2. The Economic Consequences of Conflicts

Armed conflict in its various forms and manifestations remains pervasive around the world.[1] In sub-Saharan Africa, while a declining trend was observed in the incidence and intensity of conflicts since the early 2000s, there has been an uptick in violence in recent years that mirrors the global increase in conflict. Overall, about a third of the countries in the region have been affected by conflict in recent years.

As history has repeatedly shown, conflicts impose immeasurable human suffering and large economic and social costs. The loss of human life; destruction of infrastructure, human capital, and institutions; political instability; and greater uncertainty associated with conflicts can impede investment and economic growth—not only during conflict but also afterward, making it difficult to escape the "conflict trap."[2] In addition, conflicts tend to complicate public finances, lowering revenue by destroying part of the tax base while raising military expenditures. Fiscal deficits and public debt rise as a result, and resources shift away from social and developmental spending, which further accentuates the conflicts' debilitating consequences.

At the regional level, conflicts pose an additional challenge because of their potential spillover effects. Conflicts can spread to neighboring states—a direct spillover effect (Hegre and Sambanis 2006). They can also have indirect spillover effects by depressing economic activity (for instance, due to increased uncertainty or trade disruption) or by creating social strains (for example, due to a large influx of refugees) in nearby countries, even if those countries remain uninvolved in the conflict (Murdoch and Sandler 2002; Gomez and others 2010; Qureshi 2013).

Against this backdrop, this chapter explores the economic consequences of conflicts in sub-Saharan Africa by focusing on four key questions:

- How have the prevalence and intensity of conflict evolved over time?

- What is the impact of conflict on economic growth both directly, and indirectly through spillover effects?

- What are the key channels through which conflict affects economic growth?

- What are the fiscal implications of conflict?

The analysis, based on country- and state-level data for a sample of 45 sub-Saharan African countries during 1989–2017, shows that after peaking in the late 1990s, the number of conflict incidents and deaths in the region fell substantially during the 2000s. Since 2010, however, there has been a resurgence in conflict-related deaths, especially in the Sahel region—although they remain below the levels observed in the 1990s. Moreover, the nature of conflicts has also changed in recent years, with traditional civil wars being largely replaced by non-state-based conflicts, including the targeting of civilians through terrorist attacks.

The findings presented in this chapter show that the economic impact of conflict in sub-Saharan Africa is large and persistent. On average, annual growth in countries in conflict is about 3 percentage points lower, and the cumulative impact on per capita GDP increases over time. This effect can be attributed mostly to intense conflicts (that is, those with at least five conflict-related deaths per million people). Given the intensity of conflicts, however, those affecting the key economic/commercial hubs

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[1] This chapter uses a broad definition of conflict based on the Uppsala Georeferenced Event Dataset, which includes civil wars and terrorist incidents. Criminal activity is usually excluded. See Online Annex 2.1 for data-related details.

[2] "Conflict trap" refers to the vicious cycle between conflicts and economic performance, whereby conflicts retard economic growth and development, in turn raising the likelihood of a conflict (Collier and Sambanis 2002).

within a country have a larger effect on macroeconomic growth than those located in the periphery. The effect of conflict also appears to be conditional on certain macroeconomic characteristics, with stronger institutions and fiscal fundamentals helping to mitigate the adverse economic impact of conflicts.

Decreased investment, trade, and productivity, along with human and physical capital destruction (including through forced displacement and devastating effects on education and health care), are some of the key channels through which conflict impedes economic growth. Taken together, these factors lead to a persistent decline in the productive capacity of an economy; counterfactual analysis suggests that conflicts imply a drop in real GDP per capita of 15 to 20 percent over five years compared with a no-conflict scenario.

These country-level findings are corroborated by more granular satellite-based data on night lights at the state level, which show a statistically significant reduction in night-light activity in sub-Saharan Africa during conflicts, thereby indicating a strong local impact of conflicts on economic growth. In addition, state-level data indicate strong spillover effects of conflicts, suggesting that growth is lower in nearby regions, with the effect being one-third of the effect in the home state.

In tandem with growth, public finances also deteriorate significantly following conflicts, with real tax revenues falling, on average, by over 10 percent in intensive conflict cases relative to no-conflict cases. While, on average, the findings do not suggest a statistically strong effect of conflicts on total public spending, the composition of spending tilts away from capital expenditures toward military spending. Consequently, the fiscal balance deteriorates and there is a sharp increase in public debt over the conflict period.

The analysis thus highlights the significant costs and formidable challenges faced by countries suffering from conflicts, underscoring the need to prevent

their occurrence—including by promoting inclusive economic development and social cohesion.[3] For countries in conflict, efforts should focus on limiting the loss of human and physical capital by protecting social and developmental spending, and on trying to maintain well-functioning institutions to lessen the harmful long-term economic effects of conflict. While this may be especially daunting given fiscal pressures, well-targeted and coordinated humanitarian aid and concessional financial assistance could provide some relief and help to create room to respond to the ravaging effects of conflicts. Moreover, assistance may also be essential for countries suffering from the spillover effects of conflicts to protect the displaced populations and alleviate the economic and social strains often generated in host countries.

PREVALENCE AND INTENSITY OF CONFLICTS

Sub-Saharan Africa has been marred by conflicts during the past several decades, though their intensity, nature, and geographic distribution have varied over time. The region was particularly prone to conflicts in the 1990s, with the number of conflict-ridden countries averaging about 15 during 1990–99 (about 35 percent of the total number of countries in the region; Figure 2.1).[4] Following the declining global trend, the average number of

Figure 2.1. Selected Regions: Share of Countries in Conflict
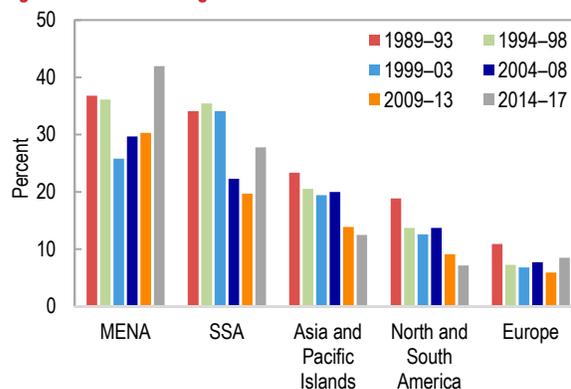
Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.

Note: The figure shows the share of country-years in conflict in each time period. MENA = Middle East and North Africa, SSA = sub-Saharan Africa.
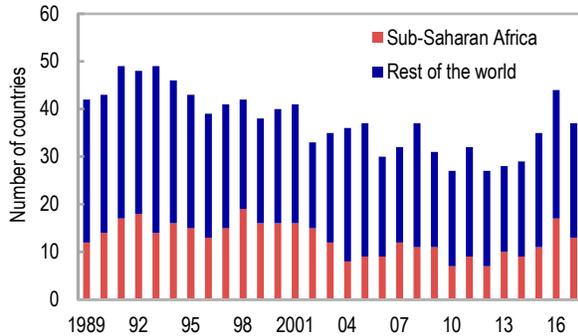
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[3] Economic development; lack of economic, political, and social inclusiveness; higher resource intensity; and poor state capacity are important drivers of conflict in the literature (Blattman and Miguel 2010; United Nations and World Bank 2018).

[4] According to the Uppsala Conflict Data Program, a country is defined as being in conflict if it experienced at least 25 conflict-related deaths in a calendar year. See Online Annex 2.1 and Sundberg and Melander (2013) for details.

countries affected by conflict in the region dropped to nine during 2004–12. However, that trend has reversed in recent years, with the number of countries in conflict reaching a peak of 17 in 2016 (Figure 2.2).[5]

Conflicts in sub-Saharan Africa have been particularly deadly. While the exact number of conflict-related deaths is difficult to ascertain, especially for widespread and persistent conflicts, estimates suggest that in the 1990s alone, verified conflict-related deaths totaled at least 825,000 (over two-thirds of global conflict deaths). The high death toll was driven by the genocide against the Tutsi in Rwanda; the Ethiopian-Eritrean war; and protracted violence in Angola, the Democratic Republic of the Congo, Liberia, and Sierra Leone. As several of these conflicts ended in the early 2000s, the number

of conflict-related deaths in the region fell sharply, reaching its lowest level of about 2,200 deaths in 2010. A resurgence in violence in recent years, however, implies an increase in conflict-related deaths, which have averaged about 14,000 a year since 2014 (a significant number, though well below the average of 82,000 seen during the 1990s; Figure 2.3). This rise mirrors the global trend of an increase in conflict-related deaths, driven largely by violence in the Middle East, especially in Syria.

The number of conflict-related deaths in relation to total population—a measure of conflict intensity— also shows a varying trend over time. In eight sub-Saharan African countries, on average, the ratio of conflict-related deaths to population was in the top quartile of the world distribution in the 1990s, but the number of countries in the region experiencing such intense conflict had fallen to zero by 2010. Yet deadly conflicts have reemerged recently: since 2013, about four countries have (on average) experienced intense conflict that places them in the top quartile (including Central African Republic, Democratic Republic of the Congo, South Sudan, and several Sahel countries; Figure 2.4).

Distribution of Conflicts

Across the region, there has been some change in the geographic distribution of conflicts over time. Southern Africa has become relatively peaceful since the turn of the century, but conflict
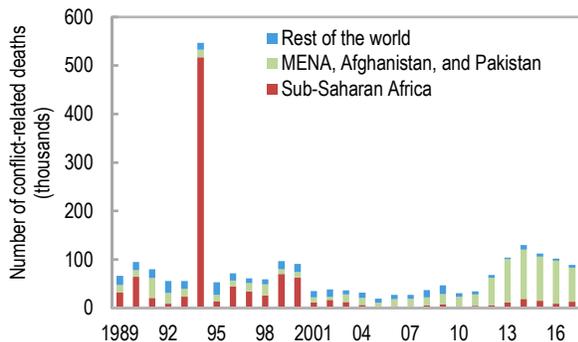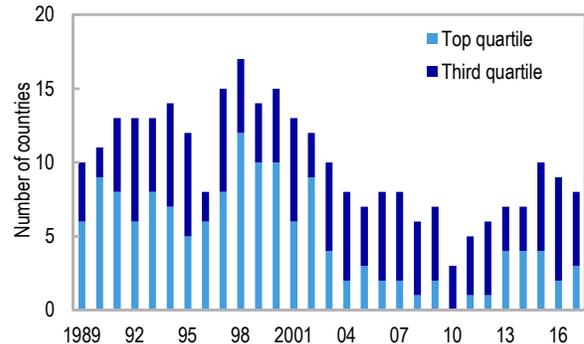
Figure 2.2. Number of Countries in Conflict, 1989–2017

Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.

Note: Country classified to be in conflict if it had at least 25 conflict-related deaths.

Figure 2.3. Total Conflict-Related Deaths, 1989–2017

Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.

Note: Based on verified fatalities. To the extent that news reports and historical sources miss conflict events, estimates may be a lower bound. MENA = Middle East and North Africa.

Figure 2.4. Sub-Saharan Africa: Countries in High-Intensity Conflict, 1989–2017

Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.

Note: Countries binned into quartiles based on the world distribution of conflict-related deaths as a share of population (among conflict countries). The top quartile correspond to about 29 conflict-related deaths per million.

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[5] The decline in conflict in the region during the 2000s has been attributed to several factors, including the end of the Cold War and stronger conflict-reduction mechanisms, especially international peacekeeping and regional diplomacy (see Straus 2012).

Table 2.1 Sub-Saharan Africa: Share of Countries in Conflict by Geographic Region and Economic Classification
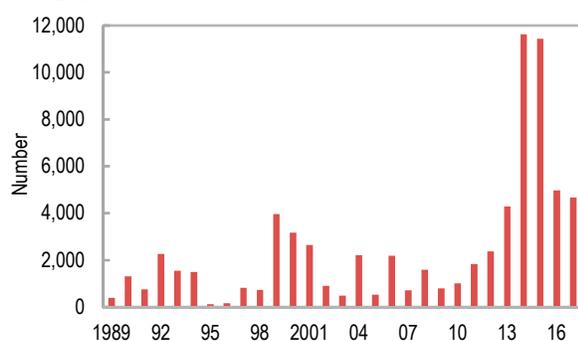
1. Geographic Regions		
	Pre 2000	Post 2000
Central Africa	42.4	36.4
Eastern Africa	35.2	27.4
Western Africa	35.2	24.4
Southern Africa	20.0	1.1
2. By Resource Intensity		
	Pre 2000	Post 2000
Oil exporters	52.0	39.9
Other resource-intensive countries	35.2	25.2
Non-resource-intensive countries	29.3	20.5

Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.

Note: Table shows percent of country-years in conflict in a group. See Online Annex Table 2.2. for country classifications.

remains widespread elsewhere (Table 2.1; Online Annex Figure 2.4). Among the different types of countries (resource-intensive and non-resource-intensive countries), conflict continues to be more prevalent among oil exporters and least prevalent among non-resource-intensive countries.

Although the overall prevalence of conflict in the 2000s has declined across regions and country groups compared with the 1990s, the Sahel region has experienced a significant increase in violence in the post-2000 period, especially since 2010 (Figure 2.5). Across the Sahel countries, the Lake Chad Basin (where Nigeria, Cameroon, Chad,

and Niger share a border) has seen a particularly significant increase in violence during 2010–17, with the number of deaths in the region accounting for 77 percent of all conflict-related deaths in the Sahel, and about 40 percent of all conflict-related deaths in sub-Saharan Africa (Figure 2.6).[6]

Nature of Conflict

In principle, conflicts can be differentiated along several dimensions—for example, the actors involved (state versus nonstate), motivation (religious, political, ethnic), location (domestic versus international, center versus periphery), and so on. In practice, however, the classifications are often not mutually exclusive and tend to involve some subjective judgment. Moreover, the information needed for classification purposes may also be lacking.

Notwithstanding these limitations, this chapter uses the available information on conflicts involving the state and those not involving the state (but involving other organized armed groups) to differentiate between the types of conflict. It shows that large-scale, state-based conflicts such as those in Angola, Eritrea, Ethiopia, and Sierra Leone largely drove developments in conflict-related deaths in sub-Saharan Africa during the pre-2000 period (Figure 2.7, panel 1).[7] Since then, however,

Figure 2.5. Number of Conflict-Related Deaths in Sahel Region, 1989–2017

Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.

Figure 2.6. Distribution of Conflict-Related Deaths in Sahel Region, 2011–17

Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.

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[6] In this chapter, the Sahel region is defined as including Burkina Faso, Cameroon, Chad, Mali, Niger, and Nigeria. The states included in the Lake Chad Basin are Yobe, Borno, and Adamawa states in Nigeria; Diffa cercle in Niger; the Lac region in Chad; and Extreme-Nord in Cameroon.
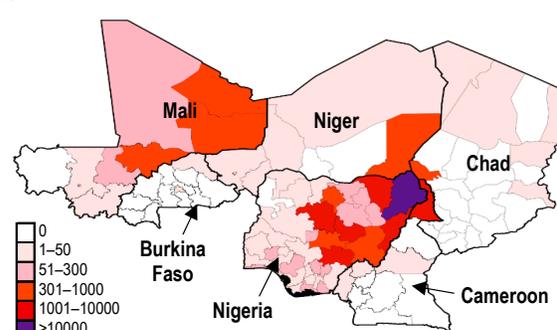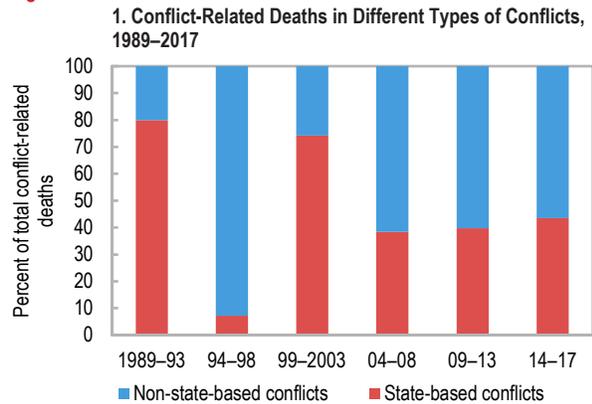
[7] The Uppsala Georeferenced Dataset defines conflicts as state-based (between two organized groups where at least one party is the government); non-state-based (between two organized groups, neither of which is a government); and one-sided (where an organized group—either a government or nongovernment actor—targets civilians). Since most one-sided conflicts involve nonstate actors, in this chapter the last two categories are jointly referred to as non-state-based conflicts.

Figure 2.7. Sub-Saharan Africa: Nature of Conflict

1. Conflict-Related Deaths in Different Types of Conflicts, 1989–2017

Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.
Note: The period 1994–98 includes the genocide of the Tutsi in Rwanda, which is classified as non-state-based as it targeted civilians.

2. Sub-Saharan Africa: Terrorism Incidents, 1970–2016
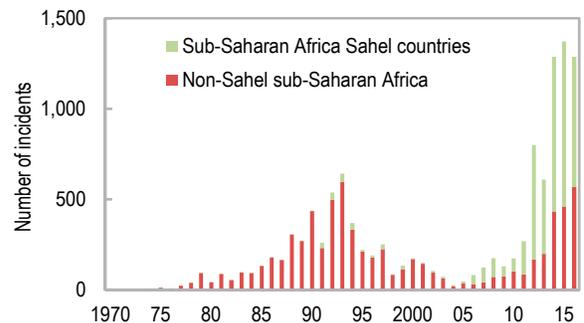
Sources: Global Terrorism Database; and IMF staff calculations.
Note: Calculations subject to change in Global Terrorism Database methodology in 2012 (see Online Annex for details).

the share of non-state-based conflict deaths—broadly defined to include conflicts between two nongovernmental armed groups, as well as violent events, such as terrorist attacks in which organized armed groups target civilians—has increased significantly. The number of terrorist incidents has increased not just in the Sahel region, but elsewhere as well, with the Democratic Republic of the Congo, Kenya, and Nigeria affected the most (Figure 2.7, panel 2; Online Annex Figure 2.2).[8]

Persistence of Conflict

Conflict in sub-Saharan Africa tends to be persistent, although there is considerable variation in the duration of conflicts across the region (Annex Figure 2.7). Although some countries, such as the Democratic Republic of the Congo and Nigeria, have been involved in some form of conflict over most of the sample period (29 years and 27 years, respectively), the median conflict duration in the region is about four years.

However, the persistence of conflicts has generally declined over time: the probability of a country exiting conflict has increased from 20 percent in the pre-2000 period to about 24 percent afterward. This aggregate trend does not hold for the Sahel region though, where conflicts have become substantially more persistent in the post-2000 years (Figure 2.8; Online Annex Table 2.3).

Population Displacement

A major consequence of conflicts in sub-Saharan Africa, as well as elsewhere, is the displacement of populations. This carries significant economic, fiscal, and social costs for the region involved in conflict, but often also for the nearby regions that host the displaced people. Over time, the number of (United Nations–recognized) persons of concern from sub-Saharan African countries—including internally displaced persons, asylum seekers, and refugees—has more than tripled, rising from fewer than 5 million in the 1980s to 18 million in 2017 (Figure 2.9), with more intense conflicts generally implying larger displaced populations (Online Annex Figure 2.9).

Figure 2.8. Sub-Saharan Africa: Conflict Exit Probabilities
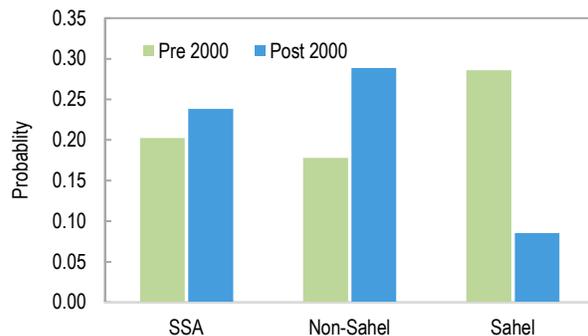
Sources: Uppsala Georeferenced Event Dataset; and IMF staff calculations.
Note: Plots the probability of a country not being in conflict the next year, conditional on being in conflict today.

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[8] The data on terrorist incidents from the Global Terrorism Database are subject to a structural break in 2012 as a result of a change in the data collection methodology that likely increased the recorded number of incidents. The period after 2012, however, uses a consistent methodology, implying that the sharp rise in terrorist incidents after 2013 is not a result of the change in methodology but rather represents a genuine increase in terrorist activity (see Online Annex 2.1 for details).

Figure 2.9. Persons of Concern from Sub-Saharan Africa, 1980–2017
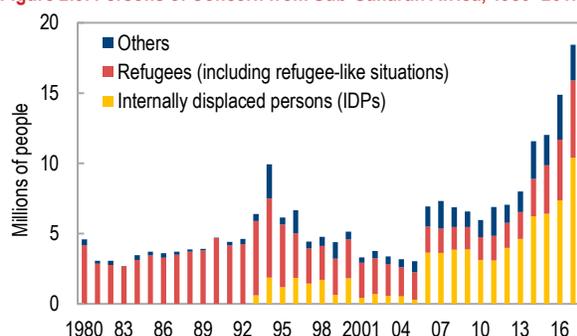
Source: United Nations High Commissioner for Refugees database.
Note: Data availabilty for IDPs prior to 2006 is limited. Others include asylum-seekers, returned refugees, returned IDPs, stateless persons, and others of concern.

Figure 2.10. Destination of Sub-Saharan African Refugees, 2017

Source: United Nations High Commissioner for Refugees database.
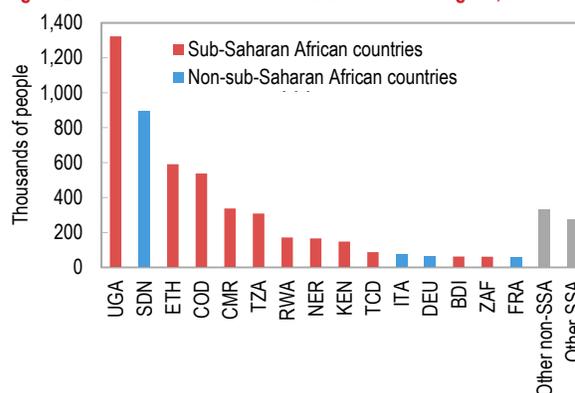Note: See page vi for country abbreviations table.

Notably, as of 2017, the majority of the close to 6 million refugees and 1 million asylum seekers who originated in sub-Saharan Africa had resettled within the region; a relatively smaller number have been recorded as refugees in advanced economies (Figure 2.10). Refugees constituted more than 3 percent of the population of Chad and Uganda in 2017 (only Jordan, Lebanon, and Turkey, following the Syrian crisis, have a higher refugee-to-population ratio; see Annex Figure 2.8).[9] Similarly, the number of internally displaced people in the region is five times higher—rising from fewer than 2 million to 10 million over the past two decades (Annex Figure 2.10). The Democratic Republic of the Congo (4.4 million people), South Sudan (1.9 million), and Nigeria (1.7 million) have the most internally displaced people, comparable to some degree with the numbers for Syria and Iraq in 2017 (6.2 and 2.6 million, respectively; Online Annex Figure 2.11).

CONFLICT AND ECONOMIC GROWTH

How does conflict affect economic growth in sub-Saharan Africa? A simple comparison of economic growth rates in conflict and nonconflict cases suggests that real GDP growth is, on average, about 2.5 percentage points lower where there is conflict (Figure 2.11), and growth is lowest in cases of high-intensity conflict (Annex Figure 2.13). Growth tends to be lower in conflict cases across all

country groups, but commodity exporters (especially, non-oil commodity exporters) have suffered the most. This reflects in part the intense conflicts in many of these countries (Central African Republic, Democratic Republic of the Congo, Liberia, and Sierra Leone; see Figure 2.11).

When the onset of intense conflict episodes can be clearly identified, the conflict's effect on growth is, in general, seen to be most pronounced in the first year of the conflict, after which it gradually declines (Figure 2.12).[10] However, as growth rates remain negative on average over an extended period of time, the cumulative effect on output increases, with real GDP per capita being 12 percent lower five years after the onset of the conflict (Figure 2.12).

Figure 2.11. Sub-Saharan Africa: Average Growth Rate by Country Type
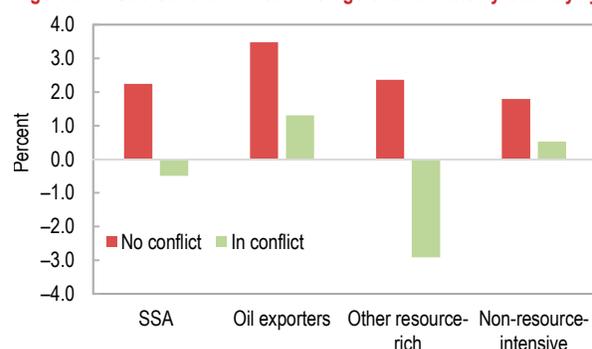
Source: IMF staff calculations.
Note: Country defined to be in conflict if it had 25 or more conflict-related deaths in a given year.

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[9] See World Bank (2016) for a detailed study on the refugee management experience in Uganda, including the role of Uganda's progressive refugee laws regarding freedom of movement and access to labor markets for refugees.

[10] The conflict cases considered are Liberia, 1990; Sierra Leone, 1991; Burundi, 1993; the Democratic Republic of the Congo, 1996; the Republic of Congo, 1997; Ethiopia, 1998; Eritrea, 1998; Guinea-Bissau, 1998; Côte d'Ivoire, 2002; Mali, 2012; and the Central African Republic, 2013. See Annex Table 2.9 for more details.

Figure 2.12. Sub-Saharan Africa: Conflict Episodes: Growth Rates and Cumulative GDP per Capita Losses
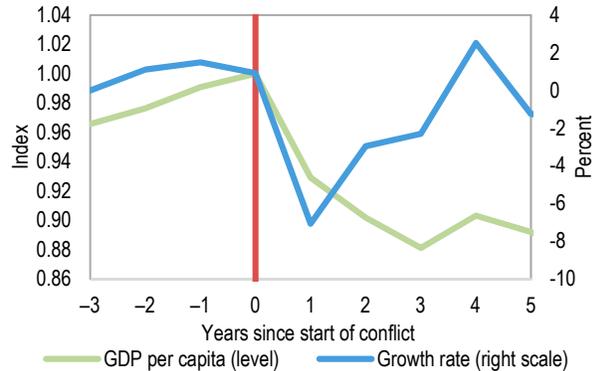
Source: IMF staff calculations.

Note: Based on 11 conflict episodes defined in Online Annex Table 2.9. Median growth rates of 11 conflict episodes at every horizon. Per capita GDP indexed to be 1 the year before the start of conflict, and median growth rate used to construct cumulative losses.

Figure 2.13. Emerging Market and Developing Economies: Impact on Growth of Increase in Conflict Intensity

Source: IMF staff calculations.

Note: Based on increase in conflict intensity from no conflict to 75th percentile. See Annex Table 2.4, columns 1 and 2, for details. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent level, respectively.
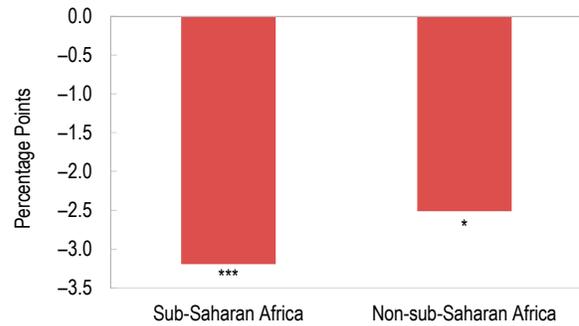
These results are confirmed by more rigorous empirical analysis, which—while controlling for other standard determinants of growth—shows that conflicts have a significantly negative effect on economic growth in sub-Saharan Africa. An increase in the conflict-intensity measure from no conflict to the top quartile of conflict (29 conflict-related deaths per million people) is, on average, associated with a reduction in real GDP per capita growth of 3.2 percentage points a year (Figure 2.13).[11] These results generally hold when we address potential reverse causality concerns of growth on conflict using a variety of approaches.[12]

The effect of conflict stems mostly from more intense conflicts (that is, those involving at least five conflict-related deaths per million people; Figure 2.14). This result is similar to that obtained by Rother and others (2016), who also document larger effects for more intensive conflicts in the Middle East and North Africa. In addition, there is evidence that violence in the economic/urban hubs of countries has a more pronounced effect on growth than that occurring in the periphery (Online Annex Table 2.4). In terms of the type of conflict, there is no strong evidence of a differential effect,

and both state and nonstate conflicts have a statistically strong impact on growth (Online Annex Figure 2.12; Online Annex Table 2.7).

The effect of conflicts on growth, however, appears to be conditional on some macroeconomic characteristics—notably, institutional quality and fiscal fundamentals—at the onset of the conflict (Figure 2.15). Specifically, an increase in conflict

Figure 2.14. Sub-Saharan Africa: Effect on Growth of Different Conflict Intensity Levels
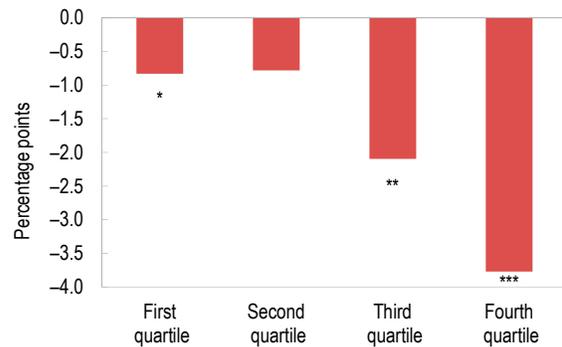
Source: IMF staff calculations.

Note: Quartiles based on the world distribution of conflict-related deaths as a share of population (among countries with at least 1 death). Bars indicate difference relative to no conflict case. Based on regression results in Annex Table 2.6, column 1. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent level, respectively.

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[11] Given the extreme observations in the measure of the deaths-to-population ratio, the analysis considers the measure in percentile terms in the growth regressions. See the Online Annex for technical details.

[12] Specifically, the results are robust to applying the difference and system generalized method of moments methodology in which conflict is instrumented with lagged values (see Online Annex), as well as to considering individual conflict episodes that were not preceded by economic activity that was particularly weak (see discussion that follows). The results are also robust to using an alternate conflict variable based on the Uppsala Armed Conflict Dataset, which covers state-based conflicts only but provides information dating back to 1946.

Figure 2.15. Impact on Growth of Increase in Conflict Intensity, Role of Institutions and Fiscal Fundamentals
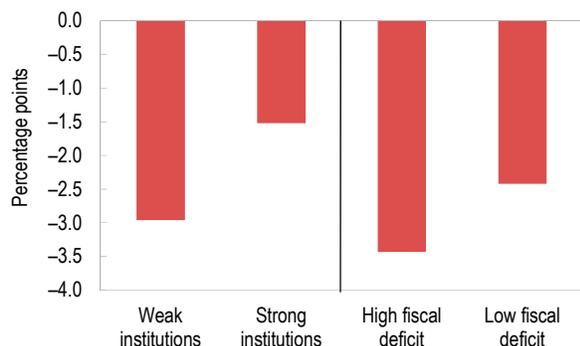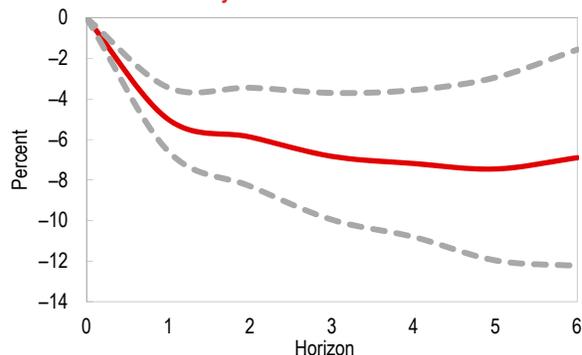

Source: IMF staff calculations.

Note: Based on increase in conflict intensity from no conflict to 75th percentile. "Weak institutions" are defined as countries in the 25th percentile of the ICRG index of institutional quality, while "Strong institutions" are defined as countries in the 75th percentile. High and low deficit are for a fiscal balance of –5 and 0 percent, respectively. See Online Annex Table 2.4, columns 4 and 5, for details.

intensity is associated with about 1.5 percentage points lower growth in countries with relatively strong institutions (defined as falling in the top quartile of the distribution of the Institutional Quality Index) compared with 3 percentage points where institutions are weaker (in the bottom quartile of the distribution).[13] Similarly, countries with weaker fiscal fundamentals, in terms of higher deficits or debt, experience a larger decline in growth, presumably because there is less room to respond to the destruction caused by conflict. In particular, a country with a negligible fiscal deficit experiences a growth decline of 2.4 percentage points as conflicts break out relative to a decline of 3.4 percentage points for countries with a fiscal deficit of 5 percent of GDP (Figure 2.15; Online Annex Table 2.4).[14]

Moreover, the effects of conflicts are dynamic, lasting at least five years after the onset of the conflict (Figure 2.16). The onset of a high-intensity conflict (29 conflict-related deaths per million or 75th percentile of the distribution) is estimated to lower output per capita by 5 percent in the first year, with the effect reaching about 7.5 percent after five years and remaining statistically significant.

**Figure 2.16. Impulse Response of per Capita GDP in Response to Shock to Conflict Intensity**

Source: IMF staff calculations.

Note: Based on increase in conflict intensity to the 75th percentile of the world distribution using local projection method (Online Annex 2.1). Gray dashed lines are the 90 percent confidence interval.

Channels of Disruption

What are the key channels through which conflicts tend to have such large and persistent effects? Empirical analysis shows that investment and trade—important drivers of economic growth in sub-Saharan Africa—are both affected significantly by conflict. Increasing conflict intensity from no conflict to the top quartile is associated with lower real investment growth of 4.5 percentage points, driven partly by a decline in private sector credit growth. Furthermore, conflicts also reduce export and productivity growth by 5.5 and 1.3 percentage points, respectively (Figure 2.17).

Figure 2.17. Sub-Saharan Africa: Impact of Conflict on Investment, Exports, and Productivity Growth
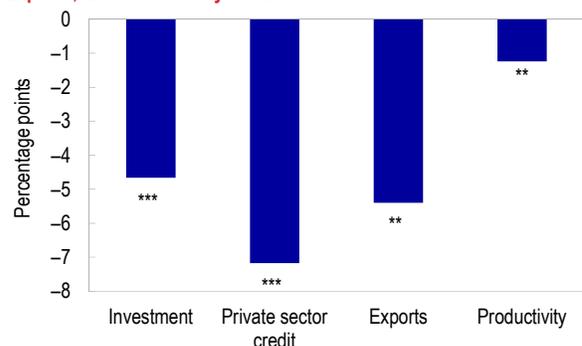
Source: IMF staff calculations.

Note: Based on increase in conflict intensity from no conflict to 75th percentile. See Online Annex Table 2.8 for details. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent level, respectively.

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[13] While the effect of conflicts may be conditional on the strength of institutions, conflicts can also undermine institutional quality, further exacerbating their negative consequences.

[14] Among other factors, the results also show a statistically significant association of growth with investment and trade openness. See Online Annex 2.1 for details.

This decline in productivity, investment, and export growth following conflict could be attributed to several factors, including greater security concerns that make normal business operations difficult; disruption of traditional trade routes (as has occurred, for example, around the Lake Chad Basin as a result of the Boko Haram insurgency; see AFD 2018); destruction of human capital and physical infrastructure; displacement of skilled labor; disruption and weakening of institutions; and a rise in general economic and political uncertainty that leads investors to delay long-horizon investment.

Social Well-being

That conflicts destroy human capital is evident from their impact on education and health outcomes. On average, primary school enrollment rates for girls and boys are almost 13 and 9 percentage points lower, respectively, in intense-conflict cases than in nonconflict cases (Figure 2.18, panel 1).

With regard to health outcomes, life expectancy is significantly lower during conflicts, partly due to direct conflict-related deaths. However, other health indicators—such as maternal mortality—also deteriorate (Figure 2.18, panel 2).

Furthermore, women and children are often dispro-portionately affected by conflicts in terms of higher malnourishment rates among children and increased

gender-based violence that makes it difficult for women to access education and job opportunities (Box 2.1). These social consequences of conflicts, often far-reaching and long-lasting, help to explain the persistent effect of conflicts on growth.

Permanent Output Losses

Given the adverse impact of conflict on economic growth and social well-being, how large is the output loss in the long term? While it is difficult to predict the counterfactual of output if conflict had not occurred, comparing projected real GDP per capita before the start of a conflict with the actual outcome following the onset of conflict can be illustrative. Using forecasts from the IMF World Economic Outlook database, a comparison of 10 major conflicts in sub-Saharan Africa reveals that at conflict onset ($t = 1$), the actual median growth rate plummets to minus 6 percent, compared with the projected growth rate of almost 1 percent—implying a decline in real GDP per capita of about 7 percent (Figure 2.19).[15] Five years after the conflict began, per capita GDP is, on average, 8 percent below its preconflict level compared with a projected increase of 7 percent, suggesting a decline in per capita GDP of about 15 percent as a result of the conflict.

These findings are similar to those obtained from the synthetic control approach in which for each

**Figure 2.18. Sub-Saharan Africa: Impact of Conflict on Social Indicators**
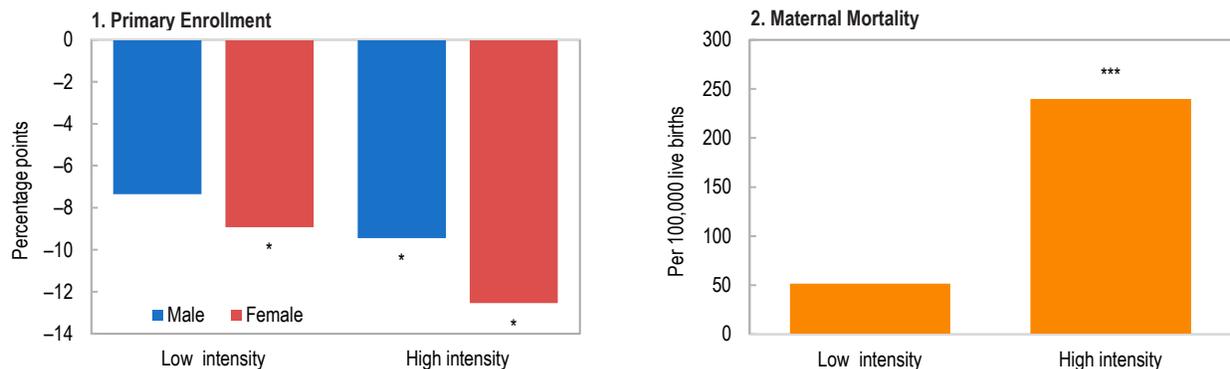
Sources: World Development Indicators database; and IMF staff calculations.

Note: Bars show difference between primary enrollment and maternal mortality relative to the no conflict case, controlling for (lag) income levels and time fixed effects. "Low intensity" refers to conflicts below the median, while "High intensity" refers to conflicts above the median in the world distribution of conflict-related deaths as a share of population. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent level, respectively.

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[15] To account for any optimism bias, WEO forecasts for each country are adjusted by the average bias in growth forecasts. See Online Annex 2.1 for details. The 10 cases include all the episodes listed in Annex Table 2.9 except Liberia (1990), as WEO projections are only available starting in 1991. See Annex Figure 2.17 for individual country cases.

Figure 2.19. Sub-Saharan Africa: Index of Real GDP per Capita, Actual versus Forecast
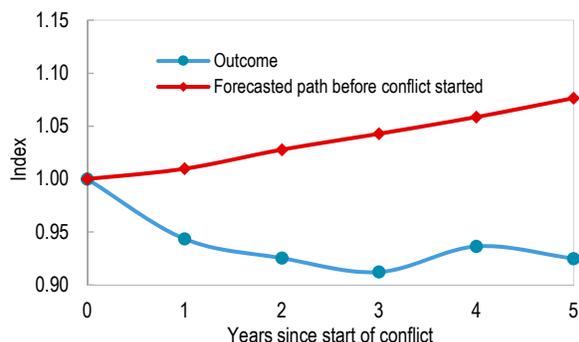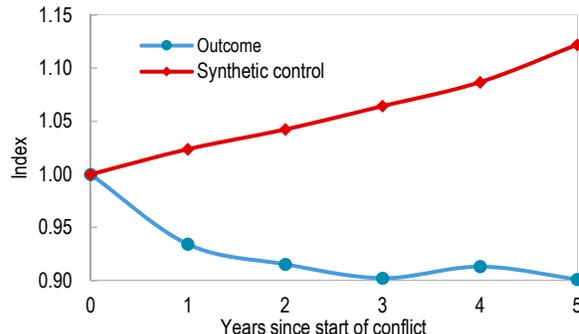

Source: IMF staff calculations.
Note: Based on 10 conflict episodes listed in Annex Table 2.9.

Figure 2.20. Sub-Saharan Africa: Index of Real GDP per Capita, Actual versus Synthetic Control
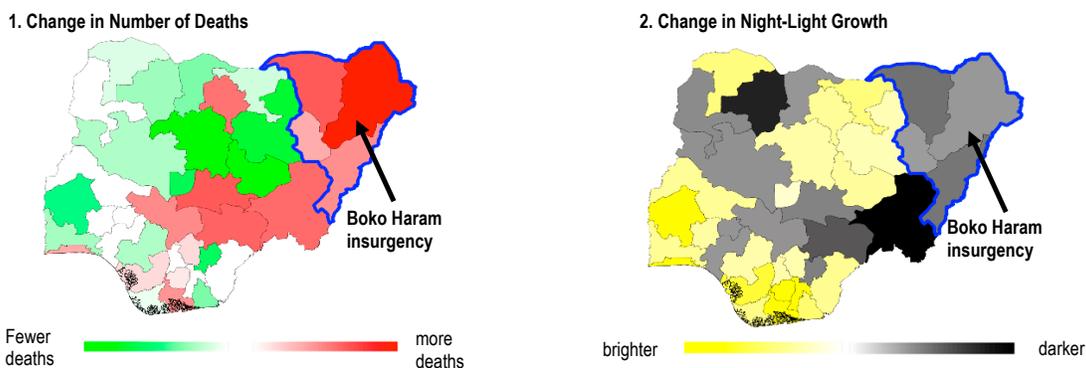

Source: IMF staff calculations.
Note: Based on 10 conflict episodes listed in Annex Table 2.9. Details on methodology of synthetic control in Online Annex 2.1, Section III.

conflict episode, a synthetic control group (a weighted average of nonconflict countries) is constructed with characteristics similar to those of the conflict country before the onset of violence. The results show that five years into the conflict, the synthetic group saw an increase in per capita GDP of 12 percent on average, compared with a decline of 10 percent in the conflict cases (Figure 2.20).[16]

SPATIAL IMPACT OF CONFLICT

Conflicts in sub-Saharan Africa are often localized and concentrated in particular regions within a country—in fact, conditional on a country being in conflict, on average only 40 percent of states within the country experience conflict-related deaths (Annex Figure 2.14). Thus, the impact of conflicts is unlikely to be uniform across the country. However, lack of data availability on economic activity at a

spatially disaggregated level makes it difficult to investigate the impact of conflict at the local level, or its potential spillover effects to nearby regions within (or across) countries.

To analyze the localized and spillover effects of conflicts, satellite-recorded night-light data are used as a proxy for real economic activity. Using this data, it is apparent that economic activity in northeast Nigeria, for example, declined after 2010, when the Boko Haram insurgency became more violent (Figure 2.21).

Econometric analysis confirms that there is a statistically and economically strong adverse effect of conflict on night-light growth at the state level. Conflicts that result in 100 fatalities (around the median of the distribution of conflict-related deaths at the state level) are associated with, on average,

Figure 2.21. Nigeria: Change in Conflict and Night-Light Growth, 2008–10 versus 2011–13

1. Change in Number of Deaths

2. Change in Night-Light Growth

Source: IMF staff calculations.
Note: For each state, panel 1 plots the difference in number of deaths in the period 2011–13 compared with 2008–10, while panel 2 plots the difference in average night-light growth between the same two periods.

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[16] The cases include all episodes in Annex Table 2.9 except Eritrea, for which data on control variables were not available.

17 percentage point lower growth in night-light activity in sub-Saharan Africa—which translates into about 6.5 percent lower real GDP growth at the state level (Figure 2.22).

In addition to the direct effect of conflict in sub-Saharan Africa, there is also evidence of significant spillover effects of conflict to neighboring states, though the effect declines with the distance of the neighbor. Specifically, controlling for state and time fixed effects, 100 fatalities in neighboring states within 500 kilometers are associated with about a 2 percentage point reduction in growth; the effect is statistically insignificant for more distant states (Figure 2.22).[17]

FISCAL IMPLICATIONS OF CONFLICT

Conflict can have substantial effects both on the revenue and expenditure sides of a country's public finances. This limits the government's ability to respond to conflicts in an effective way, thereby aggravating their economic and social costs. On the revenue side, conflicts can reduce collections by disrupting economic activity, destroying part of the tax base, and lowering the efficiency of tax administration. There is evidence of these channels being potentially important for sub-Saharan Africa, where an increase in conflict intensity from no conflict to the top quartile is associated with a decline in total

revenue of about 12 percent in real terms or about 2 percent as a share of GDP (Figure 2.23; Online Annex Table 2.17).

On the expenditure side, an increase in conflict intensity is associated with, on average, 9 percent higher real budgetary military spending (or about 0.6 percent of GDP), while real capital expenditures decrease by about 9 percent. Total public spending, therefore, does not increase significantly during conflicts. This suggests that security concerns lead to a shift in spending from growth-friendly capital expenditures to military spending (Figure 2.23). Moreover, the net effect of an increase in conflict intensity is thus an increase in the fiscal deficit of about 1.7 percent of GDP (Online Annex Table 2.17).

As with economic growth, the fiscal effects of conflict stem mainly from high-intensity conflicts. Both real revenue and real capital expenditures fall significantly when conflict intensity is in the top quartiles, whereas military spending increases (Figure 2.24).

Looking at the impact of conflict on public debt, the deterioration in the fiscal balance, combined with lower growth, translates into higher debt levels. The ratio of public debt to GDP increases by an average of 9 percentage points during intense

Figure 2.22. Sub-Saharan Africa: Conflict and Economic Activity at State Level Using Night-Light, Direct and Spillover Effects
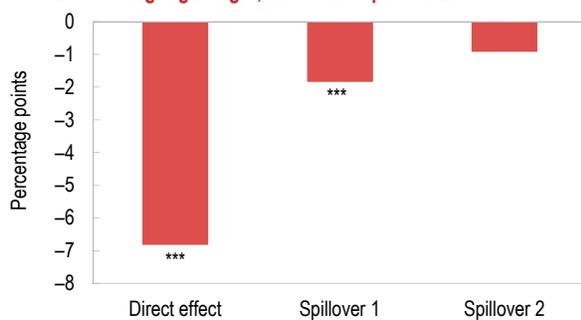
Source: IMF staff calculations.

Note: Impact of 100 conflict-related deaths at state level. Assumes an elasticity of 2.5 between night-light and GDP. Direct effect = effect of deaths in state itself; Spillover 1 = effect of deaths in states within a 500 km radius; Spillover 2 = effect of deaths in states between 500 and 1,000 kms away. Bars are based on results in Online Annex Table 2.11, column 1.
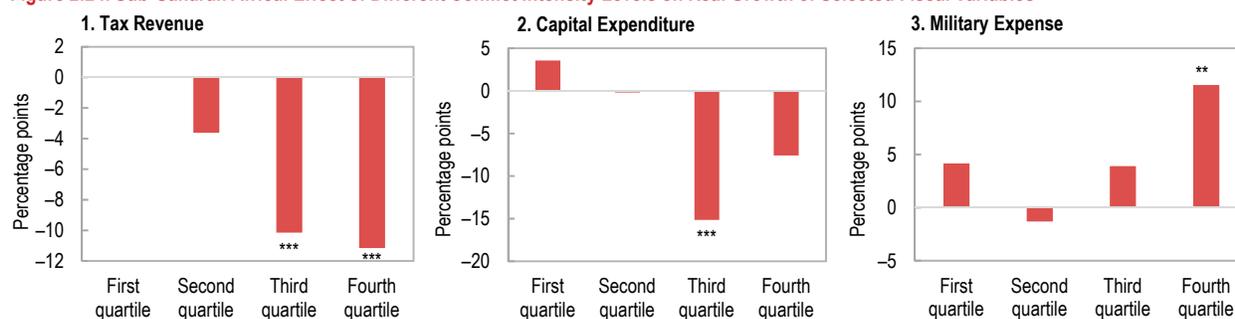
Figure 2.23. Sub-Saharan Africa: Impact of Increase in Conflict on Real Growth of Fiscal Variables
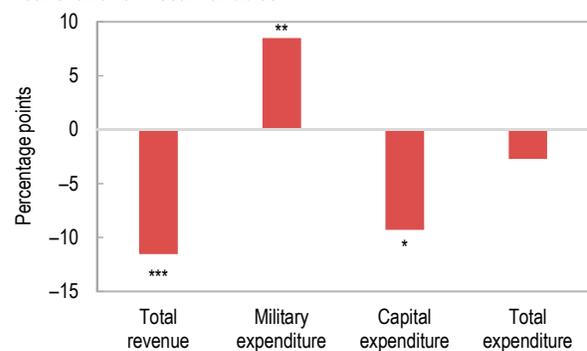
Source: IMF staff calculations.

Note: Based on increase in conflict intensity from no conflict to the 75th percentile. Based on regression results from Online Annex Table 2.13, columns 1, 3, 4, and 6, respectively. The variables are adjusted for inflation.

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[17] A burgeoning literature shows that night-light activity is a good proxy for real GDP (Henderson, Storeygard, and Weil 2012; Online Annex Figure 2.15). The independent nature of night-light activity means that this measure of real economic activity is less susceptible to systematic measurement error. It is also a useful variable for conflict cases, when data on economic activity tend to be unavailable or unreliable. See Online Annex 2.1 for technical details on the data and estimation methodology.

Figure 2.24. Sub-Saharan Africa: Effect of Different Conflict Intensity Levels on Real Growth of Selected Fiscal Variables

Source: IMF staff calculations.

Note: Quartiles based on the world distribution of conflict-related deaths as a share of population (among countries with at least one death). Bars indicate difference relative to no conflict case. Based on results from Annex Table 2.15, columns 1, 3, and 4. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent level, respectively. The variables are adjusted for inflation.

Figure 2.25. Sub-Saharan Africa: Impact on Debt-to-GDP Ratio of Increase in Conflict Intensity
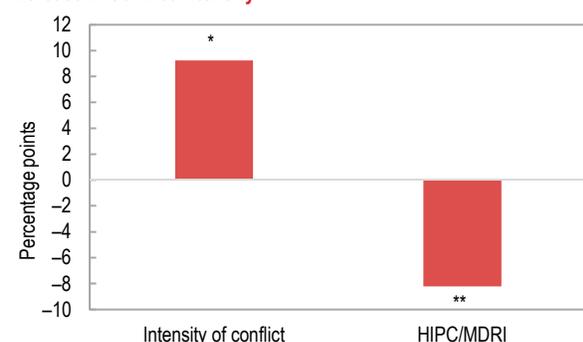
Source: IMF staff calculations.

Note: Based on increase in conflict intensity from no conflict to the 75th percentile. See Annex Table 2.16 for details. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent level, respectively. HIPC = Heavily Indebted Poor Country, MDRI = Multilateral Debt Relief Initiative.

Figure 2.26. Sub-Saharan Africa: Cumulative Change in Debt-to-GDP Ratio during Conflict Episodes
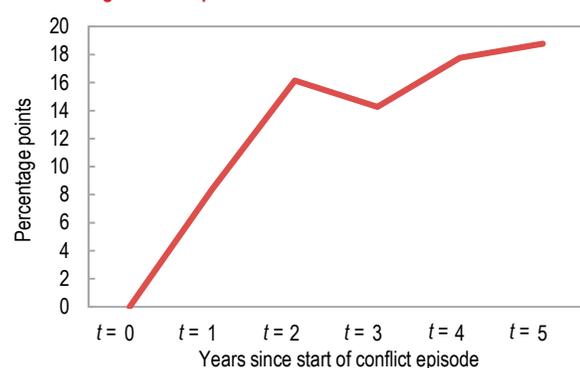
Source: IMF staff calculations.

Note: Starting years of conflict episodes are defined based on Online Annex Table 2.9.

conflicts, which is about equal in magnitude to the average annual decline in debt during the Heavily Indebted Poor Countries and Multilateral Debt Relief Initiatives (Figure 2.25). Focusing on intense-conflict episodes in sub-Saharan Africa, as in Figure 2.12, the public-debt-to-GDP ratio increases 16 percentage points of GDP in the first two years, with the effect increasing to almost 20 percent of GDP by the fifth year (Figure 2.26).

CONCLUSION

After declining in the early 2000s, there has been an uptick in conflicts in recent years in sub-Saharan Africa. The analysis highlights the large economic costs imposed by conflict, both in the country involved in conflict and in neighboring states. Notably, the impact of conflict depends on its intensity, with more intense conflicts leading to greater destruction of human and physical capital and implying larger and more persistent economic costs as a result of reduced investment, trade, and productivity. Counterfactual analysis suggests that real GDP per capita may be as much as 20 percent lower five years after the start of a conflict compared with a no-conflict scenario. In addition, conflicts put pressure on public finances by reducing revenue, shifting the composition away from capital to military spending, and increasing public debt—further jeopardizing socioeconomic stability and increasing the risk of prolonged conflict.

Given these large costs, it is imperative to prevent the occurrence of conflicts. As earlier literature has shown, several economic and structural factors, such as low income levels, poor growth outcomes, weak state capacity, and inequality of opportunity—especially across ethnic, religious, and regional groups—are associated with a higher likelihood of conflict. Addressing these challenges will help to prevent conflicts (United Nations and World Bank 2018). For countries in conflict, efforts should focus on limiting the loss of human and physical capital, including by protecting social and development spending, and on trying to maintain well-functioning institutions to lessen the harmful long-term economic effects of conflict. While this may be especially challenging given fiscal pressures, well-targeted and coordinated humanitarian aid and concessional external assistance can help to create room to respond to the ravaging effects of conflicts. Moreover, external assistance may also be essential for countries suffering from the spillover effects of conflicts, in order to protect displaced populations and alleviate the economic and social strains often generated in host countries.

Box 2.1. The Impact of Conflict on Women and Children

Children from conflict-afflicted regions suffer significant health setbacks. Malnutrition rates are higher by approximately 8 percentage points for children in major-conflict countries compared with nonconflict countries, often because of increased food insecurity driven by the destruction of livelihoods and agricultural supply chains (World Food Programme 2018). In Burundi, Côte d'Ivoire, and Nigeria, for instance, exposure to conflict has been shown to affect children's height (Bundervoet, Verwimp, and Akresh 2009; Akresh and others 2012; Minoiu and Shemyakina 2014). The long-term effects of such malnutrition, in turn, include lower cognitive performance, school enrollment, and lifetime earnings. Surviving child soldiers tend to be affected long after a conflict ends. In Uganda, for example, they were found to attend school for one year less than children who were not soldiers, with a significant impact on earnings later in life (Blattman and Annan 2010).

Women are more likely to experience gender-based violence during conflicts. While men are more likely to suffer from combat-related deaths, women have a higher likelihood of being victims of gender-based violence and trafficking during conflicts, which is used as a tactic to subjugate civilian populations (Buvinic and others 2012). Furthermore, insecurity often constrains the movement of girls and women, limiting their access to schools and employment opportunities (UN Women 2015). Women in refugee camps are particularly vulnerable to displacement (World Bank 2017). One in six women in refugee camps and among irregular women migrants is a survivor of gender-based violence (ILO 2003; World Bank 2017).

Given the insecurity faced by these vulnerable groups, the United Nations Security Council has passed several resolutions that stress the necessity of protecting children and women during conflicts. Protecting these vulnerable groups could help mitigate the long-term adverse economic effects of conflicts.

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