Violent Conflict and Educational Inequality

Literature Review

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Acronyms

EFA	Education for All
EPDC	Education Policy and Data Center
HiCN	Households in Conflict Network
MDGs	Millennium Development Goals
PBEA	Peacebuilding, Education, and Advocacy (Programme)
PRIO	Peace Research Institute Oslo
UCDP	Uppsala Conflict Data Program
UNICEF	United Nations Children's Fund

1. Introduction

This literature review explores the links between violent conflict and educational inequality as part of a research project funded by UNICEF's Peacebuilding, Education, and Advocacy (PBEA) Programme and carried out by the FHI 360 Education Policy and Data Center (EPDC). We build on previous PBEA-supported research we conducted into the effects of inequality on the likelihood of violent conflict, which included an extensive literature review, a large-scale quantitative study, and two mixed-method case studies.[1] In this second phase, we seek to unpack the reverse relationship: the links from conflict to educational opportunity.

To inform the design of a global study in which we will empirically test whether conflict exacerbates, or improves, levels of educational inequality experienced prior to the conflict, this review takes stock of the quantitative literature on the topic. We selected literature according to the requirements of the upcoming analysis. Specifically:

- We concentrated on work that illuminates the immediate impacts of conflict rather than post-conflict educational effects, because the quantitative analysis will focus on whether and how educational inequality changes *during* periods of conflict. We distinguish conflict and post-conflict periods, because education may be impacted differently in each phase. Specifically, supply and demand for education are more likely to be disrupted directly during conflict while shifts in education in post-conflict settings are more likely to stem from how (and if) a conflict is resolved, who the "winners" and "losers" of war are, and decisions about national investments and international aid in the aftermath of violence.
- We emphasized conceptual and methodological insights from multi-country studies as the scope of our analysis will be global. Because few cross-national quantitative studies have investigated conflict and education, we also look at case study illustrations to expand our understanding of how violence reshapes the educational landscape in a country.
- We prioritized studies of internal conflicts rather than other types of conflict, with occasional exceptions, as the upcoming research study will examine the effects of violent conflicts within countries. While the ways that conflict impacts education are similar to some extent in international wars, terrorism, and gang violence, there are reasons to concentrate exclusively on internal conflict. As Collier (1999) notes, civil wars, compared to international wars, are more likely to devastate a country because they are fought entirely within national borders. They are also more likely to destabilize state institutions, whereas international wars may actually strengthen them. Similarly, terrorism and gang violence often have international reach, inspiring fear and resulting in devastation beyond national borders.
- We chose literature with an explicit focus on educational outcomes. The effects of conflict are complex and multi-dimensional, and scholarship has assessed the ways that conflict alters economies, public health, the environment, and other spheres. While effects in these areas are interrelated with educational impacts, our study will explore educational effects, specifically, and consideration of other outcome areas is outside the scope of this review.

This report builds on three invaluable reviews into the consequences of conflict for education and human capital accumulation: Justino (2016), which surveys micro-level studies into conflict and individual educational outcomes; Buvinić, Gupta, and Shemyakina (2013), which focuses on the gendered effects on

[1] See the following titles at http://learningforpeace.unicef.org/category/resources/technical-resources/: *Horizontal Inequality in Education and Violent Conflict* [Literature Review], *Does Horizontal Education Inequality Lead to Violent Conflict* [Global Analysis], *Investment in Equity and Peacebuilding: Uganda Case Study*, and *Investment in Equity and Peacebuilding: South Africa Case Study*.

education in conflict and post-conflict environments; and Blattman and Miguel (2010), which reviews empirical work on the causes and consequences of civil war, including the depletion of human capital. We capitalize on the insights from these reviews, and our main contributions are the use of inequality as a lens on the literature and a focus on the methodological insights from cross-national studies. We drew literature recommendations from these existing reviews, background papers for the 2011 Education for All Global Monitoring Report on education and conflict (UNESCO, 2011), and working papers from the Households in Conflict Network (HiCN), which has produced a rich body of research into the effects of conflict on households. Our review of the select cross-national literature available delves deeper into methodological concerns than our review of case studies, which we use to delineate potential patterns in the way that conflict may influence educational inequality.

This literature review is structured as follows. We begin by exploring the multitude of potential ways in which conflict disrupts the education system. We then turn to evidence on how conflict changes educational inequality – going from general impacts to effects and damages for specific subpopulations. We conclude by discussing the methodological challenges of designing studies of conflict and approaches taken by existing research, with an eye towards the methods and strategies for setting up the design and analysis of quantitative data that would reflect the theoretical hypotheses and account for potential confounding factors.

2. What do we know about how conflict affects education?

2.1. How *could* conflict impact education: An overview of mechanisms[2]

The theoretical links between violent conflict and education are numerous and complex (see Table 1 for an overview of mechanisms). Most directly, conflict may constrain the supply of education through physical damage to education infrastructure – the result of direct attacks on schools – or through the occupation of school facilities by military or rebel groups (GCPEA, 2014; O'Malley, 2010; O'Malley, 2011). For example, in Rwanda schools were closed and school buildings were destroyed during the peak of the genocide (Akresh & De Walque, 2008). General school maintenance, or repairs after an attack or occupation, may not be possible where roads are damaged and supplies are unavailable. School upkeep may be further undermined as community support fades, when conflict undermines community trust or forces community members to leave (Justino, 2016).

Additionally, where teachers join armed forces, are killed or injured during conflict, or choose to leave the profession because they believe schools to be unsafe, conflict leads to a diminished teaching force (Jones & Naylor, 2014). Furthermore, conflict may sap education funding, either because funds are diverted towards military spending (Lai & Thyne, 2007) or because of overall economic declines during war (Blattman & Miguel, 2010), leaving less for education and other public expenditures. For example, one report estimates that education expenditure dropped by 3.1-11.4% during conflicts in Pakistan and by 2-6% during conflicts in Nigeria (Jones & Naylor, 2014).

Beyond these supply-side challenges, conflict may curb demand for education. In a review of literature, Justino (2016) discusses different mechanisms through which this occurs. First, youth who would otherwise attend school may become combatants, joining the military or rebel groups by choice,

[2] See Justino (2016) as well as her earlier reviews (2011, 2010) for in-depth analysis of mechanisms. Justino proposed the supply and demand framework that we adopt here and many of the mechanisms covered in our report are set out in her reviews.

conscription, or coercion. Fear also keeps youth out of education when traveling to and being at school becomes (or appears to become) unsafe, placing children at risk of violent attack, forced recruitment, and sexual assault, especially where schools, students, and teachers are targeted (Lai & Thyne, 2007; O'Malley, 2010).

The effect of conflict on education is also deeply interrelated with other areas, like the economy and public health. War leads to deteriorating health and nutrition among children, which in turn impacts their ability to attend school regularly and learn effectively (Justino, 2014). For example, Alderman, Hoddinott, and Kinsey (2006) investigate school outcomes for children in rural Zimbabwe, and find that drought and civil war diminish early childhood nutrition, which in turn results in later school start ages and lower attainment among young adults. Conflict also reshapes the economic well-being of households, with consequences for whether families can afford to educate their children during times of war where household incomes suffer because work is unavailable or there are fewer family members working. Indeed, roles and responsibilities within the family may shift during conflict with youth leaving school for jobs, particularly when normal household income declines or is threatened during wartime. This may be the case particularly if the value of education diminishes in the labor market, leaving little incentive to pursue school over work.

Table 1. How internal conflicts *could* impact education

	Supply-side mechanisms	**Demand-side mechanisms**
Direct mechanisms	• Educational infrastructure destroyed, with impacts to access and/or quality of education • Educational expenditure reduced, with impacts to access and/or quality of education • Educational staff reduced, staff may be threatened, harmed, or flee • Population shifts due to displacement mean that education is not supplied where it is needed	• Students stop attending as schools become unsafe places • Students become combatants
Indirect mechanisms	• Communities break down or break apart as trust erodes and community members are harmed or migrate, diminishing community support for education • Roads, markets, and financial systems are destroyed, undermining maintenance or rebuilding of the education system and the flow of funding for schools and staff payments	• Increased poverty means fewer household resources available for educational expenses and, further, that children and adolescents may need to prioritize income generating activities over attending school • Malnutrition, particularly malnutrition experienced through early childhood years, limits cognitive abilities and learning, with immediate and long-term consequences • Trauma-affected students have more trouble participating in school and learning • Investments in education no longer seem worthwhile given employment prospects

Additionally, the supply of education may be misaligned with demand for education, particularly where conflict necessitates temporary displacement or permanent migration, promoting populations in conflict-affected areas to seek safety in refugee camps or resettle in new communities (Collier et al., 2003). This shift brings a range of possible obstacles to education, including insufficient numbers of schools (Dryden-Peterson, 2009), discrimination from the host communities, challenges registering for school due to inadequate documentation for school registration, and language barriers in the classroom (Ferris & Winthrop, 2010). For example, Dryden-Peterson points to a shortage of schools as a central reason that children of internally displaced persons are out of school in Nord Kivu in the Democratic Republic of Congo, and Ferris and Winthrop cite the example of internally displaced persons in Ninewa province in Iraq, where the scarcity of Arabic-language schools limited enrollment.

2.2. The relationship between conflict and educational outcomes

Having reviewed the main mechanisms through which violence conflict affects education, we turn to studies of how conflict affects education before considering shifts in educational inequality in subsequent sections. We document what these studies show about different aspects of education – attendance and attainment, learning outcomes, and finance/inputs – and how impacts may differ by school level. Appendices A and B summarize and map the findings of relevant empirical studies (Appendix A is devoted to cross-national studies. See Appendix B for case study evidence.).

2.2.1. How does conflict negatively impact education?

Attendance and attainment. Most studies examine the impact of conflict on education systems at large but stop short of investigating the effects of conflict on education inequality. The influence of conflict on school access and completion at the country-level is well-documented, though the literature acknowledges that declines in education during and after conflict may be partly explained by broader factors of instability (Blattman & Miguel, 2009; Shields & Paulson, 2015; UNESCO, 2011). Cross-national analyses find that conflict slows enrollment and attendance during periods of conflict (Lai & Thyne, 2007; Shields & Paulson, 2015; Stewart, Huang, & Wang, 2000), which may diminish human capital stocks in the long-term.

Case study evidence strongly confirms these findings, with evidence from Bosnia (Swee, 2009), Tajikistan (Shemyakina, 2011), Rwanda (Agüero & Majid, 2014; Akresh & De Walque, 2008), Cote d'Ivoire (Dabalen & Paul, 2012), and Colombia (Rodriguez & Sanchez, 2009) for drops in educational attainment for conflict-affected populations. In a descriptive study of Cambodia, de Walque (2006) finds lower levels of education among the cohort that grew up during the genocide and attributes this decline to the destruction of the school system (no secondary schools were open under the Khmer Rouge regime) and the targeting of better-educated individuals during the genocide.

Learning outcomes. Quantitative evidence on how conflict impacts learning is scarce. Education quality could be affected through reduced capacity for education delivery, from damaged classrooms to loss of qualified teaching staff. Resource shortages may impede quality, as during World War II and the Afghanistan conflict, when dictation-notation replaced textbooks (which were in short supply during conflict) in classrooms according to interviews with survivors (Dicum, 2008). The limited quantitative research in this area recognizes negative correlations between conflict and learning: Case studies in Turkey (Kibris, 2015) and the West Bank (Brück, Di Maio, & Miaari, 2014) find that conflict exposure is linked to poorer performance on university entrance exams.

Furthermore, internal conflicts make learning a struggle for students where children and adolescents who are (or were) fearful, traumatized, or malnourished struggle to learn (Brück et al., 2014). In their study of developing countries, Gates, Hegre, Nygård, and Strand (2012) establish that the prevalence of undernourishment rises in conflict-affected settings, a factor that research shows to impair cognitive development of youth with lifelong consequences to learning (Victora, Adair, & Fall, 2008). The trauma experienced by children in war zones can impede cognitive and social development, as Barenbaum, Ruchkin, and Schwab-Stone (2004) observe in a literature review on the psychological effects of conflict on children, with important negative consequences to learning. Unlike malnourishment, which has lasting effects, some research points to the resilience of many youth exposed to trauma, as Blattman and Annan (2010) show for child soldiers in Uganda, though the authors suggest successful reintegration may depend on strong community support, which was present in Uganda.

Finance and inputs. In the area of educational inputs, a global study of conflict's effect on educational expenditure from 1980 to 1997 found that civil war is correlated with reductions in education expenditure at primary, secondary, and tertiary education levels (Lai & Thyne, 2007). Beyond challenges in funding education, attacks on schools destroy infrastructure for education and make teaching a dangerous profession, discouraging personnel from teaching and making staff potential casualties (UNESCO, 2011).

Impacts across education levels. In the few studies that compare the effect of conflict at different education levels, evidence points to deeper or more lasting effects on post-primary education. In the cross-national study mentioned above, Lai and Thyne (2007) observe that enrollment suffers comparatively more at secondary and tertiary levels than in primary school. In a study of education after conflict in 41 countries using an event-study methodology, Chen, Loayza, and Reynal-Querol (2008) observe stronger resilience in primary enrollment than in secondary enrollment, which they propose may be because secondary school-age youth are more likely to be soldiers. Examining Bosnia, Swee (2009) finds that secondary attainment suffered more than primary attainment for school-age youth, possibly because older students are more likely to be conscripted or recruited by rebel organizations. Also, with age and progression through the school system, school fees typically increase, travel to school may be longer and less safe, and the opportunity cost of staying in school and forgoing work rises, as Rodriguez and Sanchez (2009) observe in conflict-affected Colombia. Moreover, where teacher shortages occur during conflict, it may be more challenging to recruit and retain secondary and tertiary school teachers, since finding qualified teachers at those levels is more difficult even during times of peace in some contexts, making ensuring quality at higher levels more difficult.

2.2.2. Is the impact of conflict on education always negative?

While the bulk of evidence points to conflict's negative consequences on education, a handful of publications complicate this conclusion. Using fixed effects modeling to look at how conflict impacts developing countries' progress on the Millennium Development Goals (MDGs) from 1991-2008, Gates et al. (2012) do not find that conflict significantly affects primary school enrollment or secondary school attainment within conflict-affected countries, though they do find that countries in conflict-affected regions experience declines in secondary school attainment.

Some literature finds educational *benefits* from conflict. While the majority of their study discusses the educational challenges of displacement due to conflict, Ferris and Winthrop (2010) note select situations, such as Chad and Afghanistan, where displacement improved educational opportunities for populations, or sub-populations like girls, because there were more educational opportunities available in camps or

areas where displaced families resettled. In a study of the conflict-affected Basque region, de Groot and Göksel (2011) find that educational levels for those from conflict-affected regions increase more than those in other regions of Spain. The authors propose that very low levels of conflict – conflict in which the supply of education is uninterrupted – create an incentive for individuals to improve educational qualifications so they can migrate and work in other Spanish regions. Investigating Nepal, Valente (2011) notes improved education for women in conflict-affected regions and explains that this may be because reductions in inequality for women and other disadvantaged groups was a rebel goal.

Some observe that education *regularly* improves during periods of conflict; however, as the authors note, the *rate* of educational improvements may fall (HSRP, 2012).[3] Given the strong global trend of educational expansion, it is important to recognize that the negative impacts of education may manifest as weaker growth rather than absolute declines (Shields & Paulson, 2015). Of additional consequence, progressive education trends may mask challenges for certain populations, which is why we now review evidence on how conflict impacts inequality in education.

2.3. The effect of conflict on inequality in education

Despite some evidence to the contrary, research generally points to the harm done to education systems and human capital accumulation in the wake of conflict. Because conflict intensity is never uniform across a country, it follows that conflict may impact education unevenly, thus changing the nature of inequality within a country and likely deepening disadvantage for already marginalized populations. The modest body of quantitative research that explores the relationship between conflict and educational inequality is comprised of a small number of cross-national descriptive studies (EPDC, 2010; Østby & Urdal, 2014; UIS, 2010) and case studies. Below, we consider the contributions this body of research makes to understanding how conflict changes different types of educational inequality. It is important to bear in mind that changes in inequality during conflict must be understood relative to starting points before conflict, and that not all declines in inequality suggest progress in education, as we show below.

2.3.1. Regional and ethnic inequality

Conflict may disproportionately impact certain geographical regions where fighting is concentrated (UNESCO, 2011). It may also shape inequalities between identity groups, such as ethnic or religious groups, a concept we refer to as *horizontal inequality* following Stewart (2000).[4] Certain ethnic or religious groups may be more likely to be the "winners" or "losers" in group-based conflicts, with consequences to safety, status, and opportunities synced to group boundaries (Østby & Urdal, 2014). As Brown and Langer (2010) note, regional and ethnic inequalities may overlap considerably in countries where ethnic groups and subnational borders coincide, meaning that geographic location (and variations in resource allocation) could reinforce ethnic divisions.

In spite of strong theoretical connections, cross-national studies have found little evidence to support the idea that conflict exacerbates regional or group inequalities. In a descriptive study, Østby and Urdal (2014) document widespread inequalities between urban and rural areas and ethnic and religious groups within

[3] Both The Human Security Report Project (HSRP, 2012) and Shields and Paulson (2015) point to EPDC (2010) and UIS (2010) for descriptive examples of countries that saw improvements in educational participation and attainment during conflict. The HSRP highlights the case of Afghanistan, which experienced impressive rises in school enrollments in the 2000s during the insurgency with this growth linked to an influx of international aid.

[4] See the EPDC literature review of educational inequality and conflict for more discussion of horizontal inequality and other inequality measures at http://learningforpeace.unicef.org/resources/horizontal-inequality-in-education-and-violent-conflict/.

30 countries in Sub-Saharan Africa but do not observe a pattern of increasing inequalities following conflict. Similarly, an EPDC report observes lower school attendance rates in the conflict-affected regions of countries but doesn't find any correlation between physical violence and shifts in school participation rates at the subnational level (2010).

On the other hand, case studies that choose to compare conflict and non-conflict affected regions take as their central premise the idea that educational consequences will be greater in some areas, with many studies finding more adverse educational effects from conflict exposure, e.g., Kibris (2015) in Turkey, Agüero and Majid (2014) in Rwanda, Brück et al. (2014) in the West Bank, and Shemyakina (2011) in Tajikistan. In study of Guatemala, Chamarbagwala and Morán (2011) found that civil war exacerbates ethnic and regional inequalities, with rural Mayan youth particularly affected. However, the authors do not suggest that increased disadvantages to ethnic groups are a result of direct targeting or exclusion but rather stem from issues with education delivery for indigenous populations and economic consequences of civil war on family priorities. Taken together, the case study evidence suggests that regional and ethnic inequalities increase during violent conflict, at least in some contexts.

2.3.2. Gender inequality

It is also possible that conflict will aggravate gender inequalities. This could occur through reduced educational opportunities for girls, who are more likely to be victims of sexual assault, or for boys, who are more likely to be forcibly recruited as child soldiers (Justino, 2010). Research points repeatedly to gendered effects from education, but some studies find greater harm to girls' education while others find boys' education to be more affected (Buvinić et al., 2013).[5]

In a study of all states with UNESCO education data available from 1980-1997, Lai and Thyne (2007) consider the effects of civil war on male and female secondary enrollment and find that civil war has a statistically significant effect on male enrollment. This is in keeping with their hypothesis that boys' education would be more affected by civil war than girls' education because boys and men are more likely to be recruited for fighting or conscripted into military service; however, it could also be the case that lower participation by girls, generally, means that they remain relatively disadvantaged, even where we do not see strong drops in girls' education. Indeed, relative starting points matter, as Akresh and De Walque (2008) point out. The authors also observe greater attainment declines for men than for women following the Rwandan genocide but note that this may be because men had better education levels prior to the war. Justino, Leone, and Salardi (2013) show larger declines in educational attainment among boys growing up in conflict settings, ultimately reducing the gender gap in Timor-Leste, and the authors explain that this may be because boys are withdrawn from school to support the household economically. Finally, in a descriptive study of Cambodia under the Khmer Rouge, de Walque (2006) notes that secondary school attainment decreased particularly for boys, who suffered greater injury and disability and higher mortality than girls and women.

However, other studies see greater effects on girls' education. For example, Shemyakina (2011) looks at the case of Tajikistan and find girls in regions experiencing conflict saw educational declines that boys did not, possibly because boys were more likely to eventually return to school and because girls may assume more household responsibilities after the death of a parent. In the context of Guatemala, Chamarbagwala and Morán (2011) observe greater falls in girls' educational attainment during the height of the war. They

[5] According to Østby and Urdal (2014), an unpublished conference paper they prepared looks at 70 countries and finds that conflict does not have a statistically significant effect on gender inequality in education.

attribute this to household decisions to prioritize education for boys when resources were limited, both because of better opportunities available to educated men and greater safety risks to women. Kibris (2015), looking at university entrance exams in Turkey, finds that conflict affected female performance on science and math assessments more negatively than for men; however, this was not the case for social science assessments, where effects were similar for both sexes. Finally, in the case of Nepal, Valente (2011) shows that primary school attainment *improves* for girls in higher conflict intensity areas, with some evidence that this is due to improvements in progression rather than increased enrollment. Women were traditionally disadvantaged in education in Nepal, and, as mentioned previously, Valente notes that the educational gains may have occurred because greater gender equality (and equality for other groups) was a part of the rebel agenda.

2.3.3. Socioeconomic and vertical inequality

Conflict may exacerbate inequalities where children of wealthier families have greater educational opportunities than children of poorer families, who may be particularly vulnerable economically and less able to afford school during times of crisis (UNESCO, 2011). In a descriptive analysis of 25 countries, UIS (2010) recognized wealth as one of the divisions across which conflict impacts educational inequality. While research rarely directly explores how conflict impacts educational opportunities for richer and poorer groups, declines for groups tend to be explained in economic terms – as conflict diminishes household resources, poorer families may not be able to afford to send children to school (e.g. Shemyakina (2011), Chamarbagwala and Morán (2011)).

The limited case study research that considers educational changes by socioeconomic status finds results that contradict the assumption that wealth improves educational resilience. In a study of the Rwandan genocide, Akresh and De Walque (2008) conclude that attainment declines are larger for the non-poor. Given widespread school closures during the genocide, it makes sense that educational effects for wealthier, better-educated Rwandans might be more pronounced because poorer youth had low attendance to begin with.[6] Still other research fails to see any link with socioeconomic inequality, as with Rodriguez and Sanchez (2009), who observe that that household wealth does not mitigate the impact of conflict on school dropout in Colombia. The authors suggest two mechanisms, safety risks and diminished quality of education, that may have impacted family decisions to curtail education regardless of household resources. Overall, the literature suggests wealth may make families more able to withstand the educational challenges that accompany conflict, but that certain consequences of conflict apply across the population, affecting disadvantaged and advantaged households similarly.

Considering inequality more broadly, the 2010 UIS study mentioned above concludes that conflict impacts education differently in different contexts, but that change repeatedly occurs along the lines of gender, geographical region, wealth, and ethnicity. This means that group-based inequalities are important to consider, but that cross-national research may not be able to capture the effects of conflict on specific groups. Measures of *vertical educational inequality*, i.e., inequality across individuals, may be better able to capture shifts in inequality given the considerable contextual nuances observed in research studies.

[6] The authors also consider whether the effects of the genocide on attainment differ by orphan status, particularly as the authors observe that 22% of children under the age of 14 were at least single-orphans in 2000. Whether orphans or other vulnerable children are particularly impacted by conflict is an important area of inquiry, as is the consideration of other vulnerable groups, but the authors do not find that orphan status has more than minimal effects on education levels. It may be that, at least in some contexts, orphanhood is not a significant predictor of educational vulnerability in times of conflict or peace. Evidence from one study of countries in Southern Africa during peacetime provides some support for this notion (EPDC, 2012).

General measures of inequality are also useful where inequality cannot be measured across relevant groups, due to current data limitations. For example, Blattman and Annan (2010) find that youth abducted and forced to serve as combatants had 0.75 fewer years of education than their non-abducted peers in Uganda. While child soldiers may lose more education than non-combatants in other contexts, as well, it is not possible to examine with existing data sources.

In sum, quantitative research suggests that the education of certain groups or individuals is more likely be impeded during conflict than others. Where conflict reinforces existing disadvantages to boys or girls, to certain ethnic groups, to poorer families, or to others relative to advantaged groups, the result is rising educational inequality. Alternatively, in countries where education is concentrated among advantaged groups, the disadvantaged have less to lose in terms of educational attainment – a floor effect limits their educational declines whereas the advantaged may experience relatively steep declines. Akresh and De Walque (2008) suggest this is why we see stronger attainment drops among men and the non-poor, both of which had previously been more advantaged educationally, in the Rwandan genocide. In such situations, conflict can *equalize* education for the perverse reason that overall average levels of education are declining. This may also be the case where better-educated populations are targets of violence, such as the conflicts in Rwanda, China, and Cambodia (Justino, 2016). In short, evidence suggests that conflicts diminish education overall, but that educational inequality could rise or fall depending on the relative starting points of groups and the nature of a conflict.

3. Review of methodological approaches to the study of conflict and education

The connection between conflict and education is deeply complex. Attempts to model the relationship must grapple with several methodological challenges, including defining conflict, establishing a counterfactual, and the challenges of changing populations. Below, we review the approaches different studies have taken to these challenges. In Appendix A, we summarize and review the methods used in major cross national studies that examine how conflict affects education.

3.1. Operationalizing conflict

Conflict studies often assume that greater conflict intensity will result in amplified consequences for education or other outcomes. With more severe conflict comes elevated danger to students and education personnel (and others) and greater destruction, which undermines education when transportation to schools is impeded or when school buildings are attacked or repurposed. As discussed earlier, in a case study of the Basque region, de Groot and Göksel (2011) argue that low-intensity conflicts have very different educational impacts than high-intensity conflicts: When the delivery of education is uninterrupted, conflict may *increase* individual incentives to invest in education for those who have access to it, particularly where better education may mean more opportunities for migration.

Several studies use intensity, measured through battle-related deaths, as their main predictor (Akresh & De Walque, 2008; Gates et al., 2012; Rodriguez & Sanchez, 2009; Swee, 2009; Valente, 2011) or adopt a definition of conflict that includes major wars only, e.g., Chen et al. (2008), typically defined as over 1,000 battle-related deaths per year. Even studies that rely on conflict incidence, i.e., whether there was conflict at a given point in time or not, as their main independent variable tend to use conflict intensity in at least some model specifications (Lai & Thyne, 2007; Shields & Paulson, 2015). On the whole, research

consistently demonstrates at least a correlational link between the scale of conflict and degradation of the education system.

What it means for the upcoming quantitative analysis. Rather than adopting battle related deaths as our measure of conflict, our analysis will instead focus on conflict incidence for several reasons. First, measures of battle-related deaths are impractical to use in cross-national, longitudinal research. Not only have there been relatively few large civil wars in recent history, but the major source of internationally comparable data on conflict intensity, the Uppsala Conflict Data Program (UCDP), offers information on battle-related deaths from only 1989 forward. In contrast, the UCDP dataset of conflict incidence begins in 1946, facilitating analyses over more than half a century.

Adopting conflict incidence as the main predictor of educational shifts, as we will do in the upcoming UNICEF-funded study, affords us improved coverage over previous cross-national studies of conflict and education, which often focus on more recent decades only, beginning in the 1980s (e.g., Lai and Thyne (2007)) or 1990s (e.g., Shields and Paulson (2015) and Gates et al. (2012)). This temporal coverage complements the strong geographical coverage of the upcoming study, which will include nearly 100 countries and will expand the existing literature in important ways, as studies with comparable temporal coverage have had weaker geographical coverage (e.g., Chen et al. (2008), which considers 41 countries). To address the concept of intensity, our study disaggregate conflicts by severity, distinguishing major conflicts (i.e., conflicts that result in over 1,000 battle related deaths) from other internal conflicts. This allows us to assess the effect of intensity while maintaining a longer time series (data on severity of conflicts is available from 1946 forward, like conflict incidence).

A long time series allows us to better consider whether the *duration* of conflict matters for educational inequality. While sustained conflict may compound educational declines or reinforce disadvantages, the cross-national studies in this review have not examined whether longer wars have different or more severe educational impacts. The limited research on how duration influences other outcomes suggests that it is important to consider whether a conflict is protracted. In a study of the economic effects of civil wars since 1960, Collier (1999) finds that economic recovery is better after longer conflicts, possibly because shorter conflicts may be perceived as unresolved and therefore more likely to result in renewed violence. Furthermore, some of the mechanisms through which conflict impacts education discussed earlier, such as the long-term effects of malnutrition on cognitive development, may become more visible over the course of longer conflicts.

Finally, evidence suggests that operationalizing conflict as incidence versus intensity may not be of substantive concern. Lai and Thyne (2007) and Shields and Paulson (2015)[7] examine both incidence and intensity and find that each are related to educational declines. Furthermore, distinctions between major and minor conflicts tend to be functions of population and controls for population density, which we plan to account for in the upcoming study by including fixed effects and a control for population.

3.2. Establishing a counterfactual

A central methodological challenge in the study of conflict is establishing a counterfactual: how would outcomes have been different had there been no war? Case studies may exploit spatial variation within a country, comparing how outcomes differ in more or less conflict-affected areas within a country, or they

[7] The Shields and Paulson finding is for their models that do not include fragility as a predictor. In subsequent models that look at the relationship of fragility and conflict incidence on education, they do not find conflict to be a significant predictor.

may consider variation over time within a country, comparing how outcomes were different in periods of conflict and peace (Agüero & Majid, 2014).

Cross-national studies (as well as some case studies) can compare conflict-affected countries with otherwise similar but peaceful countries. This can be a challenge as certain common characteristics may predispose countries to conflict, making it difficult to identify peaceful counterparts. Stewart et al. (2000) note that studies could also compare changes in the conflict-affected country with average changes in the surrounding region; however, Chen et al. (2008) caution that the use of regional control groups may ignore spillover effects from an internal conflict into other countries.

What it means for the upcoming quantitative analysis. In the upcoming study, we pair conflict-affected countries with peaceful counterparts (or rather with composites of countries experiencing periods of peace) to establish a viable counterfactual. This approach is similar to the one taken in Gates et al. (2012), though they do not provide significant detail on their control groups, whereas other studies, such as Lai and Thyne (2007), have not benefited from this approach. Our upcoming study will detail the approach we take to identifying control groups for conflict-affected countries.

3.3. Root causes of conflict and inequality

Some have observed that fragility, which "describes the complex syndrome of interrelated governance challenges and pathologies that prevent, or slow, the attainment of a broad range of development goals—including better educational outcomes," may drive both war and educational inequality (HSRP, 2012, p. 109), a claim that Shields and Paulson (2015) investigate.[8] In their study comparing the educational effects of conflict and fragility, the study does not find a statistically significant effect of conflict on enrollment once the authors control for fragility. While it is an important point that fragility, or other factors, may influence both conflict and inequality, quantitative studies cannot fully isolate the effects of conflict from other factors, like fragility or sudden declines in service delivery, because they cannot control for all external factors.

What it means for the upcoming quantitative analysis. Our conflict-peace pairings, discussed earlier, help to mitigate concerns that fragility, or other external factors, drive educational inequality. By comparing similar countries that differ mainly by their experiences with conflict or peace, we alleviate the risk that we are modeling the effects of other factors, like fragility, on educational inequality. More broadly, there are theoretical reasons to study conflict rather than fragility. Conflict is likely to have unique impacts on education through the physical destruction of schools and other infrastructure and the psychological effects from fear and trauma that may keep individuals out of school.

3.4. Population shifts during and after conflict

Conflict, particularly intense or protracted conflict, forces people to flee unsafe homes and ruined livelihoods. Widespread internal displacement and external migration mean that conflict is accompanied by population shifts (Ferris & Winthrop, 2010). In analyses of conflict-affected contexts, this may mean that changes in education levels are due to population changes rather than educational disruptions.

[8] Shields and Paulson measure fragility with the Centre for Systemic Peace State Fragility Index (SFI), which is based on roughly 20 indicators related to the economy, state security, the political system, and the social situation in a country.

Case studies that draw on census data that has information on migration or region of birth can look at effects on conflict-affected populations, even when individuals have moved from those areas (Agüero & Majid, 2014; Chamarbagwala & Morán, 2011). In a longitudinal study of the effects of conflict and drought on early childhood nutrition and long-term educational outcomes in rural Zimbabwe, Alderman et al. (2006) are able to track the portion of their sample that migrates.

However, given the scarcity of data on migration to date, cross-national studies have not been able to consider this factor in modeling the effects of conflict on education and other areas. This is particularly consequential for any analysis of regional inequalities. Because conflicts tend to be concentrated in particular regions, education should, theoretically, be more deeply impacted for the school-age populations in certain areas. Those same populations, however, are more likely to be uprooted temporarily or permanently as they seek safety. EPDC (2010) observes that summary measures of educational participation may show no change in regions where the households that migrate from conflict-affected regions are representative of the general population even though conflict does impact the educational options for those families.

What it means for the upcoming quantitative analysis. While concerns over population shifts are important, like other cross-national studies, we will not be able to account for migration patterns and the focus of our study is on national trends over time. We choose not to look at regional inequality, which would be most impacted by population movement, and instead focus on patterns in group and individual level inequality at the national level. We take as our assumption that populations change over time, particularly given the longitudinal design of our study and our interest in the effects of conflict duration, and our focus on national-level gauges of group and individual welfare means that population shifts are of less consequence to our research design.

4. Conclusion

In sum, literature strongly suggests that conflict erodes educational progress. Yet very little research analyzes how conflict reshapes *inequality* in education, meaning that the upcoming FHI 360 study for UNICEF will fill an important gap. The limited work that has explored inequality demonstrates that conflict does impact some more than others but that effects are considerably nuanced and context-dependent, at times even contradictory. For example, wealthier families are more likely to have options to continue their education during conflict (UNESCO, 2011) yet evidence from Rwanda finds the non-poor most impacted. Studies from Timor-Leste and Cambodia point to greater educational losses for men while work on Tajikistan sees greater detriment to women.

Despite divergent findings, literature clearly points to the disruptive potential of conflict and, by extension, to the notion that physical violence *could* change patterns of inequality, making an important case for further research in this area. This review highlights the conceptual and methodological insights that EPDC will draw on in the upcoming study, including the following:

- The current quantitative literature on educational inequality, comprised mainly of a few descriptive studies and several case studies, suggests that who is most likely to be affected – girls or boys, certain regions, certain groups, poorer or wealthier individuals – is context-specific and may depend on the nature of the conflict as well as the level of equality between groups prior to conflict. Our study will examine disparities between genders, ethnic groups, and religious groups but will also benefit from inclusion of a vertical inequality measure, which captures shifts in

inequality among individuals regardless of group affiliations, to supplement horizontal inequality measures. This choice does not imply that group-based inequality is not impacted by conflict, but rather that *which* groups are affected is deeply contextual or may not be measurable at the global level with available data.

- Resources matter. Wealthier and better educated groups are likely to be more able to continue their education during periods of conflict, exacerbating inequality. They may also have more opportunities to migrate, contributing to reductions in inequality because of attrition by the educational elite rather than improvements in educational opportunities. Furthermore, studies of the effects of conflict must bear in mind that improvements in inequality may represent overall educational declines. To probe this issue further, our upcoming study will consider inequality in relation to shifts in average education levels.
- The severity of a conflict may determine how an education system is impacted. In particular, the extent of educational effects may depend on whether the supply of education is reduced and attending school involves (or is perceived to involve) escalated safety risks. Furthermore, certain effects, such as those stemming from malnutrition, may take time to visibly impact educational outcomes and may manifest more clearly in longer conflicts (or in post-conflict settings). With these factors in mind, the EPDC study will distinguish major conflicts from minor conflicts and will explore how the duration of conflict impacts educational inequality.

The new study by FHI 360 will contribute much needed analysis of global trends in conflict's impact on educational inequality. It will complement existing research, which provides valuable insight into country-specific trends (being composed mainly of case studies) but not broader patterns. The study will highlight whether certain types of inequality – gender, ethnic, religious, or vertical – are more often affected and whether certain types of internal conflict – longer ones, major versus minor conflicts, and ethnic versus non-ethnic violence – have greater influence. In helping to address this research gap, the study will equip UNICEF, and the development community more broadly, with evidence on the effects of conflict on educational inequality that can inform humanitarian and development programming.

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6. Appendices

Appendix A. Review of cross-national studies of conflict effects on education

Study	Methodology	Findings	Commentary
Chen et al. (2008)	*Approach:* event-study methodology, fixed-effects *Dependent variable:* gross primary and secondary school enrollment *Main independent variable:* civil conflict (more than 1000 battle-related deaths per year) *Scope:* 41 countries from 1960-2003 *Main data sources:* education data from World Development Indicators and Barro and Lee (1994 version), conflict data from PRIO	This study focuses on the period after civil conflict. It observes statistically significant improvements in absolute education levels over time in the post-conflict period. It finds recovery rates are higher for primary enrollment in conflict-affected countries than in controls; for secondary education, conflict-affected countries are at a greater disadvantage.	This study provides insight into changes in education following conflict. While this is an essential topic, it differs from the focus of our upcoming study, which will consider the immediate impacts of conflict on educational inequality.
Gates et al. (2012)	*Model:* fixed-effects models *Dependent variable:* Millennium Development Goals (MDGs) (only results for primary enrollment and secondary attainment considered here) *Main independent variable:* conflict intensity (battle-related deaths) *Scope:* developing countries, 1991-2008 *Main data sources:* conflict data from UCDP; education data from World Development Indicators and from Predicting Armed Conflict by Håvard Hegre, Joakim Karlsen, Håvard Mokleiv Nygård, Håvard Strand, and Henrik Urdal	This study does not observe a statistically significant relationship between conflict and education MDGs (though the effect of conflict on other MDGs is significant). The authors do find that countries in conflict neighborhoods experience a statistically significant attainment decline of 1.3 years.	This study employs a strong methodology. Their use of fixed-effects, which we will also use in our study, helps control for within-country variation. While the study benefits from use of peace/conflict country pairs, it would be helpful for the study to document how similar their country pairings are to establish the viability of their counterfactual.
Lai and Thyne (2007)	*Model:* regression using cross-sectional, time series data and Panel Corrected Standard Errors *Dependent variable:* Primary, secondary, and tertiary enrollment and expenditure; some models look at civil war's effects on secondary enrollment for boys/young men, for	The authors conclude that conflict has a statistically significant negative impact on education. Specifically, conflict leads to decreases in expenditure during and after conflict and enrollment declines. These enrollment declines are more severe at higher levels of education.	While this is the one cross-national study that explores gendered effects of conflict, and therefore informs our understanding of how conflict could impact inequality, the methodology could also be improved by accounting for pre-war trends. There also may be some bias created by comparing

Study	Methodology	Findings	Commentary
	girls/young women, and the ratio of male to total secondary enrollment *Main independent variable:* conflict incidence (full scale civil war reported, but authors tested other levels), conflict intensity (annual deaths) *Scope:* 1980-1997 *Main data sources:* conflict data from COW (Correlates of War) intrastate war dataset and from Uppsala/PRIO; education data from UIS	In addition to general enrollment declines, the study finds support for the idea that civil war impacts male enrollment more than female enrollment. The study shows that both conflict incidence and intensity impact enrollment and expenditures.	conflict and non-conflict countries without accounting for confounding factors. We plan to build upon the insights from this study and address these issues in our study.
Shields and Paulson (2015)	*Model:* multilevel regression models *Dependent variable:* enrollment levels (primary and secondary NERs) *Main independent variable:* conflict incidence (countries are classified as either conflict-affected or not over the full span of the dataset), conflict intensity (battle-related deaths), fragility *Scope:* longitudinal study of 120+ countries spanning 2000 to 2012. *Main data sources:* education data from UIS (via World Development Indicators); conflict data from UCDP; fragility measure from Centre for Systemic Peace's State Fragility Index (SFI)	In this study, conflict (both incidence and intensity) is a significant predictor of enrollment shifts when fragility is not included in models; in these models secondary enrollments are more negatively affected than primary enrollments. In models that look at both conflict and fragility, the authors find that fragility predicts enrollment shifts better than conflict; conflict is not a significant predictor in these models.	This study raises the important topic of fragility as well as conflict. One limitation is that the models in this study would not pick up effects on education if it takes time for education to destabilize, due to simultaneity issues. Shields and Paulson (2015) have a similar model to Lai and Thyne (2007), and the results from both papers can be interpreted as correlational.

Appendix B. Findings from case studies examining how conflict affects education

Key: (red = negative effect, yellow = neutral/mixed/no effect, green = positive effect)

Education outcome	Effects on education levels	Effects on regional and ethnic groups	Effects on gender differences	Effects on socioeconomic groups and vertical inequality
Enrollment/ attendance	Rodriguez and Sanchez (2009) find that children in conflict-affected municipalities of Colombia are more likely to drop out of school	-	Shemyakina (2011) sees statistically significant enrollment declines for girls, particularly older girls, but not boys	Rodriguez and Sanchez (2009) conclude that dropout is more likely in conflict-affected areas but do not find household wealth to be a significant mitigating factor
Learning outcomes	In Brück et al. (2014), conflict exposure leads to lower scores on university entrance exams in West Bank Kibris (2015) finds conflict exposure leads to lower scores on university entrance exams in Turkey	-	-	-
Attainment	Agüero and Majid (2014) observe that civil war leads to a decrease in average years of schooling in Rwanda Akresh and De Walque (2008) find that overall attainment in Rwanda declines for the school-age cohort declines Alderman et al. (2006) look at rural Zimbabwe and find that shock (drought and civil war) reduce pre-school nutrition, which impacts health, attainment, and school-start age later in life Dabalen and Paul (2012) find that average years of schooling are lower in conflict-affected departments of Cote d'Ivoire de Groot and Göksel (2011) see increases in	Chamarbagwala and Morán (2011) find that average years of schooling drops for Mayan boys and girls in Guatemala Swee (2009) considers whether attainment declines are worse for ethnic minorities in Bosnia, but does not find any ethnic differences Valente (2011) finds that inequality in primary school attainment among districts, with conflict-affected districts improving	In Akresh and De Walque (2008), overall attainment in Rwanda among school-age cohorts declines, and particularly for men Chamarbagwala and Morán (2011) conclude that attainment suffered particularly among girls/young women during the height of the war in Guatemala Justino et al. (2013) find negative impacts on education affect boys more in the long term, though this leads to an overall decline in inequality Shemyakina (2011) finds conflict-exposure decreases attainment for boys and girls but particularly for girls Swee (2009) finds that negative effects on	Akresh and De Walque (2008) find overall attainment in Rwanda among school-age cohorts declines, with the biggest drops among the non-poor; declines in inequality are a logical extension of this finding

Education outcome	Effects on education levels	Effects on regional and ethnic groups	Effects on gender differences	Effects on socioeconomic groups and vertical inequality
	education levels in the conflict-affected Basque region Rodriguez and Sanchez (2009) find that attainment is lower in conflict-affected municipalities of Colombia, more so for older youth than younger youth In Swee (2009), among school-age youth, secondary attainment suffered more than primary attainment in Bosnia Valente (2011) finds that primary school attainment improves overall in conflict-affected areas of Nepal		schooling may be stronger for males In Valente (2011), primary school attainment improved in Nepal for women in higher intensity conflict areas, reducing gender inequality; though in areas with more abductions, female primary school completion suffered more	
Education expenditure	-	-	-	-