

# The Quantitative Impact of Armed Conflict on Education in Syria: counting financial costs

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**FINAL VERSION**

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**Susy Ndaruhutse and Amy R. West\***

**CfBT Education Trust and AIR**



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## Acronyms and abbreviations

BRD	Battle-related death
EMIS	Education management information system
GCPEA	Global Coalition to Protect Education from Attack
GER	Gross enrolment rate
IDP	Internally displaced person
KRI	Kurdistan Region of Iraq
MENA	Middle East and North Africa
MSNA	Multi-Sectoral Needs Assessment
NSAG	Non-State Armed Group
OOSC	Out-of-school children
PEIC	Protect Education in Insecurity and Conflict
ROI	Return on investment
SRP	Strategic Response Plan for Syria
UCDP	Uppsala Conflict Data Programme
UIS	UNESCO Institute of Statistics
UNESCO	United Nations Organization for Education, Science and Culture
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children’s Fund
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
3RP	Regional Refugee and Resilience Plan

## 1 Introduction

This report follows the methodology outlined in the report, *The Quantitative Impact of Armed Conflict on Education: counting the human and financial and costs* (Jones and Naylor, 2014) commissioned by Protecting Education in Insecurity and Conflict, part of the Education Above All Foundation.

In that report, Jones and Naylor (2014) outline ten main channels through which conflict can have an 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
- Recruitment of teachers and students by armed forces (state and non-state)
- Forced population displacement leading to interrupted education
- 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 paper investigates the extent to which conflict has impacted on education in the Syrian Arab Republic (Syria). Using a variety of data sources, it attempts to quantify the impact in terms of the financial implications of the damage done to the education system. It should be noted that the conflict situation in Syria has been escalating over time so any statistic relating to the number of out-of-school children (OOSC) can only give a snapshot at one particular point in time. A further challenge in Syria is that data since the start of the conflict is more limited and has had less external scrutiny over its accuracy. 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. In some places, we have had to use regional data as a proxy as it was not possible to find certain data for Syria.

## 2 Conflict and humanitarian impact

### 2.1 Brief conflict history

In March 2011, economic protests inspired by Arab Spring pro-democracy movements in Tunisia, Egypt and Libya, broke out in the southwestern Syrian city of Daraa. There were several factors that led to the initial protest in Daraa, most notably the excessive dust storms and droughts from 2001 to 2010 that threatened livelihoods and food security across the country. According to *The Atlantic Monthly*, 75 percent of crops failed, 85 percent of livestock died of thirst or hunger, and an estimated 800,000 farmers and 200,000 additional individuals abandoned their lands and fled to the nearest cities and towns.<sup>1</sup> In addition "outside observers including UN experts estimated that

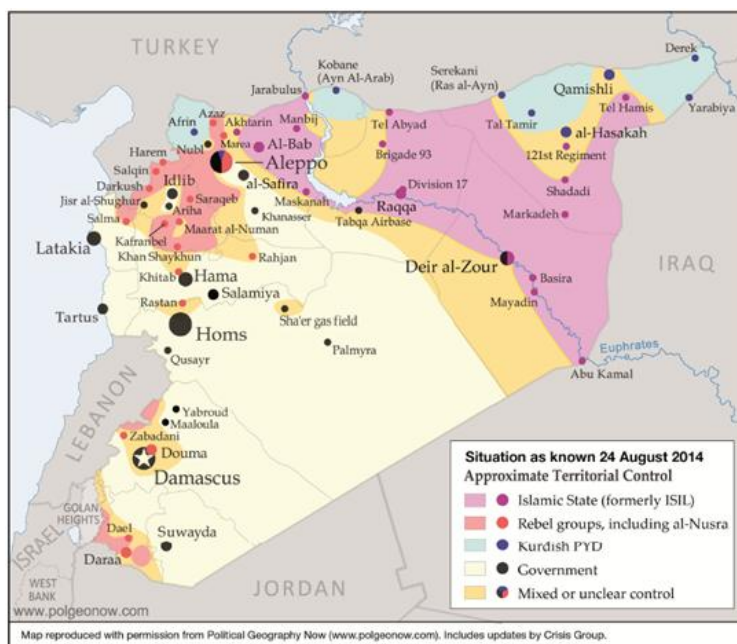
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<sup>1</sup> <http://www.theatlantic.com/international/archive/2013/12/understanding-syria-from-pre-civil-war-to-post-assad/281989/>

between 2 and 3 million of Syria's 10 million rural inhabitants were reduced to extreme poverty" during the latter half of that same period.<sup>2</sup> Syrian towns, already hosting roughly 250,000 Palestinians, 100,000 Lebanese, and 1 million Iraqi refugees, became overburdened by this new flow of people into their midst in search of food, water and any source of livelihood available to them.<sup>3</sup>

During this same period of time, as tensions mounted over the scarcity of resources in the country, several children were arrested and tortured for painting anti-government slogans on a school wall in Daraa. When calls to release the children went unanswered, word spread of the excessive force being used on children and added fuel to new protests, including school demonstrations mimicking the Daraa incident that included anti-government, anti-Assad graffiti on school walls (Human Rights Watch, 2013).

The economic insecurity and enormous resource constraints, in addition to the news of retaliation against demonstrators, instigated other protests held in other towns across the country. From these protests, violent conflict ensued. By 2012, fighting had reached both the capital Damascus, and the second city of Aleppo. The map on the following page shows approximate territorial control by different groups in Syria by 24 August 2014.



Source: International Crisis Group (2014, p.32)

## 2.2 Overview of the humanitarian impact of the conflict

The conflict in Syria enters its fifth year on 15 March 2015. Conservative estimates as of August 2014 put the number of killed at over 191,000 (Price, Gohdes and Ball, 2014, p.3), including at least 11,000 children.<sup>4</sup> By November 2014, there were 7.6 million people displaced inside Syria. 12.2 million people are in need within the country including over 5 million children (OCHA, 2014, p.1) and 3.9 million have fled the conflict and registered as refugees, half of these being children.<sup>5</sup>

<sup>2</sup> Ibid

<sup>3</sup> Ibid

<sup>4</sup> <http://www.un.org/apps/news/story.asp?NewsID=48535#.VQF5R1Jybc>

<sup>5</sup> <http://data.unhcr.org/syrianrefugees/regional.php> as of 12 March 2015

In addition to the impact that the conflict is having on Syrians within Syria, there were around 560,000 Palestinian refugees registered with the United Nations Relief and Works Agency for Palestinian Refugees in the Near East (UNRWA) in Syria at the beginning of the conflict. Approximately 80,000 have fled to neighbouring countries. Ninety four percent of those remaining in Syria depend on UNRWA to meet their basic needs and 65 percent of them have been internally displaced (OCHA, 2014, p.89). Furthermore, Palestine refugees are being disproportionately affected by the conflict, with 64 percent of registered Palestine refugees now displaced (OCHA, 2014, p.1).

### **International response**

In August 2011, the UN set up an *Independent Commission of Inquiry on the Syrian Arab Republic* with a mandate “to investigate all alleged violations of international human rights law since March 2011 in the Syrian Arab Republic”.<sup>6</sup>

Then on 30 June 2012 the “Geneva talks” began with the Secretaries-General of the United Nations and the League of Arab States, the Foreign Ministers of China, France, Russia, United Kingdom, United States, Turkey, Iraq<sup>7</sup>, Kuwait<sup>8</sup> and Qatar<sup>9</sup>, and the European Union High Representative for Foreign and Security Policy. They met at the United Nations Office at Geneva as the Action Group for Syria, chaired by the Joint Special Envoy of the United Nations and the League of Arab States for Syria. This meeting jointly agreed on the need for protection of civilians and the need for de-escalation of violence in Syria that had the potential for extra-ordinary regional instability.

In January 2014 The United States, Russia and the UN jointly convened a dialogue on how to implement the 2012 Communiqué however these talks broke down and subsequently, in its August 2014 report, the *Independent Commission of Inquiry on Syria* reported evidence of war crimes and blocking access to basic services by both government and opposition forces as well as by the Islamic State. This included the deliberate targeting of civilians and the recruitment of 15-17 year old children by opposition groups (UNGA, 2014a).

The UN Security Council adopted two resolutions specifically on the humanitarian crisis in 2014, UNSCR2139<sup>10</sup> and a subsequent resolution UNSC2165<sup>11</sup> affirming the UN’s authority to conduct cross border operations. Nonetheless the humanitarian situation continues to deteriorate, and there has been little progress on implementation of these resolutions. Although a peaceful solution to the crisis is the only thing that will end the suffering of those in Syria and those forced to become refugees, the Geneva talks are stalled with prospects for a negotiated settlement remaining minimal at the time of writing.

## **2.3 Regional impact**

As of 12 March 2015, more than 3.9 million refugees<sup>12</sup> had fled to five surrounding countries – Egypt, Iraq (Kurdistan), Jordan, Lebanon and Turkey. Around 400,000 of those currently live in refugee camps and for those who do not, it is estimated that 38 percent of refugees are living in sub-standard urban shelters (UNHCR, 2015, p.2). The vast majority of Syrian refugees live in local

<sup>6</sup> <http://www.ohchr.org/en/hrbodies/hrc/iicisyrria/pages/independentinternationalcommission.aspx>

<sup>7</sup> Chair of the Summit of the League of Arab States

<sup>8</sup> Chair of the Council of Foreign Ministers of the League of Arab States

<sup>9</sup> Chair of the Arab Follow-up Committee on Syria of the League of Arab States

<sup>10</sup> <http://www.securitycouncilreport.org/un-documents/syria/>

<sup>11</sup> <http://www.securitycouncilreport.org/un-documents/syria/>

<sup>12</sup> This number is for registered refugees. There are a further 11,000 awaiting registration. See <http://data.unhcr.org/syrianrefugees/regional.php> for more detail and country breakdowns.



communities rather than camps, thus increasing the competition for local resources and services, including public education (Save the Children, 2014, p.17). UNHCR (2015, p.3) projects that up to 4.27 million Syrian refugees will exist in the region by the end of 2015. In addition to the Syrian refugees, an estimated 80,000 Palestinian refugees (14 percent of the Palestinian refugees registered with UNRWA in Syria) have left Syria to seek refuge in neighbouring countries (OCHA, 2014, p.6).

Host countries like Egypt and Lebanon have chosen to respond to the refugee crisis by not establishing refugee camps, leaving Syrians to integrate with local communities or establish informal settlements with limited access to humanitarian services. In Lebanon, *all* refugees live in host communities.

**Table 1: Syrian refugee crisis – key contextual elements and host country numbers**

Host country	Key contextual elements	Refugee numbers <sup>13</sup>
Egypt	<ul style="list-style-type: none"> <li>• Signatory to the 1951 UN Convention Relating to the Status of Refugees and its 1967 Protocol</li> <li>• Syrian children can attend Egyptian public schools but absorption capacity is a challenge<sup>14</sup></li> <li>• Syrians can obtain a work permit but the process is expensive, long and complicated<sup>15</sup></li> <li>• Rising xenophobia and tightened security measures on Syrians in Egypt<sup>16</sup></li> <li>• A National Response Plan is in the process of being developed by the government and with support from the UN and other partners (UNDP and UNHCR, 2015)</li> </ul>	<ul style="list-style-type: none"> <li>• 136,661 registered</li> </ul>
Iraq	<ul style="list-style-type: none"> <li>• Not a signatory to the 1951 UN Convention Relating to the Status of Refugees nor its 1967 Protocol</li> <li>• The Kurdistan Region of Iraq (KRI) hosts 95 percent of all Syrian refugees in Iraq<sup>17</sup></li> <li>• In 2014, some 1.8 million additional people living in Iraq were displaced by insecurity and heavy fighting to seek safe haven in the KRI<sup>18</sup></li> <li>• The KRI's social services and structures are ill-equipped and under-developed (Grisgraber and Gaubadan, 2014)</li> <li>• Syrian Kurdish refugees have the right to work<sup>19</sup></li> <li>• National Response Plan developed</li> </ul>	<ul style="list-style-type: none"> <li>• 242,468 registered</li> </ul>
Jordan	<ul style="list-style-type: none"> <li>• Not a signatory to the 1951 UN Convention Relating to the Status of Refugees nor its 1967 Protocol</li> <li>• Syrian refugees make up at least 10 percent of Jordan's pre-crisis population (UNDP and UNHCR, 2015, p.13); some refugees have moved out of camps into urban</li> </ul>	<ul style="list-style-type: none"> <li>• 623,447 registered</li> <li>• None awaiting registration</li> </ul>

<sup>13</sup> <http://data.unhcr.org/syrianrefugees/regional.php> Data from 25th February 2015.

<sup>14</sup> <http://www.unhcr.org/pages/49e486356.html>

<sup>15</sup> <http://www.dailynewsegypt.com/2015/01/29/living-working-syrian-refugee-egypt/>

<sup>16</sup> Ibid

<sup>17</sup> <http://www.unhcr.org/pages/4a02db416.html>

<sup>18</sup> Ibid

<sup>19</sup> <https://www.mercycorps.org/articles/turkey-iraq-jordan-lebanon-syria/quick-facts-what-you-need-know-about-syria-crisis>



	<p>centres</p> <ul style="list-style-type: none"> <li>• Second highest concentration of refugees per capita in the world (UNHCR, 2015, p.2)</li> <li>• If refugee influx continues, will need to educate one Syrian child for every five 5 Jordanian children (UNICEF, 2014)</li> <li>• Syrian refugees not authorised to work<sup>20</sup></li> <li>• Education provided through double shifts in public schools</li> <li>• National Response Plan developed</li> </ul>	
Lebanon	<ul style="list-style-type: none"> <li>• Not a signatory to the 1951 UN Convention Relating to the Status of Refugees nor its 1967 Protocol</li> <li>• Highest concentration of refugees per capita in the world due to Syrian crisis (UNHCR, 2015, p.2)</li> <li>• 1 in 4 people is a Syrian refugee (UNHCR, 2015, p.2)</li> <li>• Syrian refugees not authorised to work</li> <li>• Education provided through double shifts in public schools</li> <li>• Joint Government of Lebanon – UN Response Plan in place</li> </ul>	<ul style="list-style-type: none"> <li>• 1,165,000 registered</li> <li>• 10,413 awaiting registration</li> </ul>
Turkey	<ul style="list-style-type: none"> <li>• Maintains geographical limitation to the 1951 UN Convention Relating to the Status of Refugees</li> <li>• Has received the largest volume of Syrian refugees</li> <li>• Syrian refugees issued identification cards for free access to health care and education</li> <li>• Proposal for conditional work permits submitted to Council of Ministers in October 2014<sup>21</sup></li> <li>• Government-led National Response Plan</li> </ul>	<ul style="list-style-type: none"> <li>• 1,552,839 registered</li> <li>• 70,000 awaiting registration</li> </ul>

Lebanon’s economy has been severely impacted by the influx of refugees and its population is now – according to Antonio Guterres, the UN High Commissioner for Refugees – close to the levels the population was expected to have by the year 2050.<sup>22</sup> A World Bank *Economic and Social Impact Assessment of the Syrian Conflict* on Lebanon undertaken at the end of 2013 estimated that the conflict would have the following impact between 2012 and 2014:

1. Cut real GDP growth by 2.9 percentage points each year;
2. Force 170,0000 additional Lebanese into poverty;
3. Double the unemployment rate to more than 20 percent (mostly unskilled youth);
4. Reduce government revenue collection by \$1.5 billion whilst increasing government expenditure by \$1.1 billion (i.e. fiscal impact is \$2.6 billion); and
5. Produce a surge in demand for public services being met through decline in both access to and quality of public service delivery (World Bank, 2013, p.1).

The same report estimated that an additional \$2.5 billion would be required for “stabilisation”, i.e. to reinstate public service delivery to pre-Syrian conflict levels (World Bank, 2013, p.1). The more

<sup>20</sup> <http://www.economist.com/blogs/pomegranate/2014/06/syrian-refugees-jordan>

<sup>21</sup> [http://www.nytimes.com/2014/12/30/world/europe/turkey-strengthens-rights-of-syrian-refugees.html?\\_r=0](http://www.nytimes.com/2014/12/30/world/europe/turkey-strengthens-rights-of-syrian-refugees.html?_r=0)

<sup>22</sup> <http://nextcity.org/daily/entry/lebanons-population-already-what-it-was-projected-to-be-in-2050>

recent *Regional Refugee and Resilience Plan (3RP)* reported that GDP growth in Lebanon decreased from 10 to 1 percent between 2010 and 2014 (UNDP and UNHCR, 2015, p.13).

Within Jordan, UNHCR (2014, p.30) found that more than two-thirds of Syrian refugee households were living below the Jordanian national poverty line and around one in every six Syrian refugee households were living below the abject poverty level (defined as a household of income of at least \$40 per household per month).

The humanitarian response to the Syrian conflict and the ensuing refugee crisis has been unprecedented. There have been numerous versions of a coordinated United Nations humanitarian response and, specifically, refugee response plan. The latest, jointly launched in December 2014, encompasses both a *Strategic Response Plan (SRP)* for Syria and the *Regional Refugee and Resilience Plan (3RP)*. The *3RP* is a country-driven, regionally coherent plan aligned with national-level plans, to address refugee protection and humanitarian needs whilst building the resilience of vulnerable people and impacted communities and strengthening the capacity of national delivery systems in the five most affected countries neighboring Syria (UNDP and UNHCR, 2015).

## 2.4 The education toll

### 2.4.1 The intensity of the toll on Syria

Compounded by rising levels of poverty and desperation, the conflict has led to a partition of areas under Government and Non-State Armed Group (NSAG) control. All parties to the conflict continue to engage in violence against civilians and civilian infrastructure, including water and power facilities, schools and hospitals. This has had significant consequences for access to and delivery of basic services (UNGA, 2014a).

Access to and availability of education is tragic in present day Syria when one considers pre-war school enrolment. Prior to the conflict, 93 percent of all eligible children were enrolled in primary education and 67 percent in secondary education; and, literacy and numeracy rates were at 95 percent for those aged 15 and 24.<sup>23</sup> With the onset of conflict, however, things quickly changed. According to the *2013 Syria Integrated Needs Assessment* report, across the country, school attendance rates dropped dramatically to an average of under 50 percent for both primary and secondary school children (Syria Integrated Needs Assessment, 2013, p.14). The gross enrolment rate (GER) in basic education was 104 percent prior to the crisis. It then dropped to 66 percent in 2012/13 as a result of the conflict and displacement; a level far below the GER 35 years ago which was 95 percent (OCHA, 2014, p.83). This national average obviously masks large regional variations; for example, the *2013 Syria Integrated Needs Assessment* found that in Aleppo, school attendance was as low as 6 percent (Syria Integrated Needs Assessment, p.33).

As a result of the conflict, schools have been damaged, destroyed, used for military purposes and converted to shelters for IDPs. In several instances, schools were attacked in government airstrikes, which caused extensive damage to infrastructure. UNICEF (2014, p.2) estimates that more than half of Syrian school-age children, over 2.8 million, are out of school as a consequence of the occupation, destruction and insecurity of schools with 2.3 million of these children living in Syria.

According to the *UN Independent International Commission of Inquiry*, in Aleppo, Damascus and Daraa, armed forces use schools for military purposes and sniper posts, depriving children of education and exposing educational facilities to attack. Students in these areas remain without educational alternatives (UNGA, 2014a). Furthermore, UNICEF (2014, p.2) estimates that there are up to one million children who live under siege and in hard-to-reach areas that humanitarian

<sup>23</sup> <http://www.uis.unesco.org/DataCentre/Pages/country-profile.aspx?code=SYR&regioncode=40525>

responders cannot access on a regular basis and which makes children's ability to access any form of education (formal or non-formal) even more difficult. In January 2015, for example, UNICEF reported that an estimated 670,000 children in Syria, living in Islamic State controlled areas, were being deprived an education until religious revision of the curriculum was completed.<sup>24</sup>

The *2014 Syria Multi-Sector Needs Assessment* found that older children are more likely to abandon school than younger children with the three main barriers to educational access across Syria being:

1. Lack of school materials (books, pens, boards);
2. Poor school facilities; and
3. Child labour and the need for children to help support family income generation (Humanitarian Liaison Group, 2014, p.45).

A school needs assessment in Northern Syria found that the three main reasons for dropout in schools in the northern governorates were:

1. The need for income generation;
2. Displacement; and
3. Security concerns (Humanitarian Liaison Group, 2014, p.47).

#### 2.4.2 The butterfly effect – Syria's neighbors

In addition, the education toll has expanded to include those fleeing Syria. There are a number of factors hindering the mainstreaming of Syrian refugee children with their counterparts of the host countries. These factors include: limited absorption capacity of the host countries schools and classrooms; the differences in the language of instruction, particularly in the Kurdistan Region of Iraq (KRI), Lebanon and Turkey; threats to the quality of education due to overcrowding, heterogeneity of pupils' knowledge; the reduction of learning time for children in double shifts; the need to pay tuition fees; the need for children to work to support household income; and, the need for documentation from Syria which families no longer possess. Provision of education services remains a challenge in ensuring sufficient learning spaces, providing transportation, employing teachers (and whether Syrian teachers are permitted to teach), and psychosocial support for traumatised children. In addition, challenges continue to arise over the selection and provision of appropriate curricula or adapted versions as well as the certification of education programs (UNESCO and UNHCR, 2013). In addition, bullying and discrimination, as well as the financial pressures within a family may drive children to leave school: boys will join armed groups that pay them to fight and girls will be forced into or resort to child marriages to relieve the burden at home (Save the Children, 2014, p.19). As a result, there are around half a million refugee OOSC from Syria who are living in the five host countries.

**Table 2: Syrian refugee OOSC numbers in host countries**

Country	OOSC (December 2013)
Egypt	3,911
KRI	25,519
Jordan	92,598
Lebanon	300,000
Turkey	77,770
<b>Total</b>	<b>499,798</b>

Source: UNICEF (2014)

<sup>24</sup> [http://www.huffingtonpost.com/2015/01/06/isis-schools-syria\\_n\\_6422066.html](http://www.huffingtonpost.com/2015/01/06/isis-schools-syria_n_6422066.html)

Despite these barriers, the numbers of refugee children enrolled in either formal or non-formal education programmes in host countries increased during 2014, but so has the influx of refugees (OCHA, 2014, p.90).

The World Bank *Economic and Social Impact Assessment of the Syrian Conflict* on Lebanon undertaken at the end of 2013 calculated that the Lebanese government has spent \$29 million on accommodating 40,000 refugee children in public schools and donors via UN agencies had spent a further \$24 million. These costs were projected to escalate during 2014 and beyond and Lebanon's Ministry of Education and Higher Education was estimated to need \$348-434 million in 2014 to stabilise its education provision (World Bank, 2013, p.3).

### 3 The financial costs of conflict to education in Syria

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 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 data on attacks from a range of sources, we examine the monetary cost of direct attacks and collateral damage to education in Syria. 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. We then 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 report *The Quantitative Impact of Armed Conflict on Education: counting the human and financial costs* (Jones and Naylor, 2014).<sup>25</sup>

#### 3.1 Direct monetary cost of conflict to education

##### 3.1.1 Targeted attacks on education including collateral damage

A number of different reports refer to targeted attacks on education in Syria including *Education Under Attack 2014* (GCPEA, 2014) and the *Oral Update of the Independent International Commission of Inquiry on the Syrian Arab Republic* (UNGA, 2014b). A few examples from these reports include:

*"The UN reported that government forces looted and set fire to schools on several occasions in 2011 in retribution for student protests." (GCPEA, 2014, p.191)*

*"...details were given of at least 10 incidents of schools being destroyed or partially destroyed in attacks in 2012." (GCPEA, 2014, p.191)*

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<sup>25</sup> Available at <https://www.cfbt.com/en-GB/Research/Research-library/2014/r-armed-conflict-2014>

*“As the conflict between the government of President Bashar al-Assad and rebel groups continued into 2013, attacks persisted against Syrian schools and universities, their students and staff. Schools were affected by aerial attacks, car bombs and missile strikes, often with high numbers of victims.” (GCPEA, 2014, p.193)*

*“The Syrian Network for Human Rights alleged in early 2013 that government forces had turned approximately 1,000 schools into detention and torture centres and used schools to house security and intelligence personnel or as positions from which to shell the surrounding area.” (GCPEA, 2014, p.193)*

*“On 30 April [2014], the Government launched a missile attack on Ein Jalout primary school in Aleppo city. The school was holding an exhibition of children’s art projects on their experiences during the war. The attack killed 36 people, 33 of them children and injured scores of others.” (UNGA, 2014b, p.5)*

*“There have been multiple NSAG [Non-State Armed Groups] attacks hitting schools in Damascus city. On 19 March, a mortar shell killed one child at school in Al-Maliki neighbourhood. On 15 April 2014, another child was killed and over 60 children were injured in a mortar attack on a school in Bab Touma. On 29 April, an armed group fired three mortars into a high school in Al-Shaghour in Damascus city, killing over 10 children. One child described seeing dead bodies and children covered in blood trying to run into the school for safety.” (UNGA, 2014b, p.5)*

OCHA’s recent *2015 Humanitarian Needs Overview – Syrian Arab Republic* published in November 2014 states that there have been 1,200 serious violations committed against children which include 80 attacks on schools (OCHA, 2014, p.1).

There are several sources of data on attacks on schools each covering different periods and coming from different sampling/data gathering techniques (see Annex section A on direct cost data for more detail). Given the different figures and periods of coverage and the fact that according to the *UN Independent Commission of Inquiry on Syria* (UNGA, 2014b, p.5), during 2014 there was an increase in attacks on education facilities, we have used different data sources to give approximate lower and upper bounds for the likely numbers of schools damaged, destroyed or occupied since the beginning of the conflict in Syria. It is important to state that these are the best range of estimates we can use given the data that is available and the impossibility of differentiating between targeted attacks and collateral damage including due to occupations and looting.

From Ministry of Education data, we know that there were around 22,000 schools in Syria prior to the conflict (UNICEF, 2013, p.2). UNICEF (2013) and UNICEF (2014) report that between 18 and 22 percent of these schools have been damaged, destroyed or used as collective shelters. Given that this data was gathered nearly a year ago and had not changed dramatically from data collected during the previous year, we take 22 percent as our lower bound estimate and we assume that this is likely to be an underestimate. The most recent data available comes from the *Syrian Multi-Sector Needs Assessment* (Humanitarian Liaison Group, 2014) for which data collection was undertaken in August and September 2014. This was based on a sample of a third of all the educational sites in Syria and estimated that 46 percent of these facilities had been damaged or destroyed and a further 18 percent were occupied (either by the military or as collective shelters for IDPs). In districts with frequent fighting, damaged or destroyed infrastructure reached nearly 60 percent before factoring in schools that were occupied (Humanitarian Liaison Group, 2014, p.43). There were also some data/information gaps on attacks on infrastructure in some of the governorates (Humanitarian Liaison Group, 2014, p.105). We therefore take 64 percent as an upper bound estimate. This may be

a slight overestimate as data was gathered during a period when some schools may have been closed for the school holidays.

The *Syrian Multi-Sector Needs Assessment* found that 2,856 (13 percent of all educational facilities in Syria) were no longer functional with sub-districts in Aleppo and then Deir-ez-Zor containing the highest numbers of non-functional educational facilities (Humanitarian Liaison Group, 2014, p.42).<sup>26</sup> These schools were non-functional as they had been occupied either by military groups or by IDPs.

By May 2013, UNICEF (2013, p.2) estimated that 222 teachers and other education staff had been killed during schools term. Save the Children (2013, p.9) reported that a local human rights NGO claimed that 640 educational staff had been killed. We use these figures as lower and upper bounds for the impact on teachers.

**Table 3: Targeted attacks on education in Syria<sup>27</sup>**

Dates	Schools damaged/ destroyed	Impact on students/ teachers
Since start of Syrian conflict in March 2011	4,955 schools (lower bound -22% of all schools) 14,080 schools (upper bound – 64% of all schools)	222 teachers and educational personnel killed (lower bound) 640 teachers and educational personnel (upper bound)
<b>Estimate of total impact</b>	<b>4,955-14,080 schools damaged, destroyed or occupied</b>	<b>222-640 teachers and educational personnel killed</b>

Classroom construction costs, of course, vary greatly by location and materials used. The estimate used assumes a standard construction cost for a primary school or a secondary school of \$400,000.<sup>28</sup> (UNHCR estimates). The cost of repairing a damaged school will also differ depending on the extent of the damage. As well as these construction costs, attacks and occupation also result in the **destruction of school furniture and teaching materials.**<sup>29</sup> We use the following estimated unit costs for reconstruction/rehabilitation and equipment based on the extent of the damage.

**Table 4: Type of damage and assumed costs**

Type of damage	% of cost of rebuilding the school	Unit cost	% of cost of equipping the school	Unit cost
Slight damage	25%	\$100,000	25%	\$7,500
Moderate damage	50%	\$200,000	50%	\$15,000
Heavy damage	100%	\$400,000	100%	\$30,000
Destruction	100%	\$400,000	100%	\$30,000
Occupation	50%	\$200,000	100%	\$30,000

This gives us a total estimate of reconstruction/rehabilitation costs of between \$991m and \$2.73b and a further cost of \$104 to \$264m for equipment. Adding these two figures together we arrive at a total cost from targeted attacks on buildings of \$1.10b and \$2.99b.

As well as incurring the cost of rebuilding, attacks on schools and occupations of buildings can mean disruption to school schedules for weeks, months or even years. UNICEF (2014) estimated that 2.8 million children are now either out of school or attending school irregularly either as a direct or

<sup>26</sup> The assessment in Deir-ez-Zor was undertaken during August when schools were closed for the holidays so this might be a slight overestimate.

<sup>27</sup> See Annex section A on direct cost data for more information on data sources.

<sup>28</sup> E-mail correspondence with UNHCR.

<sup>29</sup> It seems to be common practice for occupiers to use furniture for firewood, e.g. see Dryden-Peterson (2007).



indirect (due to displacement) consequence of the conflict. As well as denying access to education for students, school closure also represents extra expenditure if teachers continue to be paid during the period of closure.<sup>30</sup>

Unfortunately, there is little evidence in GCPEA (2014) or other sources on the length of school closure associated with these attacks. We can imagine that it would take significant time to rebuild and repair buildings, though some classes may have been resumed in temporary settings. Taking this figure of 2.8 million children dropping out of school, and assuming that these children were out of school for at least 100 days<sup>31</sup>, we estimate **280m lost student days**. Assuming the pupil-teacher ratio is 17.2:1 for primary school (OCHA, 2014, p.29), resulting in an estimate of **16.3m for lost teaching days**. If a teacher salary is \$2,160/year<sup>32</sup> and there are 200 teaching days per year then **the cost in lost teaching time is \$176m**.

Taking the number of teachers killed to be in the range of between 222 and 640 and the estimated public unit cost of pre-service teacher training to be \$8,825, we calculate **the costs of training new teachers to replace those who have been killed to be between \$2m and \$6m**.

**Table 5: Summary of the direct costs of conflict on education**

Cost	Quantity	Unit cost	Cost estimate
Cost of replacing or repairing damaged, destroyed or occupied infrastructure	14,080 schools	\$400,000 for total rebuild	\$991-2,728m
Cost of replacing damaged and looted equipment	14,080 schools	\$30,000 for total replacement	\$104-264m
Cost of replacing lost teaching force	220-640 teachers killed	\$8,825	\$2m-6m
Cost due to lost teaching time	16.3m lost teaching days	\$10.80/day	\$176m
<b>Total cost</b>			<b>\$1.27-3.17b</b>

## 3.2 Broader impacts of conflict on education

### 3.2.1 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 the need to enter economic activity – 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 **physical attacks on education** documented by UNICEF (2013) and the *Syria Multi-Sector Needs Assessment* (Humanitarian Liaison Group, 2014) might have led to

<sup>30</sup> It is not clear within Syria whether teachers are continuing to be paid during school closures.

<sup>31</sup> This is an assumption as we do not have accurate information on how long children are out of school and how much of their non-attendance is intermittent versus permanent. The reality could be a lot higher given some children have been out of school for 2-3 years.

<sup>32</sup> Correspondence with UNHCR Syria.



between **12.2 and 14.0m lost teaching days**. As well as the direct cost of spending on teacher salaries, these attacks also mean around **280m lost student days**.

Regarding the **killing of students**, the *Updated Statistical Analysis of Documentation of Killings in the Syrian Arab Republic* (Price, Gohdes and Ball, 2014, p.1-2) reports 2,165 victims aged 0-9 years old and 6,638 records of victims aged 10-18 years old. We can conservatively assume that at least 50 percent or 4,400 of these children were both of school age and likely to be attending school.<sup>33</sup>

There are estimated to be around 7.6m **displaced people** in Syria (OCHA, 2014, p.1) and around half of these are displaced children.<sup>34</sup>

UNGASC (2013, p.33-34) reports on the detention, torture and ill treatment of children associated with opposition forces and the use of children as human shields by the national army in May 2012 after the raiding of a primary school. It also mentions the **use of children aged 15-17 by some units of armed opposition groups** in both combat and support roles. OCHA (2014, p.30, 84) reports that some NSAGs are targeting male children at schools for recruitment, especially in areas controlled by opposition groups. It also posits that lower attendance at secondary school compared to primary school is likely to be attributable to a mixture of child labour and recruitment into armed groups (OCHA, 2014, p.85).

As noted above, the attacks on education in Syria have led to school closure and the considerable loss of teaching time. In some cases, this lost schooling may be caught up, with the only cost being that of paying teachers (see above) and a **delaying of school completion**. In that case, the indirect cost (in addition to the direct teacher cost discussed above) would be the lost earning potential of students as they complete primary or secondary school later, minus any economic benefit gained whilst the school was closed. However, many children from Syria have been out-of-school for over two years.

Again, rough calculations are made to provide an idea of the magnitude of the impact based on the available information. The opportunity cost of delaying school will be the earnings differential between a school completer and the student at the time of school closure, multiplied by the number of lost student days. Data on wage differentials comes from a study on the transition from education to work (ETF, 2012) which analyses data from the 2009 Youth Transition Survey. Data is provided on average monthly wages of a worker in their first job categorised by the worker's level of education. Analysis of this data shows that **Syrian children who do not complete primary school education are likely to earn 32% less in their first job than Syrian children who completed secondary school and 56% less than Syrian children who completed university**.<sup>35</sup>

Above, we estimated that there was an estimated loss of 280m student days since the start of the conflict. We do not know if these days were lost by primary school completers who were in

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<sup>33</sup> The 50 percent assumption is an estimate based on the following: The official school starting age is 6 so (4/9 x 2,165) are of school age in 0-9 age group and we know that 93% of these were enrolled in school prior to the crisis. This would give us as an estimate of 895 children of school age attending school. For the 10-18 age group (secondary age), we know that 67% were enrolled in school prior to the crisis. This would give us an estimate of  $0.67 \times 6,638 = 4,447$  children of school age attending school. Adding 895 and 4,447 together we get a total of 5,342 children (61% of the total) who are of school age and would have been enrolled in school prior to the conflict. Given that around 2.8 million children have dropped out of school since the start of the conflict, a more conservative estimate of around 50% of the total (i.e. around 4,400 children) rather than the aforementioned 61% is likely to be a more realistic estimate of the number killed who were of school age and enrolled in school.

<sup>34</sup> <http://childrenofsyria.info/2015/03/02/unicef-responds-to-the-needs-of-newly-displaced-civilians-in-syria/>

<sup>35</sup> See Annex section B on indirect cost data for more detail on this calculation.

secondary education, or by children who had not yet completed their primary education. It is most likely to be a mixture of the two. If we assume that as a lower bound, all of these days are lost by children who have not completed primary education and as an upper bound, all of these days are lost by children who have completed primary education but not completed secondary education, then multiplying the lost student days by the earnings differential gives us an **estimated opportunity cost of between \$187m and \$672m**.<sup>36</sup> However, if the school closure leads to **permanent drop-out**, then the cost to the individual student, and society as a whole, is far greater.

The latest figures on out-of-school children in Syria estimate that around 2.3 million children are out-of-school within Syria and a further 500,000 are out-of-school in neighbouring host countries (UNICEF, 2014, p.15). We assume they are all out-of-school *due to conflict*, i.e. they were formally enrolled in school in Syria and would likely still be attending if the conflict had not broken out. It may be that the immediate reasons for non-attendance include not having the right paperwork, needing to work to support their families' livelihoods, insecurity creating fear of attending school).

In order to ascertain the ultimate impact of conflict on education, we must examine indicators such as years of schooling and literacy levels. There is a growing body of literature which aims to isolate the impact of conflict on education, for example by exploring sub-national variation in conflict exposure.<sup>37</sup> A number of these studies are described in the accompanying 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 given the conflict in Syria is at similar levels of intensity to those studied (e.g. Rwanda, Colombia, Cote d'Ivoire), the impact on school attainment is of a similar magnitude. We could argue that this is the case for the current conflict throughout Syria, even though the conflict is most intense in the north of the country.

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, but the *Syria Multi-Sector Needs Assessment* reports on the psychological and psychosocial effects of the conflict on children including citing one assessment undertaken in Northern Syria which found more than a third of children suffering at an abnormal level on a well-being index designed to gauge levels of distress (Humanitarian Liaison Group, 2014, p.40). From this, we can conclude that this represents an additional cost to education.

### 3.2.2 Impact on educational expenditure

As well as impacting on access and learning directly, we might expect that conflict also impacts on the financing and governance of education, which again can impact on access to education and learning.

Educational expenditure in Syria pre-conflict was estimated at 5 percent of GDP, slightly above the world average of 4.8 percent.<sup>38</sup> Between 2006 and 2009, the government education budget was

<sup>36</sup> See Annex section B on indirect cost data for more details on the methodology for this calculation.

<sup>37</sup> For example, where conflict may be focussed on a particular district or region of a country with the rest of the country being relatively unaffected.

<sup>38</sup> UIS online database, accessed February 2015.

between 19 and 20 percent of overall government expenditure (up from 15.6 percent in 2001).<sup>39</sup> The *2015 Humanitarian Needs Overview for Syria* states that the Syrian economy has shrunk by approximately 40 percent since 2011 (OCHA, 2014, p.2). With many schools no longer in operation and many teachers having been displaced internally or into neighbouring countries, it is likely that government education expenditure has dropped dramatically.

Lai and Thyne (2007) 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 percent per year. For Syria, this would represent a **\$63m to \$73m (0.16 to 0.18 percent of GDP) drop in educational spending per year.**

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 battle-related deaths (BRD) per year leads to a reduction in educational expenditure of about 2-2.7 percent. According to the Uppsala Conflict Data Programme battle-deaths database (UCDP, 2014), on average over 2011-2013, there were 12,833 BRDs, meaning that we can estimate **the negative impact on educational expenditure to be between \$519m and \$700m (1.28 to 1.73 percent of GDP) per year.**<sup>40</sup>

### 3.2.3 Impact on teaching force and administration

“The Ministry of Education has reportedly lost more than 52,500 teaching staff from its ranks since the beginning of the crisis – 22% of the pre-conflict workforce – although the true number, including those from opposition-held areas, is thought to be much higher.”  
(Save the Children, 2014, p.6)

As well as a direct impact on the teaching force, targeted attacks also impact on an individual’s **decisions to join or remain within the profession.** It is not possible to put a figure on the cost of this impact, but difficulties in selecting and recruiting new teachers and retaining more experienced teachers clearly jeopardise educational quality and place a burden on administration. Furthermore, 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).

UNICEF (2014, p.14) has found that many teachers no longer turn up for work with the main reasons being insecurity, displacement and lack of salary payments.

## 3.3 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 (2004) 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 measureable of these links is that of private earnings. Individuals invest their time (and potentially 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-

<sup>39</sup> <http://data.worldbank.org/country/syrian-arab-republic>

<sup>40</sup> 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.

making process – lifetime earnings gain over foregone earnings and private costs – is called the private rate of return on investment in education (ROI).<sup>41</sup>

ROI estimates have been calculated since the 1960s, but the lack of reliable data means that robust estimates are not available for all countries. In a 2002 review of the literature, Psacharopoulos and Patrinos did not identify any reliable estimates of returns to education in Syria. For the Middle East and North Africa (MENA) region, they estimate that private returns to education are 13.8 percent for primary and 13.6 percent for secondary (Psacharopoulos and Patrinos, 2002, p.12).

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 (onto 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 Syria 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 13.7 percent returns to education investment then the \$1.27b to \$3.17b direct cost calculated in section 3.1 since the start of the conflict would translate to between **a \$1.45b and a \$3.61b impact on national income as the opportunity cost of damaged infrastructure and teachers killed.**

We also speculated that, as well as this loss of sunk investments, current educational budgets might have been reduced (section 3.2.2). For the lower bound, a \$63m reduction in educational investment would translate to around \$71m impact on national income. This gives a net impact of \$9m (since the reduced education spending represents a 'saving').<sup>42</sup> For the upper bound, a \$700m reduction in education investment would translate to around \$796m impact on national income which gives a net impact of \$96m. Given the conflict has lasted for four years so far, we can estimate that the **opportunity costs of reduced educational expenditure lie between \$34m and \$384m.**

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 3.2.1 we speculated that current conflicts might have the long-term impact of reducing national average years of schooling by 0.5 years. Based on Burnett, Guison-Dowdy and Thomas (2013) discussions of the impact of missed schooling in a number of other countries, we can speculate that for Syria this might lead to 3.1 percent reduction in GDP.<sup>43</sup> **This translates to an impact on the economy of approximately \$1.26b.**<sup>44</sup>

<sup>41</sup> 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%.

<sup>42</sup> Note, 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.

<sup>43</sup> See Annex section C on long-term economic impact data for more information on the methodology and assumptions used.

<sup>44</sup> This uses the latest official GDP figures we have for Syria which are from 2007.

Burnett et al (2013) also calculate the opportunity cost of the high levels of OOSC in a number of countries. Using wage premium estimates and estimating the proportion of OOSC who will never complete primary education they estimate a cost of OOSC as a percentage of GDP. They also add in the cost implied as a result of also foregoing secondary education. Given there is no data available for Syria, we assume in line with the estimates from Burnett et al that the total impact is likely to be somewhere between 2 percent and 6 percent of GDP. We can speculate that around 90 percent of OOSC numbers in Syria can be attributed to conflict.<sup>45</sup> This would put **conflict's impact on GDP<sup>46</sup> through reduced schooling at a broad estimate of around 1.8-5.4 percent of GDP, or between \$727m and \$2.18b.<sup>47</sup>**

**Table 6: Estimates of the long-term economic impact of the current conflict in Syria**

	<b>Estimates</b>	<b>Sources<sup>48</sup></b>
Returns to education	13.7%	Psacharopoulos and Patrinos, 2002 (MENA average)
Opportunity cost of damaged infrastructure and personnel	\$1.45 - 3.61b	Calculations from 3.1; assuming 13.7% ROI based on above
Opportunity cost of reduced educational expenditure	\$34 - 384m	Calculations from 3.2; assuming 13.7% ROI based on above
Opportunity cost of reduced educational attainment	\$1.26b (3.1% of GDP)	Broad estimates based on averages from Burnett et al, 2013 data set
Opportunity cost of out-of-school children	\$727m - 2.18b (1.8% - 5.4% of GDP)	Broad estimates based on averages from Burnett et al, 2013 data set

### 3.4 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 have a lower bound (based on figures from over a year ago) and an upper bound (based on more recent figures from a sample of around one third of all schools in Syria. From these, we may have a slight overestimation bias as some of the field visits conducted for the *Syria Multi-Sectoral Needs Assessment* took place during the school holidays when schools were closed). Given the insecurity in the country as well as the danger and confusion that

<sup>45</sup> There was near universal enrolment in basic education in Syria prior to the crisis and we know that at least 1.8 million children who were in the Syrian school system dropped out of basic education between 2012 and 2014 (OCHA, 2014, p.29) *due to the conflict*. Many others who were due to start primary education may not have started as a result of the conflict. All of these children can be classed as OOSC *due to conflict*. However, given there was not universal access to secondary education, there would have been some secondary aged students who were already out-of-school who may have remained out of school after the conflict started and are thus counted in OOSC statistics, but they are not OOSC *due to conflict*. Without a clear breakdown of the OOSC numbers at primary and secondary levels, we assume that the vast majority – between 90% and 95% – are OOSC *due to conflict* with the remaining 5% to 10% being OOSC for other reasons.

<sup>46</sup> Using 2007 GDP figures.

<sup>47</sup> See Annex section C on long-term economic impact costs for more detail on the methodology and assumptions used.

<sup>48</sup> See Annex section C on long-term economic impact costs for more detail on the methodology and assumptions used as well as the steps to the calculations.



has reigned in certain parts of Syria since the conflict began, it is likely that there are additional costs that remain unidentified.

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. As at December 2013, access to education has been denied to around 2.3 million children within Syria and at half a million more children in host countries, permanently impacting on national educational attainment. In addition, the psychosocial effects of conflict and displacement on teachers, children and youth portend a costly challenge to cognitive and emotional development. Since education typically exhibits positive returns, these effects are magnified in the long-term on the Syrian economy. And the social benefits of education are also 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 below. Please also refer to the Annex for further information on methodology and assumptions used.

**Table 8: Summary of cost of conflict on and through education**

Impact	Estimate
Direct cost to the education sector of targeted attacks and collateral damage on education	\$1.27 - 3.17b
Impact on educational expenditure	\$63 - 700m per year (0.6% - 3.6% of GDP)
Opportunity cost of lost and reduced expenditure (long-term impact of the previous two impacts)	\$1.45 - 3.61b
Opportunity cost of out-of-school children	\$727m - 2.18b (1.8% - 5.4% of GDP)
Opportunity cost of reduced educational attainment	\$1.26b (3.1% of GDP)

All of these calculations are highly speculative and cannot embody the complex interaction of various factors such as education, conflict, displacement and poverty. 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.

## 4 Conclusion

This study set out to investigate the impact that conflict has on education in Syria and to account for this quantitatively by looking firstly at the number of OOSC and secondly by monetising the damage done to national education systems, both in terms of material damage and human resource costs. In order to do this the study has looked at both the macro, econometric data, as well as 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 more 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 in Syria is targeted attacks on education resulting in damage and closure of schools, but schools, teachers and students are also victims of collateral damage, suffering as the result of indiscriminate violence, bombing and

destruction. There are numerous other indirect channels through which conflict impacts on education, including forced displacement, reductions on household spending, contraction of national economies, and negative impacts on public health.

Trying to untangle the interaction between school enrolment, conflict, the economy, and government spending is complex and difficult to evaluate with descriptive data alone. The analysis of enrolment trends and current levels of OOSC is probably over-simplistic but, given the data challenges in Syria, it represents our best efforts to describe the impact the conflict is having on access to schooling. We speculate that as many as 280 million student learning days have been lost so far as a result of the conflict over the last four years, with 2.8 million currently out of school, most of them due to conflict.<sup>49</sup> The fact that nearly all primary school aged children were enrolled in school prior to the conflict demonstrates the intensity of the conflict and the dramatic effect it has had on the education sector in four years.

Targeted attacks and collateral damage on education during conflict create real costs to the sector. Between 22 and 64 percent of schools will 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.

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. The scale of this impact on current levels of OOSC is very large; but this is just a snapshot hinting at the long term impact of conflict on educational access. Across Syria four years of a 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. If the conflict continues to escalate, the impact will be even more stark.

This only looks at the direct cost to the Syrian economy and does not incorporate the additional costs to host country economies in providing schooling for refugee populations, which, as we know just from the World Bank's *Economic and Social Impact Assessment of the Syrian Conflict* on Lebanon (World Bank, 2013) is sizeable for Lebanon and that is before any calculations for the other four host countries are taken into consideration. Even more difficult to account for are the numerous indirect channels through which conflict impacts upon education including negative impacts on public health and reduced household spending. The restriction of schooling for generations of children will of course have multiple other impacts on Syrian society that we cannot quantify.

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<sup>49</sup> Given that there was not universal access to secondary education prior to the crisis and some OOSC are at secondary level, we cannot conclude that *all* OOSC are due to conflict.



## References

Buckland, P. (2005). *Reshaping the Future: Education and Postconflict Reconstruction*. Washington DC: World Bank.

Burnett, N., Guison-Dowdy, A. and Thomas, M. (2013). *A Moral Obligation, an Economic Priority: The Urgency of Enrolling Out Of School Children*. Doha: Educate a Child and Results for Development. <http://www.resultsfordevelopment.org/sites/resultsfordevelopment.org/files/resources/Final-Report-Out-of-School-Children.pdf>

Dryden-Peterson, S. (2009). *Barriers to Accessing Primary Education in Conflict-Affected Fragile States*. Save the Children.

ETF (2012). *Results of the Youth Transition Survey 2009*. Torino: European Training Foundation. <http://www.enpi-info.eu/library/content/transition-education-work-syria>

GCPEA (2014). *Education Under Attack*. New York: Global Coalition to Protect Education from Attack. Syria report [http://protectingeducation.org/sites/default/files/documents/eua\\_2014\\_country\\_profiles\\_syria.pdf](http://protectingeducation.org/sites/default/files/documents/eua_2014_country_profiles_syria.pdf)

Grisgraber, D. and Gabaudan, M. (2014). *Waiting for Winter: Displaced Iraqis in the KRI*. Field Report, October 29, 2014. Washington DC: Refugees International.

Humanitarian Liaison Group (2014). *Syria Multi-Sectoral Needs Assessment*. Prepared by OCHA, REACH and SNAP on behalf of the Humanitarian Liaison Group, October 2014. [http://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/assessments/141028\\_Syria\\_MSNA\\_Report\\_FINAL\\_0.pdf](http://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/assessments/141028_Syria_MSNA_Report_FINAL_0.pdf)

Human Rights Watch (2013). *Safe No More: Students and Schools Under Attack in Syria*. New York: Human Rights Watch. <http://www.hrw.org/sites/default/files/reports/syria0613webwcover.pdf>

International Crisis Group (2014). *Rigged Cars and Barrel Bombs: Aleppo and the State of the Syrian War*. Middle East Report No. 155. 9 September 2014. Brussels: International Crisis Group. <http://www.crisisgroup.org/~media/Files/Middle%20East%20North%20Africa/Iraq%20Syria%20Lebanon/Syria/155-rigged-cars-and-barrel-bombs-aleppo-and-the-state-of-the-syrian-war.pdf>

Jones, A. and Naylor, R. (2014). *The Quantitative Impact of Armed Conflict on Education: counting the human and financial and costs*. Reading: PEIC and CfBT Education Trust. <http://cdn.cfbt.com/~media/cfbtcorporate/files/research/2014/r-armed-conflict-2014.pdf>

Lai, B. and Thyne, C. (2007). 'The Effect of Civil War on Education 1980-97'. *Journal of Peace Research*. Vol. 44, No. 3, 2007, pp.277-292.

OCHA (2014). *2015 Humanitarian Needs Overview – Syrian Arab Republic*. Prepared by OCHA on behalf of humanitarian partners working on the Syria Response. November 2014.

Price, M., Gohdes, A. and Ball, P. (2014). *Updated Statistical Analysis of Documentation of Killings in the Syrian Arab Republic*. Report commissioned by the Office of the UN High Commissioner for Human Rights, August 2014. San Francisco: Human Rights Data Analysis Group.

The Quantitative Impact of Armed Conflict on Education in Syria: counting financial costs  
Draft for Save the Children

Psacharopoulos, G., and Patrinos, H. (2002). *Returns to investment in education: A further update*. World Bank Policy Research Working Paper 2881. Washington DC: World Bank.

Save the Children (2014). *Futures Under Threat: The Impact of the Education Crisis on Syria's Children*. London: Save the Children.

[http://www.savethechildren.org.uk/sites/default/files/images/Futures\\_under\\_Threat1.pdf](http://www.savethechildren.org.uk/sites/default/files/images/Futures_under_Threat1.pdf)

Save the Children (2013). *Attacks on Education: The impact of conflict and grave violations on children's futures*. London: Save the Children.

[http://www.savethechildren.org.uk/sites/default/files/images/Attacks\\_on\\_Education\\_0.pdf](http://www.savethechildren.org.uk/sites/default/files/images/Attacks_on_Education_0.pdf)

Themne'r, L. and Wallensteen, P. (2013). 'Armed conflicts, 1946-2013'. *Journal of Peace Research*. Vol. 51, No. 4, 2014, pp.541-554.

UCDP (2014). *UCDP Battle-Related Deaths Dataset v.5-2014*, Uppsala Conflict Data Program, [www.ucdp.uu.se](http://www.ucdp.uu.se), Uppsala University.

UIS online database. Accessed during February 2015 at <http://data.uis.unesco.org/>

UNDP and UNHCR (2015). *3RP Regional Refugee & Resilience Plan, 2015-2016 in Response to the Syrian Crisis*. Regional Strategic Overview.

<http://www.3rpsyriacrisis.org/wp-content/uploads/2015/01/3RP-Report-Overview.pdf>

UNDP (2013). *The Rise of the South: Human Progress in a Diverse World*. *Human Development Report 2013*. Explanatory Note on 2013 HDR Composite Indices: Syrian Arab Republic.

<http://hdr.undp.org/sites/default/files/Country-Profiles/SYR.pdf>

UNESCO and UNHCR (2013). *Regional Conference on Exploring an Education Response to the Syrian Refugee Crisis*. Beirut, 11-12 December 2013. Summary Report.

UNGA (2014a). *Report of the independent international commission of inquiry on the Syrian Arab Republic*. Human Rights Council, Twenty-seventh session, Agenda item 4. 13<sup>th</sup> August 2014.

[http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session21/A-HRC-21-50\\_en.pdf](http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session21/A-HRC-21-50_en.pdf)

UNGA (2014b). *Oral Update of the Independent International Commission of Inquiry on the Syrian Arab Republic*. Human Rights Council, Twenty-sixth session, Agenda item 4. 16<sup>th</sup> June 2014.

[http://www.ohchr.org/Documents/HRBodies/HRCouncil/CoISyria/A-HRC-26-CRP-2\\_en.pdf](http://www.ohchr.org/Documents/HRBodies/HRCouncil/CoISyria/A-HRC-26-CRP-2_en.pdf)

UNGASC (2013). *Children and armed conflict: Report of the Secretary-General*. United Nations General Assembly Security Council. 15 May 2013.

[http://www.protectingeducation.org/sites/default/files/documents/unsc\\_children\\_and\\_armed\\_conflict\\_report\\_2013.pdf](http://www.protectingeducation.org/sites/default/files/documents/unsc_children_and_armed_conflict_report_2013.pdf)

UNHCR (2015). *Syrian Refugees: Inter-Agency Regional Update*. 12 February 2015. Geneva: UNHCR.

<http://reliefweb.int/sites/reliefweb.int/files/resources/syrian%20refugees.pdf>

UNHCR (2014). *Living in the Shadows 2014. Jordan Home Visits Report*. Amman: UNHCR Jordan Operation.

The Quantitative Impact of Armed Conflict on Education in Syria: counting financial costs  
Draft for Save the Children

UNICEF (2014). *Under Siege: The Devastating Impact on Children of Three Years of Conflict in Syria*. Jordan: UNICEF Regional Office for the Middle East and North Africa.  
[http://www.unicef.org/publications/files/Under\\_Siege\\_March\\_2014.pdf](http://www.unicef.org/publications/files/Under_Siege_March_2014.pdf)

UNICEF, World Vision, UNHCR, Save the Children (2013). *Syria Crisis: Education Interrupted. Global Action to Rescue the Schooling of a Generation*.

[http://www.unicef.org/media/files/Education\\_Interrupted\\_Dec\\_2013.pdf](http://www.unicef.org/media/files/Education_Interrupted_Dec_2013.pdf)

UNICEF (2013). *Syria Crisis Bi-weekly Humanitarian Situation Report*.

[http://www.unicef.org/appeals/files/UNICEF\\_Syria\\_Regional\\_Crisis\\_Humanitarian\\_SitRep\\_Syria\\_Jordan\\_Lebanon\\_Iraq\\_Turkey\\_16May2013.pdf](http://www.unicef.org/appeals/files/UNICEF_Syria_Regional_Crisis_Humanitarian_SitRep_Syria_Jordan_Lebanon_Iraq_Turkey_16May2013.pdf)

World Data Bank. <http://databank.worldbank.org/data/>

World Bank (2013). *Executive Summary, Lebanon: Economic and Social Impact Assessment of the Syrian Conflict (September 2013)*. Washington DC: World Bank.

<http://www.worldbank.org/content/dam/Worldbank/document/MNA/LBN-ESIA%20of%20Syrian%20Conflict-%20EX%20SUMMARY%20ENGLISH.pdf>

*Syrian Arab Republic Revised Syria Humanitarian Assistance Response Plan (SHARP) January – December 2013*. Prepared in Coordination between the Syrian Government, United Nations System and Other Humanitarian Actors in Syria.

[http://www.humanitarianresponse.info/system/files/documents/files/Revised\\_Syria\\_Humanitarian\\_Assistance\\_Response\\_Plan\\_Jan-Dec\\_2013\\_en.pdf](http://www.humanitarianresponse.info/system/files/documents/files/Revised_Syria_Humanitarian_Assistance_Response_Plan_Jan-Dec_2013_en.pdf)

*Syria Integrated Needs Assessment (2013)*. December 2013.

[http://reliefweb.int/sites/reliefweb.int/files/resources/SINA\\_EN\\_Final.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/SINA_EN_Final.pdf)

## Annex – Data and assumptions

For all data, we have endeavoured to return to primary sources rather than rely on secondary sources which summarised data and at times rounded up or down, or approximated. Our main sources of data come from:

E-mail exchanges with UNHCR during February 2015 (for some unit cost data).

ETF (2012). *Results of the Youth Transition Survey 2009*. Torino: European Training Foundation.

<http://www.enpi-info.eu/library/content/transition-education-work-syria>

Humanitarian Liaison Group (2014). *Syria Multi-Sectoral Needs Assessment*. Prepared by OCHA, REACH and SNAP on behalf of the Humanitarian Liaison Group, October 2014.

[http://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/assessments/141028\\_Syria\\_MSNA\\_Report\\_FINAL\\_0.pdf](http://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/assessments/141028_Syria_MSNA_Report_FINAL_0.pdf)

Lebanese Ministry of Finance 2013 Public Annual Review (for Lebanese public expenditure on higher education data).

[http://www.finance.gov.lb/en-](http://www.finance.gov.lb/en-US/finance/ReportsPublications/DocumentsAndReportsIssuedByMOF/Documents/Public%20Finance%20Reports/Annual/YR_2013.pdf)

[US/finance/ReportsPublications/DocumentsAndReportsIssuedByMOF/Documents/Public%20Finance%20Reports/Annual/YR\\_2013.pdf](http://www.finance.gov.lb/en-US/finance/ReportsPublications/DocumentsAndReportsIssuedByMOF/Documents/Public%20Finance%20Reports/Annual/YR_2013.pdf)

Psacharopoulos, G., and Patrinos, H. (2002). *Returns to investment in education: A further update*. World Bank Policy Research Working Paper 2881. Washington DC: World Bank.

UNICEF (2013). *Syria Crisis Bi-weekly Humanitarian Situation Report*.

[http://www.unicef.org/appeals/files/UNICEF\\_Syria\\_Regional\\_Crisis\\_Humanitarian\\_SitRep\\_Syria\\_Jordan\\_Lebanon\\_Iraq\\_Turkey\\_16May2013.pdf](http://www.unicef.org/appeals/files/UNICEF_Syria_Regional_Crisis_Humanitarian_SitRep_Syria_Jordan_Lebanon_Iraq_Turkey_16May2013.pdf)

### A. Direct cost data

#### 1. DESTRUCTION AND OCCUPATION OF SCHOOLS - CONSTRUCTION/REHABILITATION COSTS

There were various sources of data on the destruction and occupation of schools. The *2014 Education Under Attack* (GCPEA, 2014) data only went up to early 2013 and was incomplete. Data in the *Syria Crisis Bi-weekly Humanitarian Situation Report* on 16<sup>th</sup> May 2013 seems to be the most widely cited. We used this as a lower bound estimate as the data is from nearly a year ago. The most recent data we could find comes from the *2014 Syria Multi-Sectoral Needs Assessment (MSNA)* (Humanitarian Liaison Group, 2014) undertaken during August and September 2014. This survey covered one-third of all schools

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in Syria across all the governorates. However, due to security constraints and some problems applying the methodology accurately in some districts, the survey cannot be seen to be fully nationally representative although should be quite close. Additionally, some schools may have been closed for school holidays (inoperational) during the data collection period meaning the data on inoperational schools may have an overestimation bias. For this reason, we use this data as an upper bound.

Estimate	Source	Data on infrastructure damaged/destroyed	Notes
Lower bound estimate	UNICEF sitrep 16 May 2013	Around 20% (22%) of 22,000 schools damaged, destroyed or used as collective shelters  2,963 schools damaged or destroyed 1,992 used as shelters for IDPs  MoE estimate a US\$740 million loss in infrastructure (SHARP, 2013)	Collective shelter figures much higher than SHARP 2013 figures  Based on 3,645 schools damaged, destroyed or occupied (i.e. \$203k average per school)
Upper bound estimate	Syria MSNA 2014	46-64% of 22,000 schools damaged, destroyed or used as collective shelters  46% of total education facilities assessed reported some damages (3,282 out of 7,172 education facilities assessed)  18% of total education facilities assessed were occupied (1,291)  2,856 educational facilities are no longer functional	Based on 1/3 of all education facilities assessed

Stock of schools 22,000 Source: MoE data (from UNICEF, 2013, p.2)

Assume damage to these has been in the same proportions as the Syria MSNA percentages



## 2. DESTRUCTION AND OCCUPATION OF SCHOOLS - EQUIPMENT COSTS

Unit cost of equipping a school

**\$30,000** Source: UNHCR

Assume the following proportionate costs of equipping schools that have been damaged/destroyed

Unit cost of equipment (US\$)	Unit cost	% of cost of rebuilding school
Slight damage	\$7,500	25%
Moderate damage	\$15,000	50%
Heavy damage	\$30,000	100%
Destruction	\$30,000	100%
Occupied	\$30,000	100%

Total cost of equipment (US\$m)	Lower bound (sitrep)	Upper bound (Syria MSNA)
Slight damage		\$43
Moderate damage	\$44	\$30
Heavy damage		\$46
Destruction		\$26
Occupied	\$60	\$119
<b>Total cost of equipment (US\$m)</b>	<b>\$104</b>	<b>\$264</b>



### 3. DEATH OF TEACHERS AND STUDENTS - TEACHER TRAINING COSTS

Estimate	Source	Data on teachers/students killed
Lower bound estimate	UNICEF sitrep 16 May 2013	97 students and 222 teachers and other education staff have been killed during school time
Upper bound estimate	Save the Children, 2013, p.9	Local human rights NGO announced 640 educational staff have been killed and 1,300 arrested by government forces (Save the Children, 2013, p.9)

We were unable to find any unit cost estimates of pre-service teacher training in Syria. We were able to calculate approximate unit costs for higher education in Lebanon where a student spends 3 years in university before being able to teach in schools. We therefore calculate the public cost of pre-service training to be equivalent to the average public cost of a student spending three years studying at university. Using 2012 data for Lebanon (the number of students enrolled and the Ministry of Finance public annual review which contains data on government expenditure/transfers to the Lebanese University), we calculate a unit cost for 2012 and multiply this by 3 to obtain an estimate to use as a proxy for pre-service teacher training in Syria, assuming a similar approach to pre-service teacher training is used in Syria.

Lebanon teacher training estimates	2012	Source	Notes
No of students enrolled in Lebanese University	73,698	<a href="http://www.bankmed.com.lb/LinkClick.aspx?fileticket=_VZgkH-7-s%3D&amp;portalid=0">http://www.bankmed.com.lb/LinkClick.aspx?fileticket=_VZgkH-7-s%3D&amp;portalid=0</a>	
Government expenditure (transfers to Lebanese University)	327,000	Ministry of Finance public annual review <a href="http://www.finance.gov.lb/en-US/finance/ReportsPublications/DocumentsAndReportsIssuedByMOF/Documents/Public%20Finance%20Reports/Annual/YR_2013.pdf">http://www.finance.gov.lb/en-US/finance/ReportsPublications/DocumentsAndReportsIssuedByMOF/Documents/Public%20Finance%20Reports/Annual/YR_2013.pdf</a>	Million Lebanese pounds
Government expenditure (transfers to Lebanese University) US\$m	\$217	Exchange rate = 0.000663	Million US\$
Unit cost of 1 year in higher education US\$	\$2,942		
No of years in higher education for teacher training	3		
3 years in higher education for teacher training	\$8,825		i.e. cost of pre-service teacher training

Pre-service teacher training costs **\$8,825** Use Lebanese unit costs as a proxy

Total cost of training new teachers (US\$)	Lower bound (sitrep)	Upper bound (Syria MSNA)
No of teachers killed	222	640
<b>Total cost to replace with newly trained teachers (US\$m)</b>	<b>\$2</b>	<b>\$6</b>

#### 4. LOST STUDENT AND TEACHING DAYS

Estimate	Lower bound	Upper bound	Source	Notes
No of OOSC or children that have dropped out	2,800,000	2,800,000	OCHA, 2014, p.29	
Assumption that children were out of school for 100 days	100	100		-
Lost student days (millions)	280	280		
Pupil-teacher ratio	17.2	17.2	OCHA, 2014, p.29	
Lost teaching days (millions)	16.3	16.3		
Average teacher salary	\$2,160	\$2,160	UNHCR - e-mail to Amy	\$10.80
Assumption that there are 200 teaching days per year	200	200		
<b>Total cost in lost teaching time (US\$m)</b>	<b>\$176</b>	<b>\$176</b>		

Summary of direct costs	Lower bound	Upper bound
Total cost of repair (US\$m)	\$991	\$2,728
Total cost of equipment (US\$m)	\$104	\$264
Total cost to replace with newly trained teachers (US\$m)	\$2	\$6
Total cost in lost teaching time (US\$m)	\$176	\$176
<b>Total (direct costs)</b>	<b>\$1,273</b>	<b>\$3,173</b>

## B. Indirect cost data

### 1. LOST WAGE EARNINGS

These figures are based on a survey conducted by the Syrian Central Bureau of Statistics in cooperation with the European Training Foundation (ETF) in November-December 2009 as presented in its report *Transition from Education to Work in Syria: Results of the Youth Transition Survey 2009* (ETF, 2012). The survey canvassed the experiences of 3,847 young people, aged from 15 to 30, who had left education for the first time in the past five years.

Average pay in first job (2009) based on level of education achieved	Average net monthly (SYP)	Average net daily (SYP)	Average net daily (US\$)	Notes
Minimum wage	6,000	300	6.52	Incomplete primary
Kindergarten/first basic	6,614	331	7.19	First basic = primary
First basic + some second basic	7,262	363	7.89	
Second basic	7,870	394	8.55	Second basic = lower secondary
Second basic + some general education	8,507	425	9.25	
Second basic + some vocational secondary	9,469	473	10.29	
General secondary	8,822	441	9.59	Secondary = upper secondary
Vocational secondary	12,838	642	13.95	
Secondary + some institute (1-2 years)	9,262	463	10.07	
Institute (1-2 years)	10,754	538	11.69	
Secondary + some university	10,744	537	11.68	
University	13,691	685	14.88	

Source: ETF (2012) Table 5.11, p.37 (minimum wage data from p.35)

Exchange rate SYP to US\$ 28 November 2009 was 46.00<sup>50</sup>

**Note:** these figures are from 2009 since when there has been significant wage deflation and exchange rate deterioration which has not been factored into these calculations.

<sup>50</sup> <http://www.xe.com/currencycharts/?from=SYP&to=USD&view=10Y>

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The table below outlines the percentage wage differential between workers with different education backgrounds. An example of how the primary wage differential to incomplete primary percentage is calculated is:

$$\text{(Kindergarten/first basic monthly wage – minimum monthly wage) / minimum monthly wage}$$

This equates to  $(6,614 - 6,000)/6000 = 0.10 = \mathbf{10\% \text{ more}}$

For the upper secondary to primary non-completion wage differentiation, this is calculated as:

$$\text{(General secondary monthly wage – minimum monthly wage) / minimum monthly wage}$$

This equates to  $(8,822 - 6,000)/8,822 = 0.32 = \mathbf{32\% \text{ less}}$

Wage differential	%	Notes
Primary wage differential to in-complete primary	10%	i.e. Someone completing primary education is likely to earn <b>10% more</b> than someone not completing primary school
Lower secondary wage differential to primary	19%	i.e. Someone completing lower secondary education (basic education) is likely to earn <b>19% more</b> than someone completing primary school
Secondary wage differential to lower secondary	12%	i.e. Someone completing upper secondary education is likely to earn <b>12% more</b> than someone completing lower secondary education
Secondary wage differential to primary	33%	i.e. Someone completing upper secondary education is likely to earn <b>33% more</b> than someone completing only primary education
Primary to lower secondary wage differential	16%	i.e. Someone completing primary education is likely to earn <b>16% less</b> than someone completing lower secondary education
Lower secondary to upper secondary wage differential	11%	i.e. Someone completing lower secondary education is likely to earn <b>11% less</b> than someone completing upper secondary education
Secondary to primary wage differential	25%	i.e. Someone completing primary education is likely to earn <b>25% less</b> than someone completing upper secondary education
Secondary to primary non-completion wage differential	32%	i.e. Someone not completing primary education is likely to earn <b>32% less</b> than someone completing upper secondary education
University to primary non-completion wage differential	56%	i.e. Someone not completing primary education is likely to earn <b>56% less</b> than someone completing higher education

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**Note:** The wage differential is the relative difference in earnings between people with different levels of education. For example from the table below, the wage differential between a primary school completer and a primary school non-completer is the average daily earnings of a primary school completer (\$7.19) minus the average daily earnings of a primary school non-completer (\$6.52) which is \$0.67. These daily wage differentials between different levels of education are outlined in the following table.

Earnings	Amount (US\$)
Average daily earnings - primary school non-completer	\$6.52
Average daily earnings - primary school completer	\$7.19
Average daily earnings - basic education school completer	\$8.55
Average daily earnings - secondary school completer	\$9.59

Earnings differential	Lower bound	Middle	Upper bound
Daily earnings differential (primary completer v non-completer)	\$0.67	\$0.67	\$0.67
Daily earnings differential (basic education completer v primary completer)	\$1.37	\$1.37	\$1.37
Daily earnings differential (basic education completer v primary non-completer)	\$2.03	\$2.03	\$2.03
Daily earnings differential (secondary completer v primary completer)	\$2.40	\$2.40	\$2.40
Daily earnings differential (secondary completer v primary non-completer)	\$3.07	\$3.07	\$3.07
Lost student days (millions)	280	280	280
<b>Total lost earnings (US\$m)</b>	<b>\$187</b>	<b>\$382</b>	<b>\$672</b>

**Note:** The lower bound uses the daily earnings differential for a primary completer v a primary non-completer; the mid-point uses the daily earnings differential for a basic education completer v a primary completer and the upper bound estimate uses the daily earnings differential for a secondary completer v a primary completer. Without a breakdown in the lost schooling days by education level, we are not able to accurately estimate what the total lost earnings for lost student days are likely to be. Instead we give a wide estimate of between **\$187m and \$672m** with the reality most likely to lie somewhere between these two bounds.

## 2. OOSC NUMBERS

OOSC numbers		Source
OOSC as % of all school-aged children	50%	Syria Crisis: Education Interrupted, December 2013
Syria	2,300,000	UNICEF, 2014, p.15 (March 2014)
Turkey	77,770	UNICEF, 2014, p.15 (March 2014)
Iraq	25,519	UNICEF, 2014, p.15 (March 2014)
Lebanon	300,000	UNICEF, 2014, p.15 (March 2014)
Jordan	92,598	UNICEF, 2014, p.15 (March 2014)
Egypt	3,911	UNICEF, 2014, p.15 (March 2014)
<b>Total</b>	<b>2,799,798</b>	

These OOSC numbers are from around a year ago and there has been an increase in the severity of the conflict over the last year. It was not possible to update them as there are too many parameters that have been changing including the numbers of refugees fleeing to different host countries and the ability of those countries to absorb additional children into their schools. There are also some potential challenges with OOSC data including:

- Potential differences in the official age range for primary and secondary school children which may affect who is classified as an OOSC;
- Whether the OOSC rate is particularly high amongst 6 years olds who sometimes delay and start school as late entrants;
- The combining of primary and secondary aged children and prior to the crisis in the OOSC numbers yet there was not universal enrolment in secondary schools which may cause people to overestimate the impact of the crisis on OOSC numbers by including children who were already out of school before the crisis;
- We do not know how long some of these children have been out of school and/or how many are intermittent attendees; and
- There are some refugees that are not officially registered so official numbers may be an underestimate.

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Enrolment/OOSC data	Figure	Source	Notes
IDPs within Syria	7,600,000	<a href="http://www.internal-displacement.org/middle-east-and-north-africa/syria/">http://www.internal-displacement.org/middle-east-and-north-africa/syria/</a>	
Refugees who have left Syria	2,800,000	MSNA, 2014, p.19	We know this figure is now 3.8 million (i.e. nearly a million more as of Feb 2015)
Syrian population aged 3-17 (official age bracket for school attendance)	38.15%	OCHA, 2014, p.29	
Enrolment in grades 1-12 in 2013/14 (EMIS data)	3,700,000	OCHA, 2014, p.29	
Number of students in basic education 2011/12	4,900,000	OCHA, 2014, p.29	
Number of students in basic education 2013/14	3,100,000	OCHA, 2014, p.29	
Loss in enrolment over last 2 years (38% reduction), i.e. dropouts from the education system 2012-2014	1,800,000	OCHA, 2014, p.29	
GER 1980	95%	OCHA, 2014, p.29	
GER basic education (pre-crisis)	104%	OCHA, 2014, p.29	
GER basic education 2012/13	66%	OCHA, 2014, p.29	
Estimates of children either out of school or attending classes irregularly (lower bound)	2,100,000	OCHA, 2014, p.29	Some children have been out of school for 2-3 years
Estimates of children either out of school or attending classes irregularly (upper bound)	2,400,000	OCHA, 2014, p.29	Some children have been out of school for 2-3 years
School-aged children not attending school (within Syria)	40%	OCHA, 2014, p.87 (from Syria MSNA)	
UNHCR Feb 16 registered refugee figures	3,738,187	<a href="http://data.unhcr.org/syrian-refugees/regional.php">http://data.unhcr.org/syrian-refugees/regional.php</a>	
Percentage of refugees aged 5-11	21.20%	<a href="http://data.unhcr.org/syrian-refugees/regional.php">http://data.unhcr.org/syrian-refugees/regional.php</a>	
Syrian children school attendance in 5 host countries	489,000	OCHA, 2014, p.90	
School-aged Syrian children not attending school (in host countries)	461,000	OCHA, 2014, p.90	49% of the registered school-age population; also could be unregistered in addition to these



### 3. BATTLE RELATED DEATHS AND EXPENDITURE DATA

GDP, expenditure and battle-related death data	Figure	Source	Notes
Most recent GDP estimate (2007)	\$40,405,006,007	World Bank (2007) latest figure available	
Education expenditure as % of GDP	5%		
Education expenditure in monetary terms	\$2,020,250,300		
Battle-related deaths (2011)	842	UCDP	
Battle-related deaths (2012)	15,056	UCDP	
Battle-related deaths (2013)	22,752	UDCP	
Average battle-related deaths (2011-2013)	12,883		Mean of 2011-2013; likely to be an underestimate as BRDs likely to have been higher in 2014
Government education budget as % of GDP (2004)	15%	UNICEF et al, 2013, p.4	
Government education budget as % of GDP (2009)	19%	UNICEF et al, 2013, p.4	
Primary rate of return (social)	15.6%	Psacharopoulos and Patrinos, 2002 (using MENA figures)	
Secondary rate of return (social)	9.7%	Psacharopoulos and Patrinos, 2002 (using MENA figures)	
Average rate of return (social)	12.7%		Mean of primary and secondary
Primary rate of return (private)	13.8%	Psacharopoulos and Patrinos, 2002 (using MENA figures)	
Secondary rate of return (private)	13.6%	Psacharopoulos and Patrinos, 2002 (using MENA figures)	
Average rate of return (private)	13.7%		Mean of primary and secondary

**Note:** No BRDs could be reported for 2014 and there was a challenge with the 2013 data (we took the lower bound data as currently estimated in the Uppsala database). Themne’r and Wallenstein (2013) point out that a critical issue in Syria has been that violence is on such a large scale that it has been impossible for reports, watchdogs and independent media to cover it in its entirety, making exact numbers difficult to estimate. We use the mean of 2011-2013 to estimate approximate annual BRDs for the four years of the Syrian conflict.

## C. Long-term economic impact data

### 1. OPPORTUNITY COST OF DAMAGED INFRASTRUCTURE AND PERSONNEL (LONG-TERM DIRECT COSTS)

Average rate of return (private)

**13.7%**

Source: Psacharopoulos and Patrinos, 2002, p.12

Opportunity cost of damaged infrastructure and personnel	Lower bound	Upper bound
Cost of damaged infrastructure and personnel (US\$m)	\$1,273	\$3,173
Average rate of return (private)	13.7%	13.7%
<b>Opportunity cost of damaged infrastructure and personnel (US\$m)</b>	<b>\$1,447</b>	<b>\$3,608</b>

### 2. OPPORTUNITY COST OF REDUCED EDUCATIONAL EXPENDITURE

Opportunity cost of reduced educational expenditure	Lower bound	Upper bound
Impact of conflict on educational expenditure per year (reduction)	\$63	\$700
Average rate of return (private)	13.7%	13.7%
Impact on national income (reduction)	\$71	\$796
Net impact on national income (reduction)	\$9	\$96
<b>Opportunity cost of reduced educational expenditure (US\$m)</b>	<b>\$34</b>	<b>\$384</b>

From direct costs calculations

**Note:** the opportunity cost = net impact x length of conflict so far (i.e. 4 years)

### 3. OPPORTUNITY COST OF REDUCED EDUCATIONAL ATTAINMENT

Conflict results in a reduction in access which ultimately leads to permanent reductions in average educational attainment. In section 3.2.1 we speculated that current conflicts might have the long-term impact of reducing national average years of schooling by 0.5 years (see Jones and Naylor, 2014, p.23 for discussion around this assumption based on wider literature).

**Note:** mean years of schooling for Syria was 5.7 up until 2012 (UNDP, 2013, p.2). With an assumption of 0.5 years reduction in mean years of schooling, this would bring mean years of schooling down to 5.2.

Using Burnett, Guison-Dowdy and Thomas' (2013) discussions of the impact of missed schooling in a number of other countries and eyeballing this data to come up with approximate estimates for Syria on the likely estimated income loss per capita (Pakistan is the country with the most similar data), we can speculate that for Syria this might lead to 5% estimated income loss per capita. If the student remains in school that would lead to a 6% increase in per capita income for an increase of one year in average years of schooling. This is broadly consistent with ETF (2012, p.36) which estimates a 5.6% return to each additional year of schooling.

Burnett et al (2013) country data	Mean years of schooling	Estimated income loss per capita	Increase in income per capita for increase of one year in average years of schooling
Cote d'Ivoire	4.5	22.2%	15%
DRC	3.47	43.3%	17%
India	5.1	12.3%	14%
Mali	2.03	83.8%	21%
Pakistan	5.59	5.3%	13%
Yemen	3.69	38.4%	17%
Estimates for Syria (lower bound)	5.2	5%	6%

Assuming a 0.5 years reduction in average years of schooling due to conflict and a 6 percent increase in income per capita for an increase of one year in average years of schooling, without rounding this would lead to a 3.1 percent reduction in GDP which translates to **an impact on the economy of \$1.3b** as outlined in the table below.<sup>51</sup>

<sup>51</sup> This uses the latest official GDP figures we have for Syria which are from 2007.

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<b>Opportunity cost of reduced educational attainment</b>	<b>Lower bound</b>	<b>Upper bound</b>
Assumption on reduction in average years of schooling due to conflict	0.5	0.5
Increase in income per capita for increase of one year in average years of schooling	6%	6%
Opportunity cost of reduced educational attainment (i.e. long-term impact on national income due to reduced educational attainment) (as % of GDP)	3.1%	3.1%
<b>Opportunity cost of reduced educational attainment (i.e. long-term impact on national income due to reduced educational attainment) (monetary terms - US\$m)</b>	<b>\$1,263</b>	<b>\$1,263</b>

## 4. OPPORTUNITY COST OF OOSC

This calculation is based on a paper by Burnett et al (2013) on the impact of OOSC on a country’s economy. The detailed methodology is outlined in Burnett et al (2013, p.34-41). The equation Burnett et al (2013) use requires: a) the percentage of OOSC not completing primary school; b) the current transition rate to secondary school; and c) wage premium data – all datasets which are not readily available for Syria. Since we do not have the necessary data to run the equation for Syria, we have estimated a likely range figure based on the findings for countries from Burnett’s original data set (this includes Côte d’Ivoire, the Democratic Republic of the Congo, India, Mali, Pakistan and Yemen). We have excluded India due to big variations between two different data sources in the figures estimated including one of them giving a small relative percentage of OOSC which would be significantly lower than Syria’s). The table below summarises the other key data from Burnett et al (2013, p.40-43) tables 6 and 7.

Burnett et al 2013 data	Primary OOSC rate	% non-completing OOSC	Wage premium to primary education	Direct cost as % of GDP	Wage premium to secondary education	Rate of continuation to secondary education	Direct GDP loss + probability-weighted GDP loss from foregone secondary education
Cote d'Ivoire	38%	29%	15%	4.3%	39%	46%	<b>6.80%</b>
Mali	34%	33%	9%	2.9%	22%	80%	<b>1.90%</b>
DRC	26%	12%	9%	1.1%	22%	73%	<b>5.50%</b>
Pakistan	26%	10%	8%	0.8%	14%	74%	<b>1.30%</b>
Yemen	22%	11%	10%	1.1%	41%	73%	<b>2.80%</b>

From these countries, we find a range figure of the negative impact of large numbers of OOSC to a country’s economy of between **1.3% and 6.8% of GDP**. As the impact of conflict on OOSC in Pakistan (where the lower bound figure of 1.3% comes from) is not as severe as Syria’s, we increased the lower bound figure to a rounded **2%** (similar to Mali at 1.9%). As the transition rate to secondary school is very low in Cote d’Ivoire (where the upper bound figure of 6.8% comes from), we have also adjusted the upper bound figure down to **6%**. We have then estimated that between 90% and 95% of Syrian children<sup>52</sup> are out of school due to the conflict and settled on an “impact to GDP” range for Syria of between **1.8% and 5.4%**, which equates to **\$727m to \$2.2b** (using Syria’s most recent GDP estimate as at 2007) as outlined in the table below.

<sup>52</sup> See footnote 45 on page 20 for rationale for this estimation of 90%-95% of Syrian children being out of school due to conflict.

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Opportunity cost of OOSC	Lower bound	Upper bound
Assume total impact as % of GDP	2.0%	6.0%
Proportion of OOSC due to conflict	95%	90%
Opportunity cost of OOSC (i.e. long-term impact on national income of current OOSC due to conflict) (GDP terms)	1.8%	5.4%
<b>Opportunity cost of OOSC (i.e. long-term impact on national income of current OOSC due to conflict) (monetary terms - US\$m)</b>	<b>\$727</b>	<b>\$2,182</b>

**Note:** for Syria, given there was no data on the numbers of OOSC who are likely to be permanently non-completing, we have made broad assumptions based on the range of estimates found in Burnett et al (2013). This range of figures can be seen to be a very broad ballpark range given the lack of robust baseline data for Syria rather than an accurate estimate of the costs for Syria.

Summary of long-term economic costs	Lower bound	Upper bound
Opportunity cost of damaged infrastructure and personnel (US\$m)	\$1,447	\$3,608
Opportunity cost of reduced educational expenditure (US\$m)	\$34	\$384
Opportunity cost of reduced educational attainment (i.e. long-term impact on national income due to reduced educational attainment) (monetary terms - US\$m)	\$1,263	\$1,263
Opportunity cost of OOSC (i.e. long-term impact on national income of current OOSC due to conflict) (monetary terms - US\$m)	\$727	\$2,182

Summary of direct costs	Lower bound	Upper bound
<b>Total (direct costs) (US\$b)</b>	<b>\$1.3b</b>	<b>\$3.2b</b>