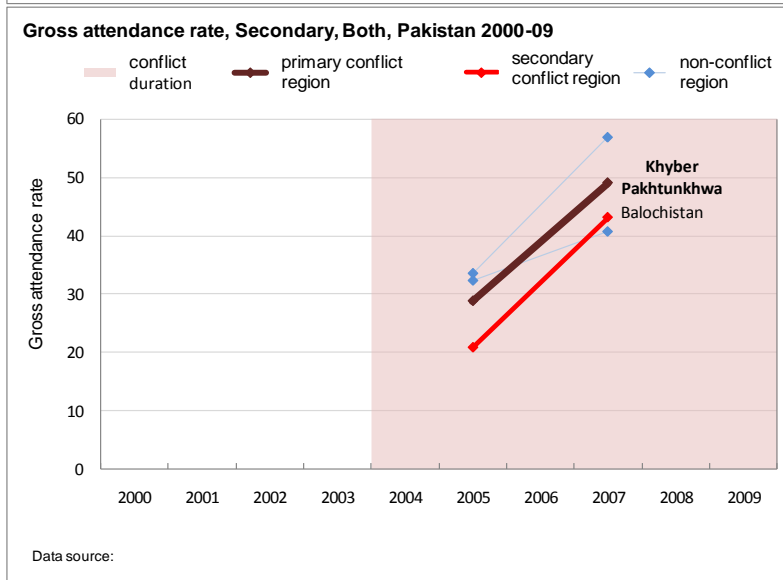
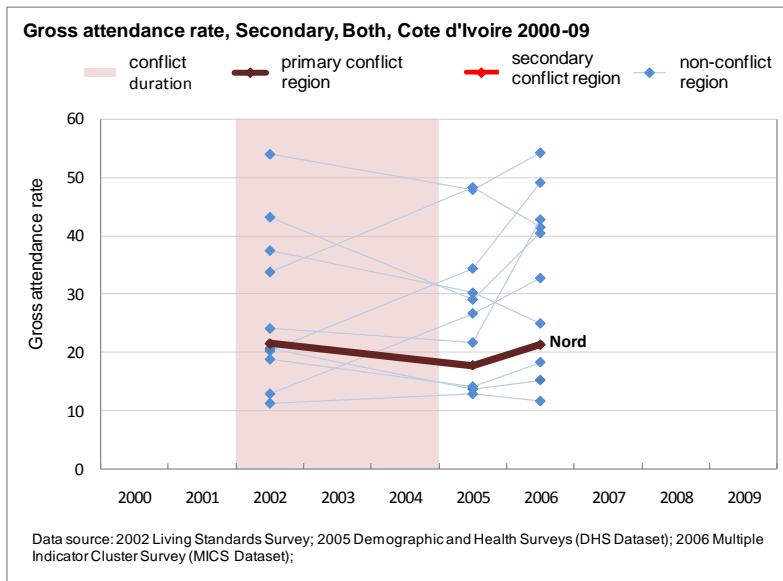


Figure 21 Secondary Gross Attendance Rates in sixteen conflict-affected countries



4.5. Secondary Gross Attendance Rates

Secondary school attendance may be more sensitive to system shocks such as conflict than is primary school attendance. It is possible that in areas affected by conflict, secondary attendance rates may be affected even when primary rates are not. To determine whether this was the case, this report looks at secondary gross attendance rates for sixteen countries that have experienced violent conflict (Figure 21). Overall, this analysis does not reveal a relationship between school participation and incidence of violence conflict.

In Côte d'Ivoire, for example, secondary attendance rates in the conflict-affected North region do not vary considerably from other regions of the country. Attendance in the North declines slightly between 2002 and 2005, but also declines by a much larger amount in several non-conflict regions. With the cessation of violence, attendance increases in the North, but not in a way that differs from the experience in other regions.

In Pakistan, secondary gross attendance rates in conflict regions increase at a rate which exceeds the rates of increase shown in non-conflict regions.

In Colombia and Ethiopia, attendance rates in conflict areas start out lower than in non-conflict areas, but converge towards non-conflict rate levels over time.

Figure 21 Secondary Gross Attendance Rates in sixteen conflict-affected countries (continued)

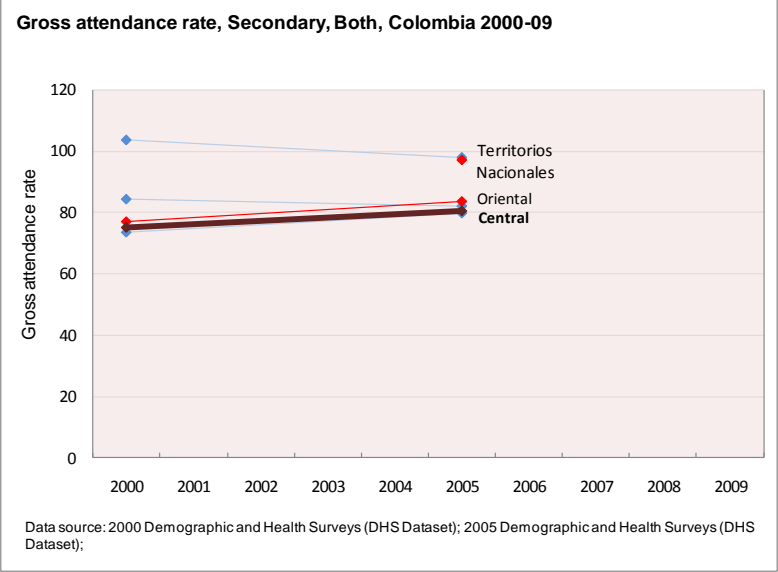
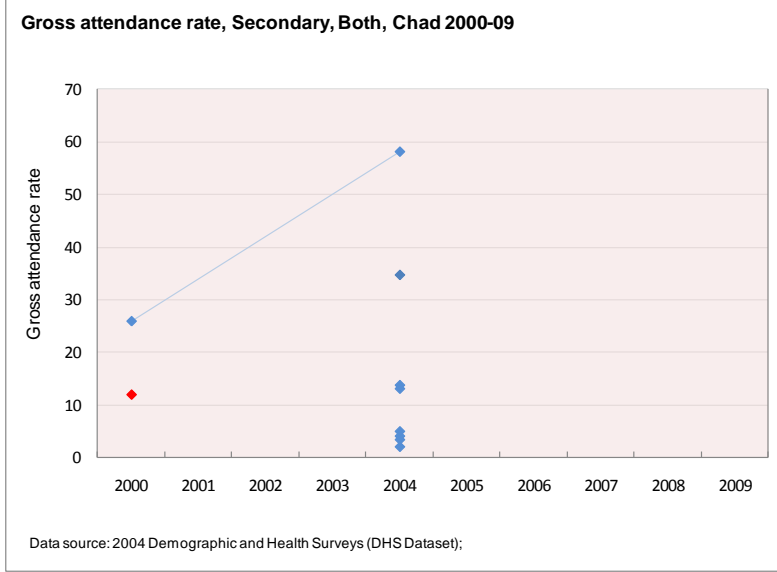
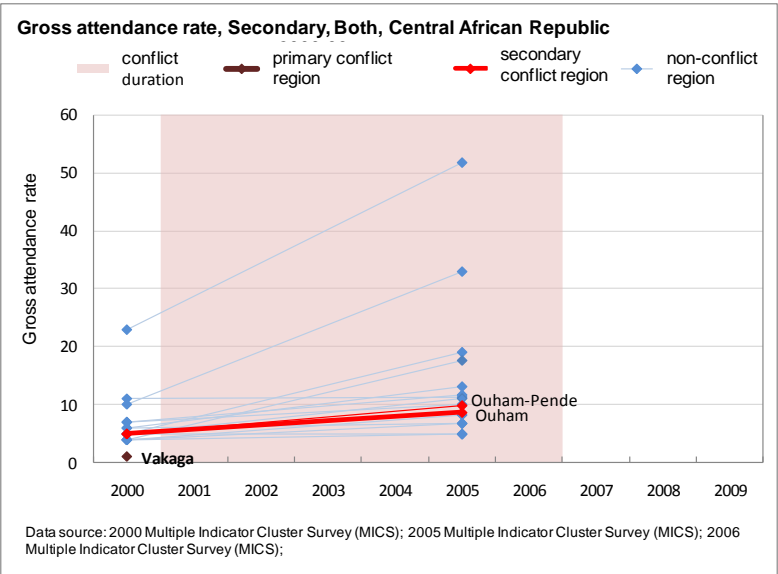
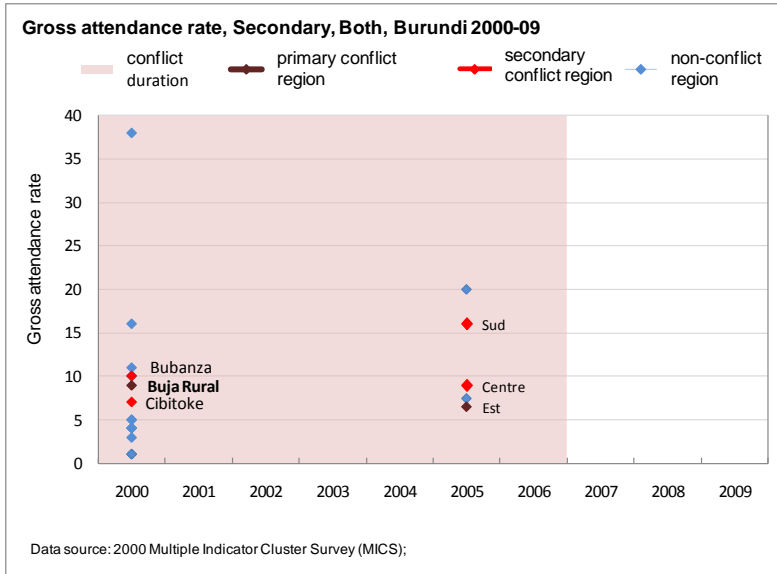


Figure 21 Secondary Gross Attendance Rates in sixteen conflict-affected countries (continued)

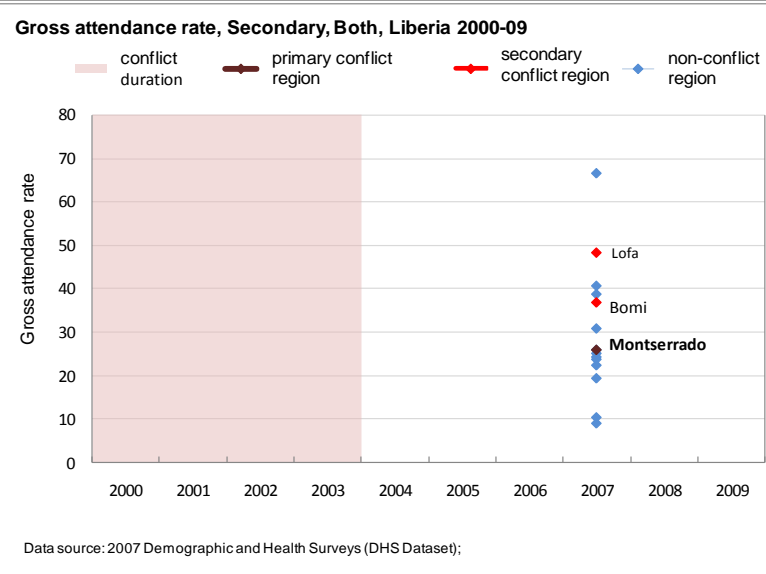
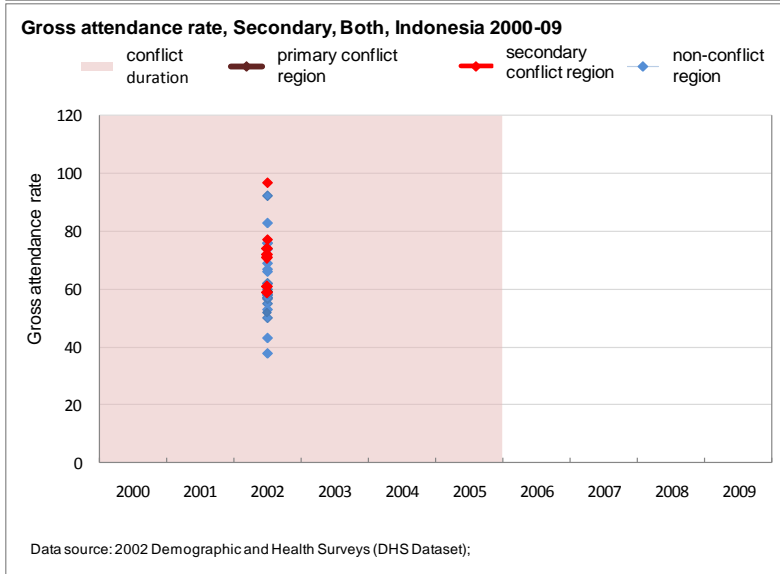
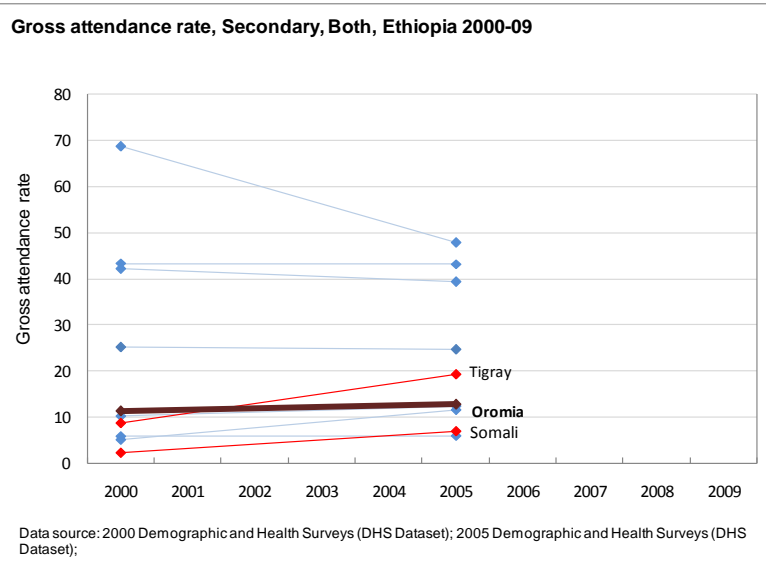
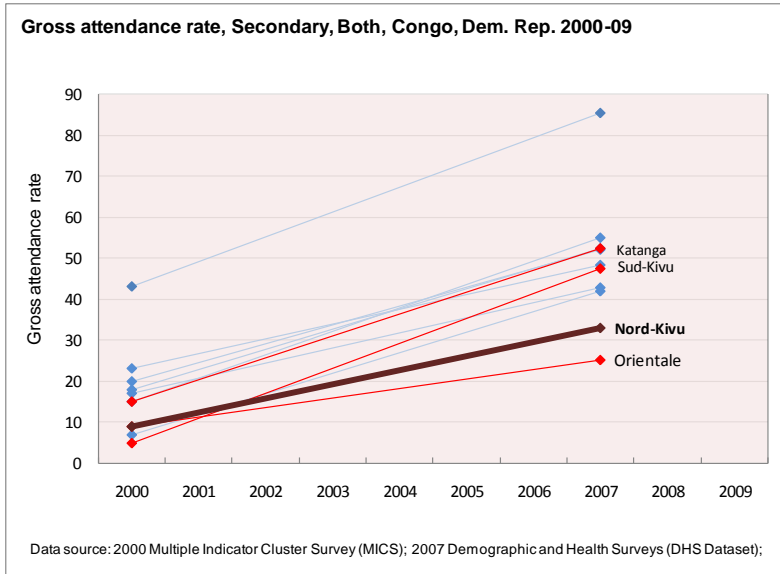


Figure 21 Secondary Gross Attendance Rates in sixteen conflict-affected countries (continued)

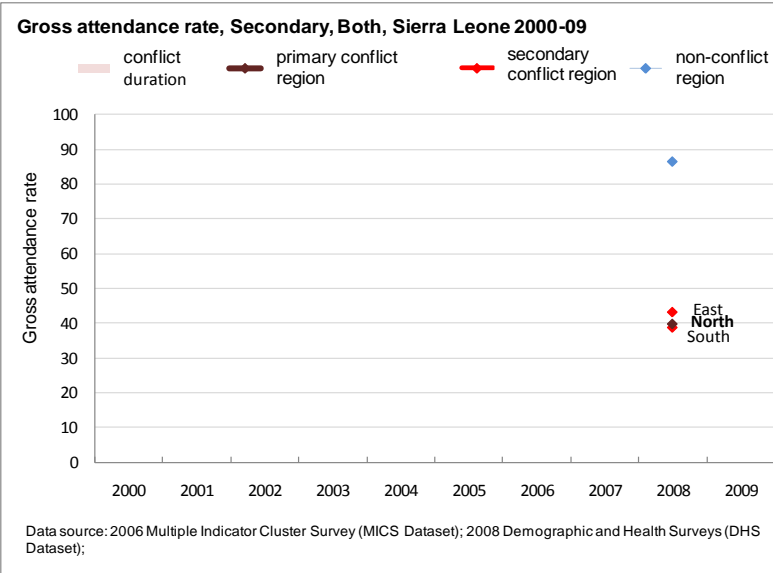
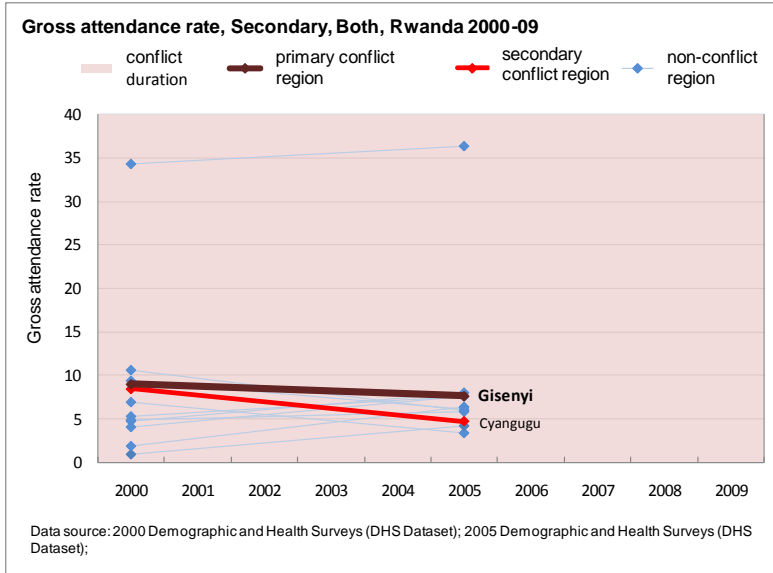
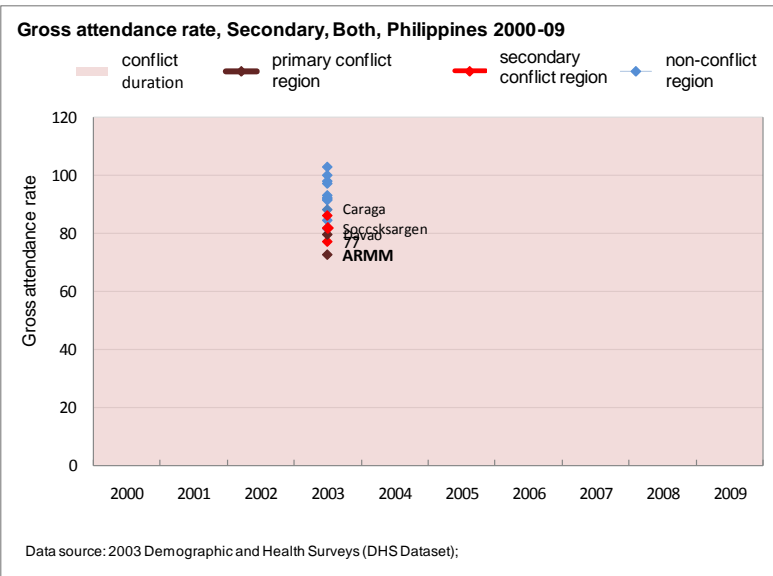
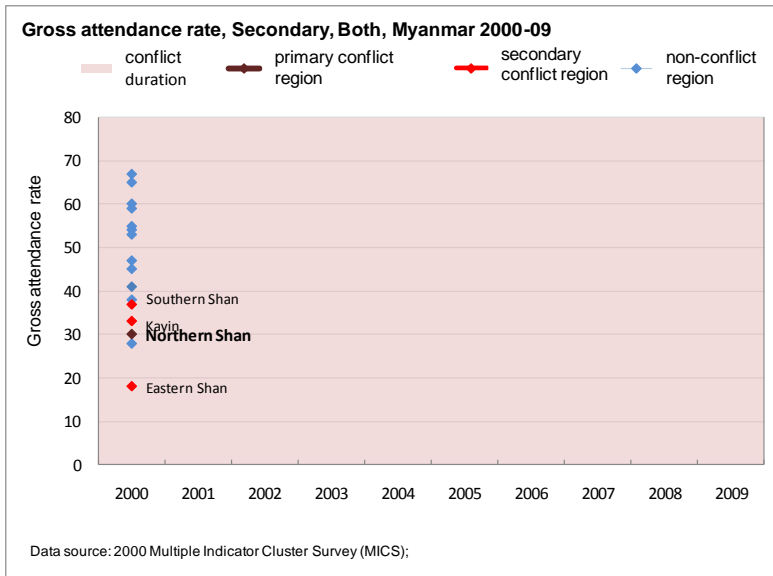
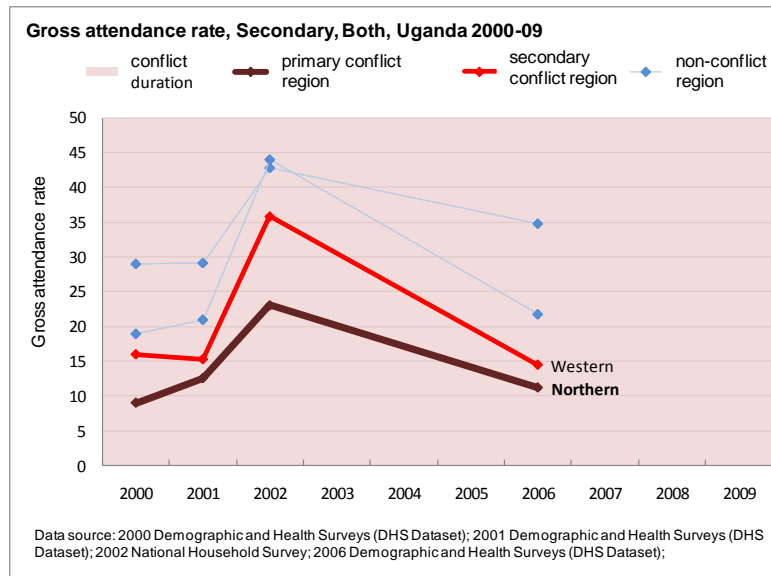


Figure 21 Secondary Gross Attendance Rates in sixteen conflict-affected countries (continued)



5. Conclusion

In order to see if any relationship can be found between violent conflict and the provision of education, this report (a) compares weighted net attendance rates in conflict and peaceful regions in countries currently experiencing conflict; and (b) investigates sub-national gross attendance rates, gross enrollment rates, rate of growth in the number of pupils, and pupil teacher ratios at the primary level, as well as gross attendance rates at the secondary level available for multiple years for countries that have been affected by conflict at some point between 2000 and 2010. The weighted net attendance rates show that in conflict affected regions, school participation is lower than in non-conflict areas in most of the countries identified as currently experiencing conflict. However, multiple year data (i.e., covering times of both conflict and of peace), do not point towards a correlation between these factors.

As discussed in the ‘Data’ section of this report, there are several possible reasons why these data may erroneously miss a relationship between conflict and attendance: 1) the data used do not allow sufficient opportunities to compare conflict data with pre/post conflict data; 2) the geographic units analyzed in this study are too large to register local effects of conflict; 3) household survey and administrative data may have been gathered for only the peaceful portions of conflict-affected regions; data taken from different types of household survey datasets may not be comparable; and 4) the concept of conflict may be specified too broadly.

Further research is needed before a conclusion is drawn on the relationship between sub-national conflict and the provision of education. In order to discern such a relationship, future analyses may need to be conducted using data that can be evaluated at a more discriminating level of disaggregation. EPDC’s evaluation of the effects of conflict on the provision of education in Khyber Pakhtunkhwa, Pakistan, for example, did not show a relationship between conflict and education and the province or district levels, but may have shown a relationship at the district circle level of analysis. It may be that the effects of violence on the provision of education on other countries also can only be measured at the most local levels of disaggregation.