

The quantitative impact of armed conflict on education in Pakistan: counting the human and financial costs

Amir Jones
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Acknowledgements

The authors would like to thank PEIC, and Margaret Sinclair, Fatma Al Madheed and Mark Richmond in particular, for commissioning this work and for their support and guidance in its development. We are also very grateful to Susy Ndaruhutse for her extensive input into the research. Special thanks go to a number of colleagues who generously provided access to data and insightful comments along the way. These include Paul Atherton, Shelley Collins, Janice Dolan, Kurt Moses, Diya Nijhowne, Pauline Rose, Martyn Shannon, Robin Shields and Jennifer Sklar.



Acronyms and abbreviations

AEPAM Academy of Educational Planning and Management (Pakistan)

ANER Adjusted net enrolment rate

ASER Annual Status of Education Report

BLA Balochistan Liberation Army

BRD Battle-related death

DHS Demographic and Health Survey

EPDC Education Policy and Data Center

FANA Federally Administered Northern Areas

FATA Federally Administered Tribal Areas

GCPEA Global Coalition to Protect Education from Attack

HIES Household Integrated Economic Survey

IDMC Internal Displacement Monitoring Centre

KP Khyber Pakhtunkhwa (formerly North West Frontier Province or NWFP)

MICS Multiple Indicator Cluster Survey

NER Net enrolment rate

NWFP North West Frontier Province

OOSC Out-of-school children

PEIC Protect Education in Insecurity and Conflict

PIHS Pakistan Integrated Household Survey

PSLM Pakistan Social and Living Standards Measurement Survey

ROI Returns on investment

TNSM Tehrik Nifaz Shariat-I Muhammadi

TTP Tehrik-i-Taleban Pakistan

UCDP Uppsala Conflict Data Program

UIS UNESCO Institute for Statistics

UNESCO United Nations Organization for Education, Science and Culture



1 Introduction

This case study accompanies the report *The quantitative impact of armed conflict on education: counting the human and financial costs* commissioned by Protecting Education in Insecurity and Conflict (PEIC), part of the Education Above All Foundation. It is one of three country case studies conducted for this research. The other case study countries are the Democratic Republic of the Congo and Nigeria.

That report outlines how conflict affects education, noting ten main channels through which conflict can impact on access to education and learning:

- School closure due to targeted attacks, collateral damage and military use of school buildings
- Death and injury to teachers and students
- Fear of sending children to school, and teachers' fear of attending due to targeted attacks, threats of attacks or general insecurity reducing freedom of movement
- Forced population displacement leading to interrupted education
- Recruitment of teachers and students by armed forces (state and non-state)
- Public health impacts of conflict which reduce access and learning
- Increased demand for household labour
- Reduction in returns to education
- Reduced educational expenditure (public and private) due to overall reduction in resources and shifting priorities
- Reduced public capacity to deliver education

This case study investigates the extent to which conflict has impacted on education in Pakistan. Using a variety of data sources, it considers the evidence of the impact of conflict on education via the various channels listed above, and attempts to quantify the impact in terms of numbers of out-of-school children (OOSC) and the financial implications of the damage done to the education system. It should be noted that the conflict situation in Pakistan is highly dynamic and that any statistic relating to the number of OOSC can only give a snapshot at one particular point in time. Similarly the financial costs of the impact depend on the timing and length of the period of conflict being considered. For these reasons the figures given in this paper are very rough estimates, exploring the approximate range in which the 'actual' number, often a highly transitory statistic, might lie.

The report firstly sets the context by outlining the conflict history. Section 3 explores the effect of conflict on numbers of OOSC. The fourth section explores the direct costs to the education sector, broader impacts to the sector and costs borne in the longer term as a result of schooling missed due to conflict. The conclusion considers the relative scale of the different channels of impact, both in terms of cost and enrolment.



2 Conflict history

Pakistan has known conflict since its inception, when mass migration of Muslims from other parts of India and mass migration of non-Muslims from present-day Pakistan to present-day India led to massacres of hundreds of thousands of people. Partition also left the two countries with a border dispute in Jammu and Kashmir that has simmered ever since, erupting into full-blown war on three occasions (1947–48, 1965 and 1971) and a smaller conflict in Kargil in 1999. From 1971 to 2008, India and Pakistan together lost roughly 13,000 army personnel over Kashmir, while the insurgency and military operation have claimed over 30,000 lives since 1989.¹ There has been a defensive posture against attack from and re-absorption by India throughout the history of Pakistan. This has led Pakistan to invest heavily in its military.

The Pakistan formed in 1947 consisted of two non-contiguous territories, West and East Pakistan (now known as Bangladesh). In 1971, a secessionist war was begun that led to the formation of the state of Bangladesh. Casualty estimates vary greatly, but between 300,000 and 3 million people died as a result of the conflict.² Since the 1970s, Pakistan has also faced violent secessionist pressures in Balochistan (the province bordering Afghanistan and Iran) and communal violence in Sindh. The division of Pashtun territory (currently the Tribal Areas and Khyber Pakhtunkhwa) during the nineteenth century has also contributed to instability. Ethnic, sectarian and religious conflict has been ever-present in Pakistan, and frequently erupts into violence.

Since 2001, the war in Afghanistan has been spilling over into Pakistan in complex ways: political and economic factors are interacting with tribal, ethnic and religious identities and have brought violent conflict into the heart of the country. There was violent conflict in the Waziristan district of the Tribal Areas between 2001 and 2007, between local tribes and members of the Islamic Movement of Uzbekistan fleeing Afghanistan. And since 2007, Tehrik Nifaz Shariat-I Muhammadi (TNSM; Movement for Protection of Muhammad's Religious Law) have been directly attacking the Pakistani government, resulting in a large-scale government military offensive against their stronghold in the Swat valley. While many TNSM leaders then renounced armed struggle, a more militant breakaway faction has formed, known as the Tehrik-i-Taleban Pakistan (TTP). The TTP has been forcibly closing down government institutions in areas under its control and replacing them with Sharia-based institutions. The TTP have also bombed government targets elsewhere in the country causing many civilian deaths, with suicide bombings being a frequent tactic.

Since 2009, the conflict has escalated as the Pakistani army has carried out large-scale offensives in the north west of the country, causing displacement of civilians on a massive scale (in 2009 over 3 million people were displaced, 1.2 million of whom remained displaced at the end of the year). This is partly due to Pakistani army tactics of encouraging civilians to flee before engaging in armed combat.

A further dynamic has been the US and NATO strategy of drone attacks in the tribal areas of Pakistan, further escalating conflict between the people in these areas and the government of Pakistan, and increasing the animosity of local people against the West. The killing of Osama Bin Laden by US military forces and subsequent broadcasting of revenge statements has also led to an escalation of violence as Taliban and other al-Qaida-affiliated groups strive to avenge Bin Laden's death.

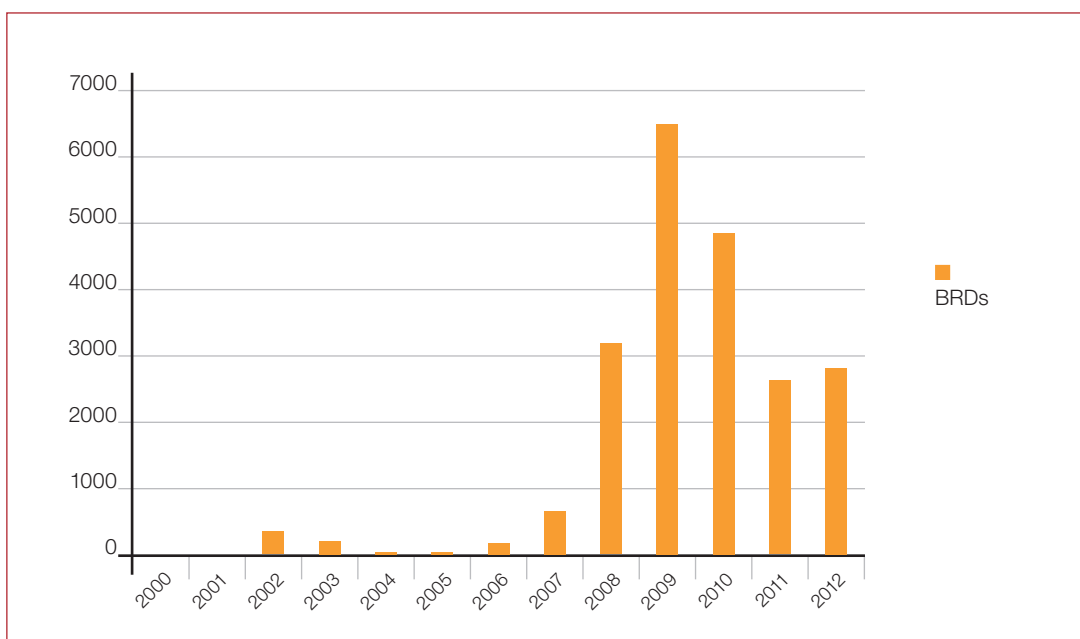
¹ <http://www.insightonconflict.org/conflicts/pakistan/conflict-profile/>

² <http://www.insightonconflict.org/conflicts/pakistan/conflict-profile/>



Current levels of violence in Pakistan are such that standard definitions³ classify it as being in a state of civil war. The five-year average for 2008–2012 was nearly 3,800 battle-related deaths (BRDs) per year, with the majority of these in the Federally Administered Northern Areas (FANA), Federally Administered Tribal Areas (FATA) and Khyber Pakhtunkhwa (KP, formerly known as North West Frontier Province or NWFP).

Figure 1: Battle-related deaths in Pakistan, 2000–2012



Source: UCDP Battle-Related Deaths Dataset, version 5.0 (UCDP, 2014)

³ One standard definition of civil war is a country with more than 1,000 battle-related deaths per year.



3 The human costs of conflict to education: out-of-school children in Pakistan

3.1 Data sources on OOSC

The main data source used nationally to track progress against the Millennium Development Goals is the Pakistan Social and Living Standards Measurement Survey (PSLM) and the associated Household Integrated Economic Survey (HIES). A Demographic and Health Survey (DHS) was conducted in 2007. Multiple Indicator Cluster Surveys (MICS) were carried out in Balochistan (2010), Punjab (2007–2008) and Sindh (2003–2004). The main administrative source of data on school enrolment is the Pakistan Education Statistics compiled by the Academy of Educational Planning and Management (AEPAM). Since 2003 the UNESCO Institute for Statistics (UIS) has published OOSC data for Pakistan based on national estimates rather than UIS-approved data.

An additional data source is the civil society run Annual Status of Education Report (ASER) which looks at school enrolment, school quality, reading and mathematics. Data collection is carried out by 10,000 volunteers who visited 87,044 households in 2013.

The first point to note is that primary school in Pakistan starts early (age 5) and is relatively short (five years). The next cycle of school is officially for 10–12 year olds. So children aged 10 years and older who are not in school are not included in the UIS OOSC statistics, and children over 12 are not included in the UIS out-of-school adolescent statistics. Based on UIS data for primary school age children, Pakistan has the second highest number of OOSC in the world, and around half the number of OOSC that Nigeria has (5.4 million compared to 10.5 million). But this is not a fair comparison since Nigeria has a longer primary cycle, so the UIS 'out of school' classification covers a wider age range. If the same age range is considered for both countries (7–14), the number of OOSC in Pakistan (9.1 million) is similar to that of Nigeria (9.2 million).

At the other end of the age range, many children included in the UIS out-of-school statistics are actually attending pre-school. According to a recent report on OOSC in Pakistan (UNICEF, 2013), 8.6% of primary school age children were attending pre-primary school. This constituted 25% of children classified as out-of-school.

Out-of-school estimates for Pakistan are based on household surveys, but these are often unable to access areas experiencing conflict. For example, FANA, FATA and restricted military and protected areas were not included in the 2007 DHS, due to poor security. The 2011–2012 PSLM survey did not include restricted military and protected areas.

3.2 Numbers of OOSC

UIS estimates that there were around 5.4 million OOSC aged 5–9 in Pakistan in 2012. Earlier estimates based on survey data from 2007 (UNICEF, 2013; Omoeva et al., 2013) put the figure close to 6.5 million. The biggest discrepancies between sources are at lower secondary school level, with estimates based on the older survey data giving a far lower figure.



Table 1: Estimates of OOSC in Pakistan from various sources

	Primary school aged (5–9)	Lower secondary aged (10–12)	7–14 year olds
UIS 2012	5,370,000	6,460,000	n/a
UNICEF 2013 (based on PSLM 2007/8)	6,500,000	2,700,000	
DHS 2007	6,620,000	2,700,000	9,360,000
DHS extrapolated to 2012	6,310,000		9,140,000
Out-of-school rate (UIS) girls	33%	58%	
Out-of-school rate (UIS) boys	23%	49%	

One reason for the differences may be due to undercounting of children in non-state schools in the administrative data. Pakistan has a large low-cost private sector and a large number of non-formal education centres. Children enrolled in unregulated private schools and non-formal education programmes would not be included in administrative data on school enrolments but probably would be included as attending school in household surveys.

The ASER survey found a much lower rate of out-of-school children (18% for rural and 6% for urban children aged 6–10). The difference between this and the UIS figures for age 5–9 enrolment can partly be accounted for by the slightly higher age range and difference in how enrolment in pre-school was counted.

3.3 Characteristics and distribution of OOSC

Of the OOSC identified in UNICEF’s analysis of the PSLM 2007/8 data (UNICEF, 2013), 16% lived in Khyber Pakhtunkhwa, and 8% lived in Balochistan, the two conflict-affected areas. The number of OOSC living in these provinces was 1.6 million, but this does not include the number of OOSC living in FATA.

3.4 Gender, conflict and access to education

In Pakistan, boys significantly outnumber girls in the population. According to the UIS statistics for the primary school aged population, boys out-number girls by almost 11 to 10 (ratio of boys to girls is 1.09). Due to the sex imbalance in the population, comparison of the absolute numbers of out-of-school boys and girls may not give a good representation of the extent of the gender inequality in school access. For this, it is more informative to compare the rates of out-of-school children: with a third of girls (33%) being out of school compared to less than a quarter of boys (23%).



Gender clearly plays a major role in parents' decisions to educate their children. With girls, the most commonly cited reason given by 10–18 year old girls for never having attended school was “parents did not allow”. For boys in this age group, cost was given as the primary cause for non-enrolment (Government of Pakistan, 2012). There is also gender inequity in the supply of education, particularly in the areas which have experienced most conflict. For example, in Khyber Pakhtunkhwa in 2011 there were almost twice as many boys' primary schools as girls' primary schools (15,020 compared to 8,146) and in Balochistan the proportion of girls' schools was even lower: 9,945 boys' schools and 2,839 girls' schools (AEPAM, 2013).

The conflict with the Taliban has exacerbated this inherent gender disparity as it led to targeted attacks on girls' schools and made parents afraid to send their daughters to school (GCPEA, 2014). In Swat, over 200 schools, almost all of them girls' schools, had been destroyed by the end of 2008 (IDMC, 2010). Across the province of Khyber Pakhtunkhwa as a whole, girls' schools suffered a far higher rate of closure than boys' schools, with 22% of all girls' schools in the province closed, compared to less than 2% of all boys' schools (EPDC, 2010a).

3.5 The impact of conflict on access to education

The UNICEF country report on OOSC in Pakistan (UNICEF, 2013) does not mention conflict as a reason for children being out of school. It mentions demand-side barriers such as parental lack of awareness of the importance of timely enrolment and education, attitudes to gender, early or forced marriage, fear of sexual harassment, displacement due to flooding, poor health, child labour, child trafficking and the inability of households to meet the costs of schooling. The South Asia OOSC report (UNICEF, 2014), which covers Bangladesh, India, Pakistan and Sri Lanka, discusses the ways in which insecurity, attacks on education and forced displacement (due to both conflict and natural disasters) can all negatively impact on enrolment. It also compares the public expenditure on education with the expenditure on the military and argues that in Pakistan the years of conflict and building up of defence forces have led to lower spending on education.

In the ASER survey (ASER, 2014), “law and order” was given as a cause of drop-out in 14% of rural cases (and in 9% of urban cases), compared to only 2% of cases where flooding was cited as the reason. The most common cause given for drop-out was poverty. With around 800 to 900 schools destroyed or damaged by militant activity between 2009 and 2013 (GCPEA, 2014), it is likely that between 100,000 and 200,000 children will have had their education interrupted as a direct result of these attacks, and will have been out of school, at least temporarily. However, this constitutes only a very small proportion of the 11.8 million children aged between 5 and 12 not enrolled in school in 2012, and far lower than the proportion citing law and order as the cause for drop-out in the ASER survey. As described in the main paper, these cases of schools being destroyed are the exposed tip of the iceberg of the impact of conflict on access to education.

Displacement is another route through which conflict can lead to children being out of school. The conflict in Khyber Pakhtunkhwa led to around 3.35 million people being internally displaced between 2008 and 2010, around 60% of whom were children (IDMC, 2010). Over half of these (1.8 million) were displaced from districts around Swat in April 2009. The others mostly came from FATA between 2008 and early 2010. Around 10% of those displaced settled in camps, where most children had access to primary schooling, although it is estimated that around 10–15% of children in camps did not have access. The vast majority stayed with host communities, and in many cases the local schools were unable to accommodate the additional influx of children. The lack of school space was exacerbated by the use of around 4,500 schools as shelters for the displaced families, thus

limiting access to education for the host communities as well as the displaced children (IDMC, 2010). Overall, it is estimated that around 2 million children had their education disrupted. This estimate includes children older than primary school age, so within the 5–9 age group the figure is likely to be closer to 1 million. By March 2014 many of the displaced families had returned home but there remained around a million people in the region displaced due to insecurity (OCHA, 2014).

It should be noted that when families are displaced from areas of very low access to education, to areas or camps with better education services, as was the case with rural areas in Khyber Pakhtunkhwa and FATA, displacement can actually lead to increased access to education (IDMC, 2010). At the height of the conflict, internally displaced children may have accounted for as many as 2 million of Pakistan's out-of-school children and adolescents. But it is not clear whether these children were enrolled in school before they were displaced and had dropped out of school as a result of the displacement, or whether they were out of school for other reasons, predating the displacement.

3.6 Estimating the full impact of conflict: enrolment trends over time

A number of studies have investigated the impact of conflict on education by looking at trends in enrolment over time. In the absence of DHS data from other conflict-affected areas, UIS (2010) used DHS data from the North West Frontier Province (NWFP, now Khyber Pakhtunkhwa) to track how education levels have varied over time to explore the impact of conflict on education. The study maps the number of 15 year olds without education against the timeline of conflict that the province experienced, and compares the trends with the rest of the country. With male education levels, the numbers without any education did increase relative to the rest of the country during the period between the second Kashmir war and the India-Pakistan war in the early 1970s. However, since then the rate has fallen below the overall rate for the rest of Pakistan, in spite of the conflict experienced. With females, there are clearer patterns of stagnating progress in education access associated with periods of conflict. The average number of years of education of young (15 year old) females in NWFP failed to increase, or in some cases fell, during conflict periods including civil conflict during the 1970s and in the mid-1980s to the early 1990s, when other factors may have been at work, including the arrival of a conservative Afghan refugee population. This led to a widening of the gap between the education levels of women in NWFP and those of the rest of Pakistan. Female literacy rates showed a similar pattern.

The study by EPDC (2010b) takes Balochistan and NWFP as conflict-affected areas within Pakistan (considering the conflict with the Taliban since 2004). Because it relied on DHS data, it did not consider the areas that were excluded from the survey for security reasons (FATA and FANA). The report estimates that 25% of the OOSC in Pakistan lived in conflict-affected provinces. From the available data sources, it is difficult to determine a marked negative downturn in enrolments at the onset of the conflict. The increase in gross attendance rates, for both males and females, between 2001 and 2005 was smaller for the two conflict-affected regions than for the other regions and this may have partly been due to the developing conflict with the Taliban depressing enrolment growth. However, from 2005 onwards enrolment in these provinces shows greater increases than elsewhere. It should be noted that the range of data sources used to construct the time series may not be directly comparable.

Shields and Paulson (2014) estimate that over the last decade, the increase in enrolment rates in Pakistan was significantly lower than in other countries starting from a similar baseline that were not conflict-affected. Based on their estimates, had the growth in enrolment rates followed the path of a non-conflict-affected country, the net enrolment rate in 2011 would have been around 84%, rather

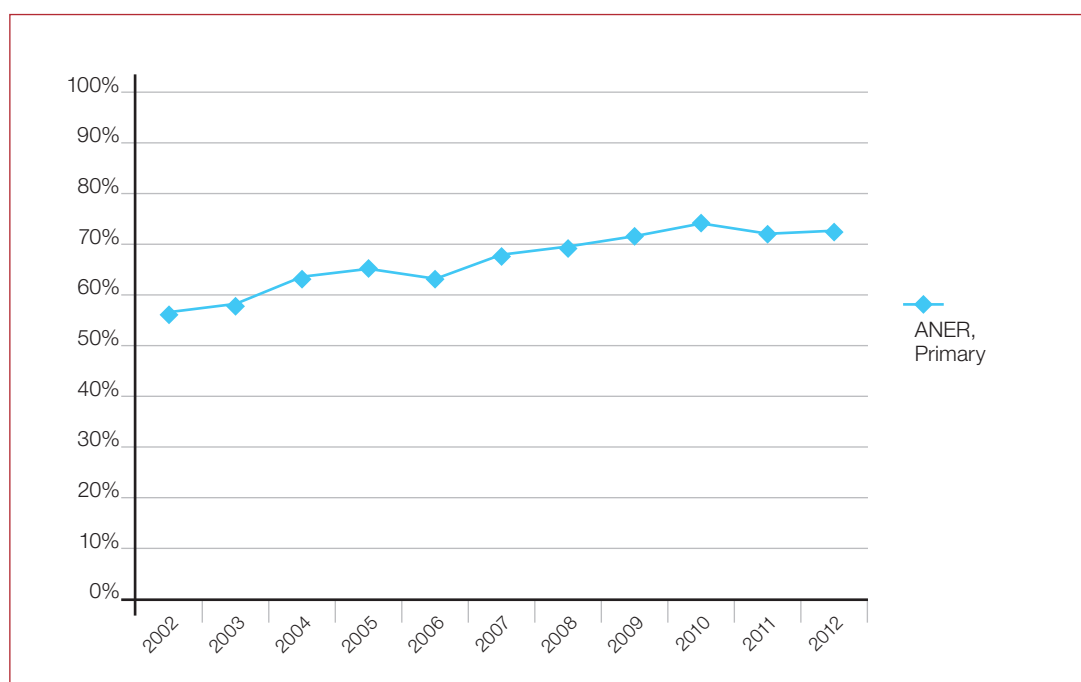


than 72%. This implies that around 12% (2,300,000 children) of primary school aged children are out of school largely as a result of the conflict whilst 16% (3,100,000) are out of school due to other reasons.

Lai and Thyne (2007) conducted a regression analysis of international conflict and education data, controlling for economic development and population growth. Based on global data from 1980 to 1987, they estimate that an increase of around 1,000 killed per year in a civil war leads to a reduction in primary enrolment of 1.4% to 3.4%. Since 2007, conflicts in Pakistan have led directly to between 3,000 and 4,000 deaths per year, which would mean a net reduction in enrolment, against a background of overall increasing enrolment of around 4% a year.

Looking at the trend in enrolment rates since 2002 (see Figure 2), the rate of increase at the start of the decade was much higher than in the second half.

Figure 2: Adjusted Net Enrolment Rate (ANER), Primary, for Pakistan (UIS data)



Taking out the figure for 2006 (where enrolments appeared to fall) and extrapolating the increase in enrolments at the start of the decade, indicates that the conflict since 2007 may have depressed growth in enrolment by as much as 14% (see Figure 3, following), similar to the estimate based on Shields and Paulson's (2014) work. However, if we include the 2006 data point the depression in enrolment rate falls to less than 5% (see Figure 4).



Figure 3: Primary ANER trend pre- and during conflict (model 1, omitting 2006 data)

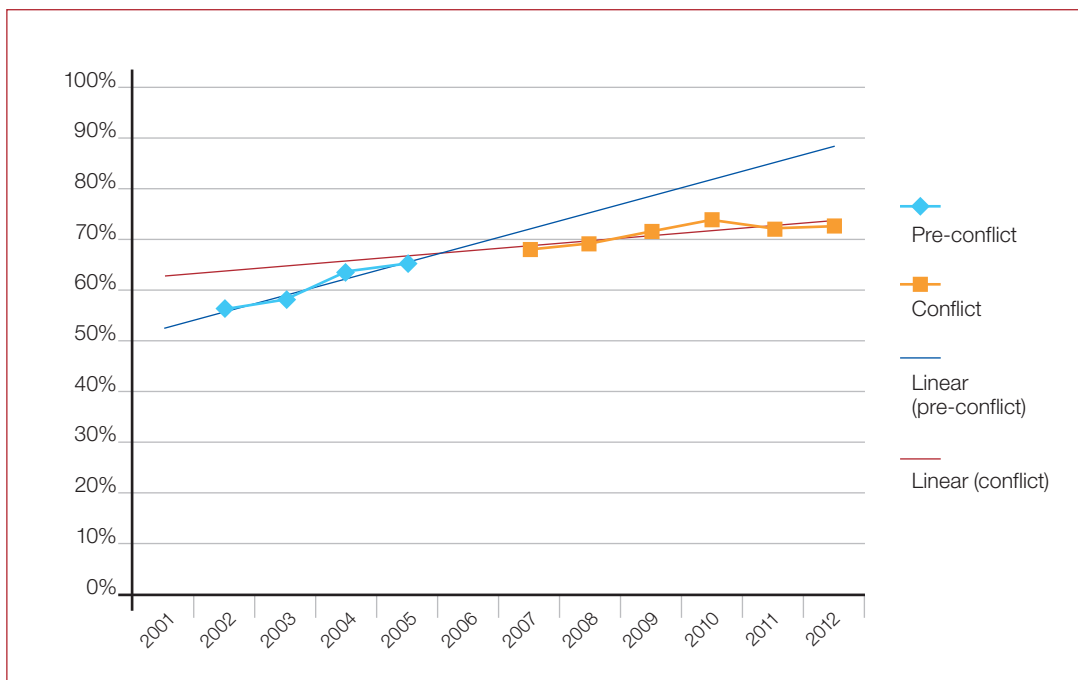
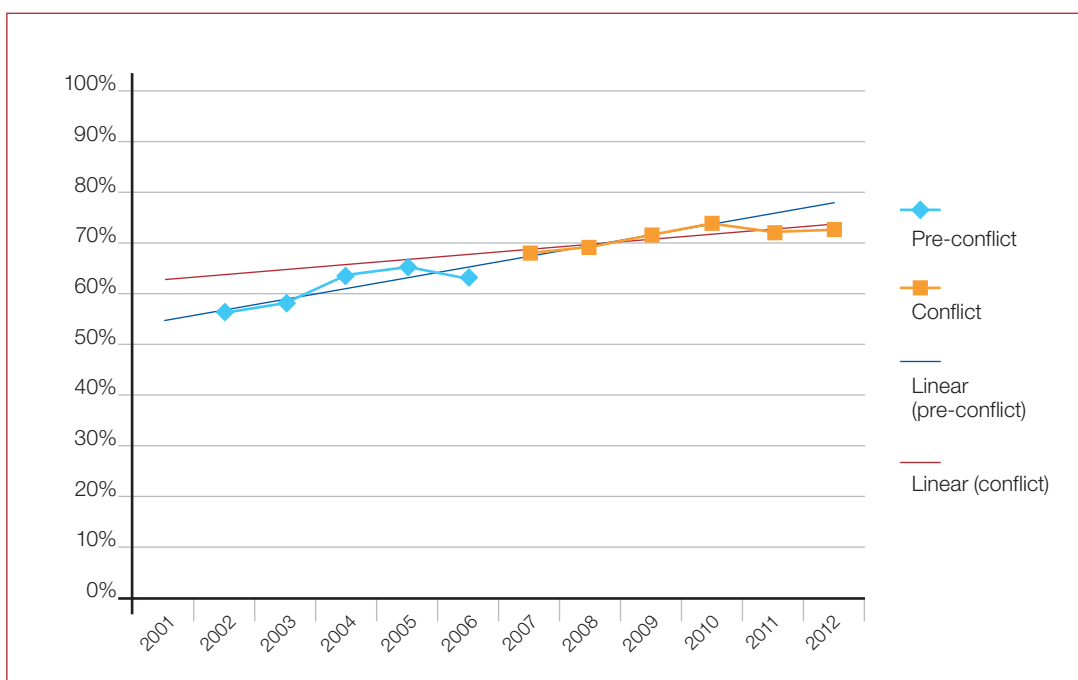


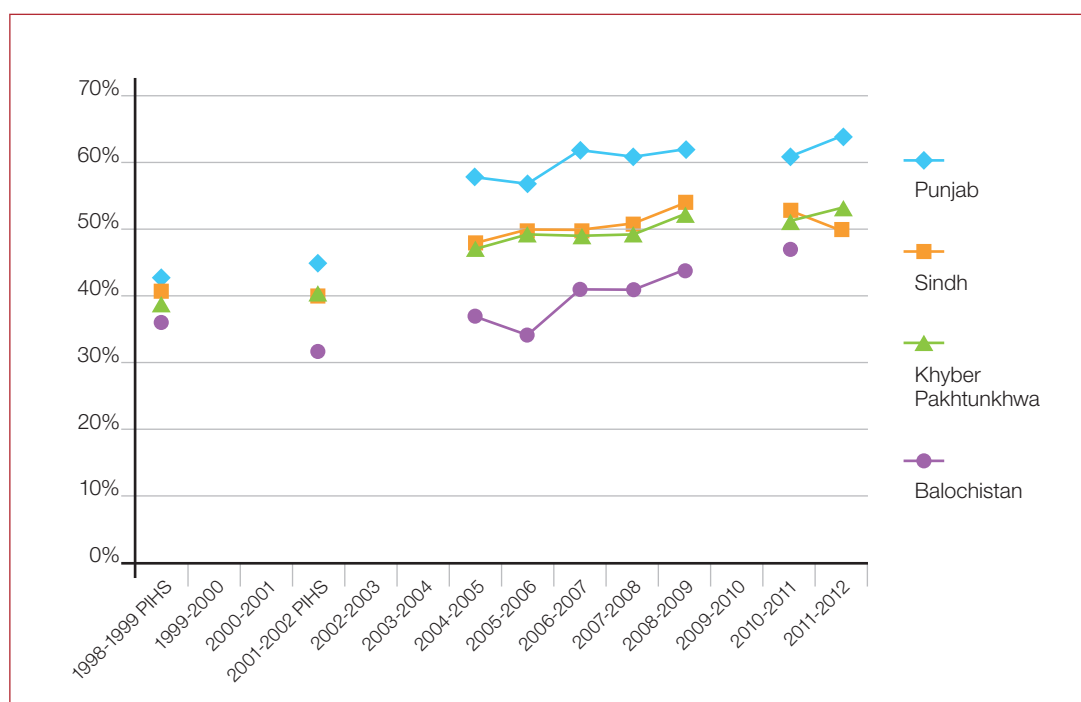
Figure 4: Primary ANER trend pre- and during conflict (model 2, including 2006 data)





Using the PSLM Survey, and the earlier Pakistan Integrated Household Survey (PIHS), it is possible to compare the trends in enrolment for the different provinces (see Figure 5). According to the PIHS data, there was little change in enrolment rates between 1999 and 2002. This may in part have been influenced by the increased border tensions with India during this period. There is an apparent stagnation in enrolment growth from 2006 to 2011. However, the pattern for Khyber Pakhtunkhwa/ NWFP is very similar to that of Sindh. Looking at the trends for the different provinces, it is difficult to distinguish between conflict-affected and non-conflict-affected provinces. The depression in national enrolment growth discussed above does not appear to be a phenomenon exclusive to the conflict-affected provinces. It could be that the indirect impacts of the conflict, such as reduced public spending on education, are greater than the direct effects of insecurity and school destruction, so the main impact on enrolment is seen at the national rather than the provincial level. However, it could also be that the apparent stagnation in enrolment growth was due to factors unrelated to the armed conflict.

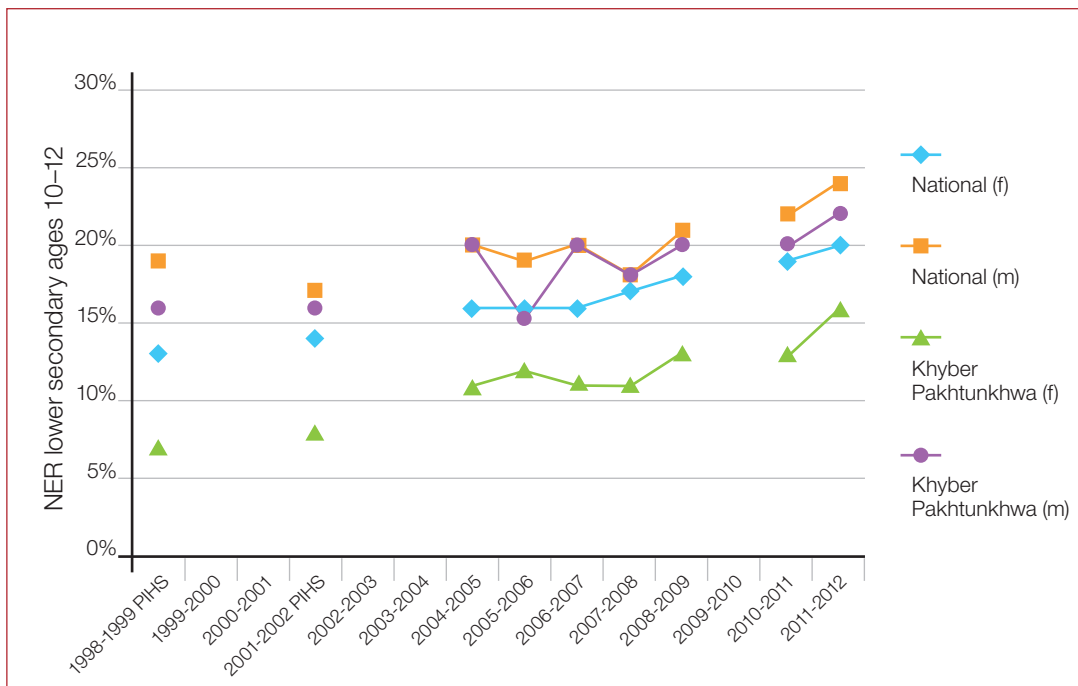
Figure 5: Primary NERs by province from household surveys



A number of studies (Justino, 2010; Lai & Thyne, 2007; Shields and Paulson, 2014; and Gates et al., 2010) have noted that the impact of conflict on secondary enrolment is greater than on primary. Looking at the PSLM data for lower secondary (middle school), it appears that girls' enrolment in Khyber Pakhtunkhwa/NWFP fell during the period of most intense fighting with the Taliban, and then stagnated until 2010, whereas the national trend showed a steady increase from 2006 to 2011 (see Figure 6). From 2011, girls' lower secondary enrolment rates increased more rapidly in Khyber Pakhtunkhwa/NWFP than nationally. To a lesser extent than for girls, boys' lower secondary enrolment in Khyber Pakhtunkhwa/NWFP also fell behind that of the national enrolment rate since the onset of major conflict in 2007. However, the inconsistency of the enrolment trend for males raises questions about the reliability and consistency of the data.

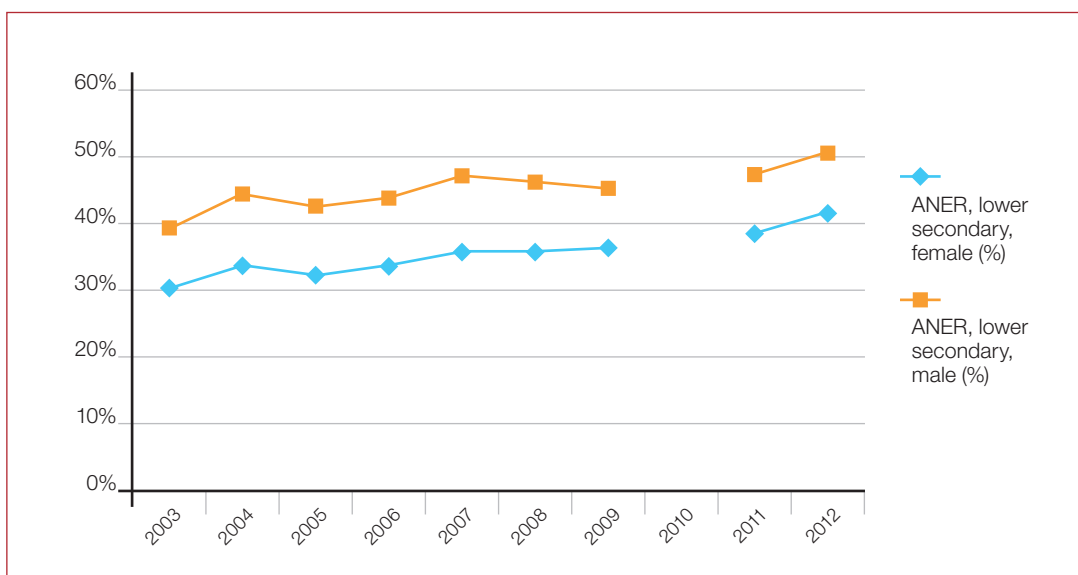


Figure 6: Lower secondary NERs, national and Khyber Pakhtunkhwa, from survey data



The UIS data for enrolment in lower secondary schools does show a stagnation in the growth of girls' enrolment and a fall in boys' enrolment during the most intense phase of the recent conflict (2007–2009), but there was a sharp rise in enrolment for boys and girls between 2011 and 2012, even while the conflict in the north of the country was ongoing (Figure 7).

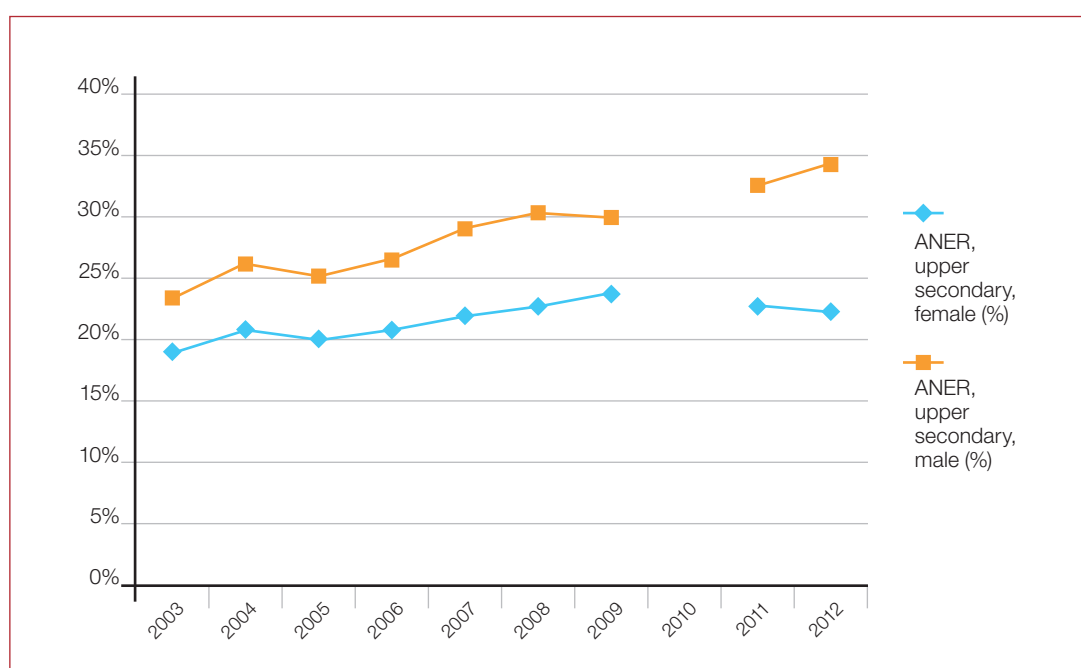
Figure 7: Lower secondary ANER, UIS data





In upper secondary, girls' enrolment was increasing but since 2009 has started to decrease, whilst boys' enrolment has continued to increase (Figure 8). At this level there could be a time lag between conflict and the impact on enrolment, since cohorts experiencing limited access to lower secondary education during conflict in 2007 would be entering upper secondary in 2010. It is possible, therefore, that the fall in girls' upper secondary enrolment in 2011 was partly due to girls' restricted access to lower secondary between 2007 and 2009. However, it is difficult to attribute changes in enrolment rates at secondary school to the conflict.

Figure 8: Upper secondary ANER, UIS data



3.7 Summary

In Pakistan in 2012, there were around 5 to 6 million children aged 5–9 who were not in primary school. Many of these were late enrollees and some were already attending pre-primary. Many were out of school because they were girls, or because families could not afford to send them to school. However, during the period 2007–2012 up to 1 million children in this age range were out of school, at least temporarily, as a result of attacks on schools, insecurity and displacement.

The estimates for the numbers of OOSC as a result of recent conflict are summarised in Table 2, on the following page.



Table 2: Summary of estimates of OOSC affected by and due to conflict in Pakistan

	Absolute numbers	Notes
OOSC aged 5–9 (primary school age) (UIS 2012)	5.4 million	27.5% of all children of primary school age
OOSC of lower secondary age (10–12)	2.7 million (UNICEF 2013) to 6.5 million (UIS 2012)	
OOSC living in conflict-affected provinces (2012)	1.6 million	25% of all OOSC
Children temporarily out of school due to attacks on schools (2009–2013)	200,000	Includes primary and secondary school ages
Children temporarily out of school due to forced displacement (2008–2010)	2 million	Includes primary and secondary school ages
Estimate of OOSC (primary school age) due to conflict, based on estimates of depression of enrolment growth due to conflict, 2006–2012 (4–14% depression in NER)	0.8 to 2.7 million	This includes national-level effects due to wider impact of conflict (weakened economy and education systems)

The majority of OOSC (75%) live in Punjab and Sindh, areas not directly affected by conflict. But the economic impact and other social disruption caused by the various conflicts at national level may have contributed to their lack of access. Nationally, growth in the primary NER appears to have been depressed by between 4% and 14% since the onset of conflict with the Taliban and numerous other minor conflicts in 2006–2007. Based on a primary school aged population of 19.5 million (UIS 2012 figure), this translates into between 0.8 and 2.7 million children out of school due to conflict.

The data on older children and adolescents out of school are more difficult to interpret and less consistent and reliable. Given that the enrolment and participation rates are lower than at secondary, the total absolute numbers are likely to be larger than for primary. Girls' secondary enrolment, especially in Khyber Pakhtunkhwa, did fall during 2006–2009, and boys' enrolment fell nationally. But girls' enrolment at the lower secondary level appears to have made a rapid recovery since 2011.



4 The financial costs of conflict to education in Pakistan

As noted in Section 1, conflict impacts on education in ways that have a direct cost to the sector, as well as more indirectly through reducing demand for and/or supply of education.

Direct attacks and collateral damage create clear costs for the sector in terms of rebuilding and replacing personnel, and it is relatively straightforward to generate some rough estimates of the impact of these attacks on the education system wherever they are reported. But the impact that conflict has on access to learning also represents a cost to society, both in itself and through its impact on wider societal and economic goals. These impacts are much harder to monetise, but there is a growing body of literature on the quantitative impact of conflict on education to draw upon.

Taking descriptions of attacks to education from *Education under Attack 2014* (GCPEA, 2014) as a starting point, we examine the monetary cost of direct attacks and collateral damage to education for the period 2009–2012. We then attempt to quantify other impacts on education that do not create a direct financial burden, such as the impact on access and learning. Finally we take these quantitative estimates of the impact on education and attempt to quantify the long-term costs of conflict to the economy as a result of reduced levels of education.

Explanation of our approach is provided below, and in more detail in the accompanying report *The quantitative impact of armed conflict on education: counting the human and financial costs* (Jones and Naylor, 2014).

4.1 Direct monetary cost of conflict to education, 2009–2012

4.1.1 Targeted attacks on education

GCPEA (2014) documents almost 1,000 attacks on education in Pakistan for the period 2009–2012, a result of multiple conflicts, but of the Taliban insurgency in the north west in particular. Some representative quotes are presented below.

“In areas affected by Taliban militancy, hundreds of schools were blown up and proponents of female education were killed. The total number of reported militant attacks on schools in 2009–2012 was at least 838 and could be as high as 919. Difficulties faced by journalists and other observers working in the worst affected areas mean that the true total could be considerably higher.” (GCPEA, 2014, p.169)

“Human rights and media reports suggest that at least 30 children were killed in attacks on schools and school transport from 2009 to 2012 and more than 97 were injured. At least 138 school students and staff were reported to have been kidnapped.” (GCPEA, 2014, p.169)

“The human rights organization reported that at least 22 teachers and other education personnel were killed in targeted attacks in Balochistan between January 2008 and October 2010, including Shafiq Ahmed, the provincial minister for education, who was assassinated by the BLUF in October 2009 outside his home.” (GCPEA, 2014, p.170)

Table 3, following, summarises the evidence presented in GCPEA (2014).

Table 3: Targeted attacks on education in Pakistan, 2009–2012

Dates	Schools damaged/ destroyed	Impact on students/ teachers	Notes
2009–2012	“... at least 838 and could be as high as 919”; “505 schools damaged or destroyed in 2009 alone”	“proponents of female education ... killed.” At least 30 children killed in attacks on schools and school transport and more than 97 injured. At least 138 school students and staff kidnapped	Areas affected by Taliban militancy
2009–2012		20 pre-tertiary teachers killed and at least 8 injured. A further 4 education personnel, comprising 1 provincial education minister, 2 school bus drivers and a security guard, killed and 2 more injured	Areas affected by Taliban militancy
2008–2010		At least 22 teachers and other education personnel killed	Balochistan
2009–2012	“At least” 40 cases of schools being used by the military, six incidences of militants based in schools, and one case of the police being based right next to a school	Use of schools as military bases in Swat prevented the education of around 10,000 students	Nationwide
January 2009		Taliban “bans” girls’ education forcing 900 schools to close or stop female enrolment. 120,000 girls and 800 female teachers stopped attending school in Swat	Areas affected by Taliban militancy; fear preventing the return of students and teachers even after Pakistan military regained control



October 2009		5 university students killed	Taliban suicide bomb attack on International Islamic University in Islamabad
November 2009		2 university staff killed	Balochistan Liberation Army (BLA) attack on University of Balochistan
2010		6 university professors murdered	Taliban
October 2010		1 teacher killed	Assassination at Jamia Binoria Alamia University
December 2010		5 university students injured	Bomb attack on Karachi University targeting the Imamia Students Organisation
June 2011		7 university students injured	Islami Jamiat Talaba student organisation at Punjab University attack on fellow students
November 2011		6 seminary students killed	
Estimate total impact	At least 878–959, excluding threats of damage	At least 61 education personnel killed and 10 injured; at least 53 students killed and 97 injured; at least 138 education personnel and students kidnapped; at least 130,000 students prevented from attending school	



There were at least 838 **militant attacks on schools** over the period 2009–2012. In addition, there were at least 40 cases of **armed forces occupying schools**. In order to cost this impact we make the following assumptions:

- 900 schools attacked or occupied
- Half these schools were destroyed and half damaged
- Cost of repairing a damaged school is equal to half the cost of replacing a school
- Schools average seven classrooms and buildings⁴

Classroom construction costs, of course, vary greatly by location and materials used. Two estimates of classroom construction cost were accessed: \$10,000 (in-country international NGO source) and \$3,835 (DFID, 2014). Taking \$5,000 per classroom⁵ as an estimate at the lower estimate of this range gives us a school construction cost of \$35,000. This gives us a cost for replacing destroyed schools of \$15.8m and that for repairing damaged schools of \$7.9m (based on the assumptions above), leading to a total construction cost to the sector of \$23.6m.

In addition to this, there will also be a cost for replacing damaged or looted equipment and teacher materials. If we assume that for each school \$5,000 worth of equipment needs replacing, then the cost would be \$4.5m. If we add this to the construction costs we arrive at a total cost from targeted attacks on buildings and materials of \$28m.

Table 4 also records the murder, injury and kidnapping of educational personnel. In addition to the great personal loss suffered by their families, this also represents a burden to the education sector. In order to cost this impact we make the following assumptions:

- All murdered and injured education personnel need to be replaced
- Kidnapped personnel do not need to be replaced
- Cost of replacing educational personnel is based on cost of replacing a standard teacher.

We estimate the cost of training a new teacher in Pakistan at approximately \$1,620,⁶ meaning the cost of replacing the 71 education personnel killed or injured would total \$115,000.

Potentially an even greater cost to education than the direct damage is the restriction of access that conflict-related **school closures** mean. Attacks on schools and military use of buildings mean disruption to school schedules for weeks, months or even years. In Pakistan, the Taliban have issued announcements prohibiting girls from attending school, and even when these bans have been lifted, many parents are too afraid to start sending their daughters back to school (UNICEF, 2014). As well as the indirect cost of potential lost schooling (see Section 4.2), these interruptions can have a direct cost in that teaching staff still have to be paid despite not teaching.

Again, GCPEA (2014) provides some evidence of school closures, but there are challenges converting the descriptions into hard estimates of lost student days. The following statements cover the most significant reports of school closures.

⁴ This is based on an assumption of one classroom for each of the five primary grades plus two other buildings.

⁵ This figure also fits with draft updated figures from DFID in 2014 (personal communication).

⁶ We take the average of cost from four different teacher training institutions 2003/4 documented in UNESCO (2006) and assume 280% inflation between 2004 and 2013 (World Development Indicators database).



"... hundreds of thousands deprived of education ... " (GCPEA, 2014, p.169)

"A conservative estimate puts the total number of militant attacks on schools over the reporting period between 838 and 919. The UN reported the damage or destruction of at least 118 schools in 2012 alone." (GCPEA, 2014, p.169)

"Some 120,000 girls and 800 female teachers stopped attending school in Swat. Over the following months, the Pakistani military regained control of the area but many schoolgirls and female teachers were too scared to return to school. Some parents remained afraid to send their children to school and some teachers remained scared of returning to work nearly a year after the military ousted the Taliban." (GCPEA, 2014, p.169)

"... schools in Swat district had been used as bases by the Pakistani military for over a year, preventing the education of around 10,000 students." (GCPEA, 2014 p.172)

"Human Rights Watch reported that government schools [in Balochistan] were only open for 120 working days in 2009 compared to an average of 220 days for the rest of the country." (GCPEA, 2014, p.170)⁷

These give an idea of the magnitude of the problem but are difficult to translate into an estimate of lost teaching hours. What we can do is take these statements to guide some rough calculations that give an idea of what impact this might have on the education budget. Using these statements, we might estimate that there were around 120m lost student days between 2009 and 2012.⁸ The pupil-teacher ratio in these areas is 32:1 (AEPAM, 2013). So we have 3.75 million lost teacher days. If a teacher's salary is \$3,900/year (see DFID, 2014) or \$19.50/day⁹ then the cost in lost teaching time is \$73m.

Table 4: Summary of the total estimated direct costs of conflict on education, 2009–2012

Cost	Quantity	Unit cost	Cost estimate
Cost of replacing destroyed and damaged infrastructure	Approx. 900 schools	\$35,000 per destroyed school	\$23,625,000 (assuming half destroyed and half damaged, cost of damage equals 50% of replacement cost)
Cost of replacing damaged and looted equipment	Approx. 900	\$5,000	\$4,500,000
Cost of replacing lost teaching force	71 teachers	\$1,620	\$115,020
Cost due to lost teaching time	Approx. 3.75m lost teaching days	\$19.5	\$73,125,000
Total cost			\$101,365,020

⁷ Rather than a result of attacks or direct threats to education, this appears largely related to fear amongst teachers of being targeted, resulting in lower recruitment and attendance.

⁸ This figure was derived from the following figures and assumptions: 900 schools of 200 students each from the second statement, 120,000 girl students from the third statement, 10,000 students from the fourth statement and 890,000 students from the fifth statement (school population of Balochistan). We then multiply by an estimated average of 100 lost days.

⁹ Assuming a 200-day year.

GCPEA (2014) also provides some accounts of attacks on education in 2013. This reporting does not follow the same methodology as that of 2009–2012, so we present the data separately.

Table 5: Targeted attacks on education in Pakistan, 2013

Dates	Schools damaged/ destroyed	Impact on students/ teachers	Notes
January 2013		5 teachers killed	Taliban attack in KP province
January 2013	Bomb attack at 1 university	5 students injured	University of Peshawar's Institute of Islamic and Arabic Studies
March 2013	1 school attacked with guns	1 headteacher killed, 6 students injured	Taliban attack in Western Karachi
May 2013		Headteacher killed	Taliban attack in Karachi
May 2013	"At least" 2 schools bombed		BLA attack during elections
June 2013		14 female students killed and 19 injured; second attack killed 11 and injured 17 (including hospital staff and police)	Lashkar-e-Jhangvi militant group attack on Sardar Bahaddur Khan Women's University in Quetta, Balochistan and the hospital ward where the casualties were taken
November 2013		11 teachers abducted	Taliban attack in KP province
Estimate total impact	At least 3 schools and 1 university destroyed or damaged	At least 7 education personnel killed and 11 abducted; at least 15 students killed and 19 injured	

Following the same methodology as above,¹⁰ we calculate the cost to the education sector as presented in Table 6.

¹⁰ Additional assumption: the cost of repairing/replacing a university building is equal to that of an eight-classroom school.



Table 6: Summary of the total estimated direct costs of conflict on education, 2013

Cost	Quantity	Unit cost	Cost estimate
Cost of replacing destroyed and damaged infrastructure	4 schools	\$35,000 per destroyed school	\$105,000 (assuming half destroyed and half damaged, cost of damage equals 50% of replacement cost)
Cost of replacing damaged and looted equipment	4	\$5,000	\$20,000
Cost of replacing lost teaching force	7 teachers	\$1,620	\$11,340
Total cost			\$136,340

4.2 Broader impacts of conflict on education

4.2.1 Impact on access and learning

As well as the direct costs to education, conflict also impacts on access to education and learning. In the introduction, we outlined the main channels through which conflict impacts on access to education.

Whilst we will consider the impact of some of these channels individually, in intense and/or long conflicts, the combination of all these factors – and their interaction with other barriers to education such as poverty and weak governance – can have a significant impact on educational achievement for a whole generation. If this is the case, it could represent a cost to education far greater than the direct costs of rebuilding schools and training teachers.

As noted above, the result of the **attacks on education and threats of attacks on education** documented by GCPEA (2014) is likely to have led to around 120m lost student days.¹¹

Student deaths also contribute to a reduction in human capital. Human rights and media reports suggest that at least 59 children were killed in attacks on schools and school transport from 2009 to 2013 and that more than 163 were injured (GCPEA, 2014, p.169). There have also been at least 127 cases of kidnap of students, some of whom may still be in custody (GCPEA, 2014). Although the personal cost of these attacks is great, they do not represent an operational cost to the education sector.

Displacement is another mechanism through which conflict can affect educational opportunity. Above we estimated that displacement has led to the temporary denial of education for around 1 million children (see Section 3.5).

Child soldiering is another mechanism through which access and enrolment can be impacted during conflict. In 2009, the Pakistan Army claimed that up to 1,500 boys had been abducted from schools and madrassas in order to be trained as suicide bombers, and others have been recruited voluntarily (GCPEA, 2014, p.172).

¹¹ In the case of school closure in Balochistan, this was largely a result of fear of targeting among teachers causing low recruitment and attendance.



In Section 3 we speculated that of around 6 million children of primary school age currently out of school, in the region of 1 to 2 million are out of school because of conflict. This provides us with only a snapshot, however, and tells us little about the long-term impact of conflict.

If school closure leads to **permanent drop-out**, then the cost to the individual student, and society as a whole, is very great. The ‘bottom-up’ accounting approach based on GCPEA (2014) developed above does not lead to robust estimates of the total impact of conflict on education – as well as an underestimation bias in the direct impacts, it also cannot account for the less direct impacts and interactions with other factors which create multiple barriers to education. We therefore now turn to statistical estimation of the impact on education outcomes.

The Pakistan DHS provided data on average years of schooling. The survey, however, was not able to cover the most conflict-affected parts of the country, but did cover the conflict-affected region of NWFP. UIS (2010) uses this data to compare educational outcomes between NWFP and the rest of the country. This point is discussed in greater detail in Section 3.1 above. For our purposes, it suffices to say that whilst the UIS analysis provides some evidence that conflict has permanently impacted on educational outcomes, it cannot be used to estimate the magnitude of this impact.

Another approach is to look at statistical analyses carried out in other conflict-affected countries. There is a growing body of literature which aims to isolate the impact of conflict on education, for example by exploiting district-level variation in conflict exposure.¹² A number of these studies are described in our main report (see Jones and Naylor, 2014). Although such analysis has been carried out for a variety of conflict situations, estimates of the net impact of conflict on years of schooling have tended towards a 0.5 year reduction.

Although it is difficult to generalise from one conflict context to another, the fact that there is this grouping around a 0.5 year reduction in average schooling leads us to speculate that in areas of Pakistan where the conflict is at similar levels of intensity to those studied (e.g. Colombia, Côte d’Ivoire, Rwanda), the impact on school attainment is of a similar magnitude. In Khyber Pakhtunkhwa, FATA and Balochistan we could argue that this is the case. These regions account for approximately 23% of Pakistan’s school-age population (AEPAM, 2013); we can therefore speculate that the impact of the current conflicts in Pakistan is to reduce national educational attainment by an average of 0.1 school years.¹³

Even if access can be maintained during conflict, there may still be significant impacts on learning. Conflict can lead to poor learning environments, reduced distribution of learning materials and psychological trauma that affects children’s learning (Save the Children, 2013). These impacts are very difficult to quantify in a country such as Pakistan but we might hypothesise that they represent a significant cost to education.

4.2.2 Impact on educational expenditure

Conflict can also impact on the financing and governance of education, which in turn can impact on access to education and learning.

Educational expenditure in Pakistan is relatively low at 2.7% of GDP¹⁴ (decidedly below the world average of 4.8%¹⁵). We might hypothesise that this relatively low level is partly a result of pressure that conflict places for increased military expenditure. However, we find that military expenditure in

¹² District-level conflict exposure can plausibly be argued to be exogenous from district-level variation in educational outcomes, whereas national or regional variation cannot.

¹³ 21% multiplied by 0.5 school years.

¹⁴ <http://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS> accessed August 2014.

¹⁵ UIS Online Database, accessed January 2014.



Pakistan is 2.7% of GDP (SIPRI, 2014). This is slightly above the world average of 2.4%, but below the average of developing countries during peacetime of 2.8% GDP as calculated by Collier et al. (2003), and significantly below the average of developing countries during civil war of 5% of GDP – perhaps surprising for a nuclear state that has seen conflict for much of its existence, with recent levels of conflict technically putting it in a state of civil war.¹⁶ It may be that there is significant military spend off-budget.

Drawing on analysis of the fiscal impact of conflict in 22 countries, Gupta et al. (2002) find that conflict indeed leads to greater military expenditure, but that this is largely funded by borrowing rather than cuts in basic services such as education.

One reason why we might speculate that Pakistan could be an exception to this rule is that some level of conflict has been almost ever-present since the country's inception, meaning that eventually increased military expenditure must impact on the rest of the government budget. Although Pakistan's military spending is not abnormally high, it may be the case that it would be lower still, and education spending higher, if there had been less conflict. If this is the case, then this represents a cost to the sector and society. In any case, Gupta et al. (2002) also find evidence that conflict depresses growth through the diversion of resources to unproductive activities which impact on government revenue, and therefore real per capita education expenditure is reduced as a result of conflict.

In a global study, Lai and Thyne (2007) also find evidence that conflict depresses educational expenditure. They find that being in a state of civil war reduces educational expenditure by 3.1–3.6% per year but, again, they do not find evidence that this is a result of increased military expenditure. Pakistan spends 2.7% of GDP on education. Using Lai and Thyne's figures, we could estimate that this would translate to a loss to the sector of \$188–219m each year, corresponding to 0.08–0.1% of GDP.

Lai and Thyne (2007) also use this dataset to test the impact on educational expenditure of the severity of conflict, finding that an increase in 1,000 BRDs per year leads to a reduction in educational expenditure of 2–2.7%. Using the UCDP battle-related deaths database (UCDP, 2014), we see that the five-year average annual BRD rate for 2009–2012 is 4,211, meaning that we can estimate the impact on educational expenditure to be in the region of a \$512m–691m reduction (8.4–11.4%) corresponding to 0.23–0.31% of GDP. However, it must be noted that this is likely to be an overestimate of the impact, as Pakistan is far larger than the average country from which the data were drawn.¹⁷

4.2.3 Impact on teaching force and administration

As well as having a direct impact on the teaching force, targeted attacks also impact on individuals' **decisions to join or remain within the profession.**

"Fear among those who fit the armed nationalist groups' target profile led to lower teacher recruitment, more transfer requests and lower attendance." (GCPEA, 2014, p.170)

It is not possible to put a figure on the cost of this impact, but difficulties in recruiting and retaining teachers clearly jeopardise educational quality and place a burden on administration. Furthermore,

¹⁶ One definition of civil war is at least 1,000 BRDs per year. Pakistan has averaged well over 2,000 for the last five years (PRIO database, accessed February 2014).

¹⁷ The authors use an absolute measure (BRD/year) to estimate impact of conflict on a relative measure (education expenditure as share of government budget). It is therefore an estimate of the impact of conflict intensity on an average-sized country. The authors state neither the average country size of the sample, nor the sample itself.

there is evidence that a far greater impact than on recruitment is to be found on teacher training and professional development, further jeopardising educational quality (Buckland, 2005).

Table 7: Summary of other impacts of conflict on education in Pakistan

Impact			Monetary impact		
	Estimate	Notes		Estimate	Notes
Lost student days	120m	Summary of GCPEA (2014) data with assumption of average school closure 100 days			
Students killed	59	Summary of GCPEA (2014) data			
Students injured	163	Summary of GCPEA (2014) data			
Students kidnapped	127	Summary of GCPEA (2014) data			
Displaced students	2m students affected	Includes disruption of education in host communities			
Recruitment of students to armed forces	1,500 boys abducted, others volunteered	Summary of GCPEA (2014) data			
Number of children out of school because of conflict	1–2m	See Section 3			
Impact of conflict on national average years of schooling	0.1 years	Assuming 0.5 years' impact in KP, FATA and Balochistan			
Impact on learning	Not quantifiable				



Impact on educational expenditure	3.1–11.4%	Lai and Thyne (2007)	\$188–691m	Both low and high estimates upwardly biased since Pakistan is a larger country than sample average
Impact on teaching force and administration	Not known			

4.3 Indirect cost of conflict through missed education

There is a recognised link between educational attainment and subsequent economic and social development (see Jones and Naylor, 2014, for discussion). If conflict impacts on educational attainment, we could therefore expect economic and social repercussions. Although it is not a cost **to** education, it is a cost that comes **through** the impact of conflict on education.

The most obvious and measurable of these links is that of private earnings. Individuals invest their time (and often money) in education partly because they believe that the lifetime earnings gain outweighs the private costs and foregone earnings whilst studying. The formulation of this decision-making process – lifetime earnings gain over foregone earnings and private costs – is called the private rate of return on investment in education (ROI).¹⁸

In a 2004 review of the literature, Psacharopoulos and Patrinos identified a number of reliable estimates of returns on investment in education in Pakistan, presented in Table 8 below.¹⁹

Table 8: Private returns on investment in education in Pakistan

Source	Year of estimate	Estimate
Katsis et al. (1998)	1991	8.4% for primary, 13.7% for secondary 31.2% for tertiary ²⁰
Katsis et al. (1998)	1991	15.4% ²¹
Psacharopoulos (1994)	1986	4.6% ²²

Source: Psacharopoulos and Patrinos (2004)

¹⁸ This calculation should give a figure above 100%. It is common practice to present ROI as the return above 100%, e.g. if the calculation yields a result of 130%, the ROI will be stated as 30%.

¹⁹ We must note that these estimates are historic, and that we are projecting the impact of current conflicts in the future.

²⁰ These are estimates based on the standard full method. See Psacharopoulos and Patrinos (2004) for more on methodology.

²¹ The coefficient on years of schooling in income regression analysis. See Psacharopoulos and Patrinos (2004) for more on methodology.

²² Comparable over time returns to investment in education. See Psacharopoulos and Patrinos (2004) for more on methodology.



These private return estimates do not take into account the total cost of education, i.e. the opportunity cost of foregone earnings plus the cost of providing the education, typically borne by the government, often with parental contributions. This inevitably reduces the returns to education. But there are also benefits to society in educating individuals. Unfortunately, attempts to quantify these externalities are few and far between, and we do not attempt to put a figure on the true social returns to education.

What this discussion shows us is that the impact of conflict through education (on the economy) will always be greater in magnitude than the impact of conflict on education. Education has positive returns, both for the individual and society, and any impact that conflict has on education will inevitably lead to an even greater impact on economic growth and societal goals.

Above, we outlined the direct costs that conflict in Pakistan has brought to the education sector. These represent a loss of investment in education that we would expect to see magnified in the long-term economic impact. If we assume 15% returns to education investment, then the \$101m direct cost calculated in section 4.1 for 2009–2012 would translate to a \$117m impact on national income.

We also speculated that, as well as this loss of sunk investments, current educational budgets might have been reduced by \$188–691m per year (Section 4.2.2). For the lower bound, a \$188m reduction in educational investment would translate to around \$217m impact on national income. This gives a net impact of \$28m (since the reduced education spending represents a 'saving') per year of conflict.²³ So for the four years of conflict considered in this study (2009–2012) the long-term losses from reduced human capital due to reduced public expenditure on education would be \$113m.

But we also outlined how conflict's impact on education is much broader than the monetary impacts to the sector. Conflict results in a reduction in access, which ultimately leads to permanent reductions in average educational attainment. In Section 4.2.1 we speculated that current conflicts might have the long-term impact of reducing the national average for years of schooling by 0.1 years. Based on discussions in Burnett et al. (2013) of the impact of missed schooling in Pakistan, we can speculate that this might lead to a 1.3% reduction in income per capita.²⁴ This translates to an impact on the economy of \$2.9bn.²⁵

Burnett et al. (2013) also calculate the opportunity cost of the high levels of OOSC in Pakistan. Using wage premium estimates and estimating the proportion of OOSC who will never complete primary education, they estimate that the cost to Pakistan of OOSC is equivalent to 0.8% GDP.²⁶ Adding cost implied as a result of also foregoing secondary education, they estimate the total impact at 1.3% of GDP.²⁷ In Section 3, we estimated that 15–50% of OOSC numbers in Pakistan can be attributed to conflict. This would put conflict's impact on GDP through reduced schooling at around 0.2–0.65% of GDP, or \$439m–1.46bn.²⁸

The gender dimension of the impact of conflict in Pakistan means that some of the costs of poor educational achievement are exacerbated. The gains of improved maternal and child health and decreased fertility that come with basic education for girls are lost, and estimates of the impact on average years of schooling would lead to underestimates of these costs.

²³ NB: reduced education expenditure would also impact on national income levels through other channels. Here we present the impact only through the channel of reduced human capital investment.

²⁴ They calculate that a 0.4 years of schooling increase would increase income levels by 5.3%.

²⁵ We use 2012 GDP figures rather than the figures in Burnett et al. (2013) to ensure consistency of GDP figures throughout this report.

²⁶ They estimate that 10% of OOSC will never complete primary education, that the wage premium for primary education is 8%, and therefore that the cost to the economy is 0.8% of GDP.

²⁷ The wage premium to secondary is estimated at 14%, primary-secondary transition rate is 74%, meaning a GDP loss of 0.5% is to be added to the direct cost of foregone primary of 0.8%.

²⁸ Using 2012 GDP figures.



Table 9: Estimates of the long-term economic impact of current conflicts in Pakistan

	Estimates	Sources
Returns to education	4.6% – 31.2%	Katsis et al., 1998; Psacharopoulos, 1994; both cited in Psacharopoulos and Patrinos, 2004
Opportunity cost of damaged infrastructure and personnel	\$117m	Calculations from 4.1; assuming 15% ROI based on above
Opportunity cost of reduced educational expenditure	\$113–414m	Calculations from 4.2; assuming 15% ROI based on above
Opportunity cost of reduced educational attainment	\$2.9bn (1.3% of GDP)	Burnett et al., 2013; World Bank, 2014 (2012 data)
Opportunity cost of out-of-school children	\$439m–1.46bn (0.2% – 0.65% GDP)	Burnett et al., 2013; Shields and Paulson, 2014; World Bank, 2014 (2012 data)

4.4 Summary

We have tried to list the major channels through which conflict impacts on education, from the immediate impacts of a bombed school to the long-term impacts on the economy of reduced national education levels. These estimates have drawn on different data and theoretical sources, each with their own methodological issues.

When trying to account for physical damage, we are likely to face an underestimation bias as we take documented accounts as our starting point; amidst the danger and confusion that has reigned in certain parts of Pakistan during the reporting period of our principal source, *Education under Attack 2014*, it is likely that there have been further costs unidentified. Although we have tried to account for these, we have only done so where there is hard evidence to back up our claims.

We took a very different approach when it came to the indirect costs of conflict, as there simply is no hard evidence. Our estimates are by necessity highly speculative, intended to give an idea of the possible order of magnitude, and to demonstrate that the impact of conflict on society through the channel of education is greater than the damage to bricks, mortar and budget lines. Damage to buildings, equipment and materials, and the loss of teaching staff brings harm to the long-term progress of the sector. Access to education is denied for thousands of children, permanently impacting on national educational attainment. Since education typically exhibits positive returns, these effects are magnified in the long term on the economy. In addition, the social benefits of education are foregone, having a long-term impact on maternal and child health, for example.

Where possible we have drawn on a variety of theoretical approaches in order to provide validation or alternative estimates. Our findings are summarised in the table on the following page.



Table 10: Summary of cost of conflict on and through education, 2009–2012

Impact	Estimate
Direct cost to the education sector of targeted attacks on education, 2009–2012	\$101m
Impact on educational expenditure, per year	\$188–691m (3.1% – 11.4%)
Opportunity cost of lost and reduced expenditure (long-term impact of the previous two impacts), 2009–2012	\$230m
Opportunity cost of OOSC	\$439m–1.46bn (0.2% – 0.65% GDP)
Opportunity cost of reduced educational attainment	\$2.9bn (1.3% of GDP)

Of course, all these calculations are highly speculative and cannot embody the complex interaction of various factors such as education, conflict, poverty, inequality and religious difference. It is possible that Pakistan’s low levels of education are more a cause of conflict than conflict is a cause of low levels of education, but the more likely truth is that they interact with each other in ways that make it impossible to put a figure on the cost. What we have attempted here is to demonstrate the potential order of magnitude of the cost that conflict might have on education, and the impact that this then has on economic and social development.



5 Conclusion

This study set out to investigate the impact that conflict has on education in Pakistan and to account for this quantitatively firstly by looking at the number of OOSC and secondly by monetising the damage done to national education systems, in terms of both material damage and loss of human capital. In order to do this, the study has looked at both the macro, econometric data and detailed country evidence that considers the local context and dynamic nature of conflict. It has considered both the immediate, direct costs and the longer-term indirect costs that can only be determined by looking at changing enrolment and conflict trends over periods of time.

The most visible channel through which conflict impacts on education is targeted attacks on education, resulting in destruction and closure of schools and death, injury and kidnapping of teachers and pupils. But schools, teachers and students are also victims of collateral damage, suffering as the result of indiscriminate violence, bombing and destruction. Accounting for this damage is difficult as it occurs in the 'fog of war' and is rarely documented. Even more difficult is to account for the numerous indirect channels through which conflict impacts on education, including forced displacement, impacts on household and national economies, and negative impacts on public health. In our main report, we speculate that the targeted attacks are just the visible 'tip of the iceberg', and that the vast majority of the costs of conflict to education are incurred through less measurable, more indirect channels.

The analysis of OOSC numbers in Section 3 supports the 'tip of the iceberg' hypothesis. Whilst hundreds of thousands of children had their schooling disrupted as a result of targeted attacks, millions more had their schooling disrupted as a result of forced displacement. But there is evidence that the wider impacts of the conflict have extended beyond the conflict-affected areas and have depressed enrolment rates nationally, with millions of children being denied access to school. These wider impacts may result in children remaining out of school for a far longer duration than those whose education was temporarily disrupted by school closure or displacement.

Targeted attacks on education during conflict create real costs to the sector. Schools have to be repaired or rebuilt, furniture and teaching materials restocked and lost personnel replaced. When schools are closed there may also be the cost of paying teachers who are not teaching. For the period 2009–2012, we estimate the sum of these costs for Pakistan to be \$101m. This will have a massive impact on the purses of government and communities alike, with lasting implications for the sector.

These impacts represent not only costs to the sector but also investment foregone, since efforts to rebuild infrastructure and replace personnel will divert other investment. Since education generally exhibits positive returns on investment, this reduced investment will have an impact of greater magnitude in the long term through reduced national income. Not only that, reduced access to education also represents a foregone investment as children miss out on the opportunity to accumulate human capital. Section 3 set out the scale of this impact on current levels of OOSC, but this is just a snapshot hinting at the long-term impact of conflict on educational access. In conflict-affected parts of Pakistan we expect that years of conflict impacting on education will have the effect of a long-term reduction in human capital accumulation, both by impacting on state investment in education and by restricting access to schooling. We estimate the long-term impact of conflict on the economy through reduced human capital accumulation to be almost thirty times the short-term cost to the sector of targeted attacks. The restriction of schooling for generations of children will have multiple other impacts on Pakistani society that we cannot quantify.

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