



The Toll of War

**THE ECONOMIC AND SOCIAL CONSEQUENCES OF
THE CONFLICT IN SYRIA**

For Arabic translation

Key Findings

- *This study assesses the economic and social consequences of the Syrian conflict as of early 2017.* The conflict has inflicted significant damage to the Syrian Arab Republic's physical capital stock (7 percent housing stock destroyed and 20 percent partially damaged), led to large numbers of casualties and forced displacement (between 400,000 and 470,000 estimated deaths and more than half of Syria's 2010 population forcibly displaced), while depressing and disrupting economic activity. From 2011 until the end of 2016, the cumulative losses in gross domestic product (GDP) have been estimated at \$226 billion, about four times the Syrian GDP in 2010.
- *Disruptions in economic organization have been the most important driver of the conflict's economic impact, superseding physical damage.* The conflict has not only ended lives and destroyed productive factors; it has also severely diminished economic connectivity, reduced incentives to pursue productive activities, and broken economic and social networks and supply chains. Simulations show that cumulative GDP losses due to such disruptions in economic organization exceed that of capital destruction by a factor of 20 in the first six years of the conflict. This is mainly because a "capital destruction only" shock works like some natural disasters (unanticipated and sudden onset): in a well-functioning economy, its effects on investments are limited (only a 22 percent reduction in simulations). Thus, capital is rapidly rebuilt and further economic repercussions are contained. In comparison, disruptions in economic organization decrease investments significantly (a simulated 80 percent reduction) by reducing profitability; therefore, the initial effects are propagated strongly over time. This contrast between different types of shocks helps us to put future reconstruction efforts into perspective. Without rebuilding economic institutions and restoring economic networks, replacing the capital stock by itself will not go far in helping the economy recover.
- *The longer the conflict continues, the more difficult the post-conflict recovery will be.* Although the rate of deterioration moderates over the course of the conflict, the effects become more persistent. Should the conflict end in its sixth year (baseline), GDP recoups about 41 percent of the gap with its pre-conflict level within the next four years. Overall, the cumulative GDP losses will reach 7.6 times the 2010 GDP by the 20th year. In comparison, GDP recoups only 28 percent of the gap in four years if the conflict ends in its 10th year (alternative scenario), and cumulative losses will be at 13.2 times the 2010 GDP. Simulations also show that outmigration could double between the sixth year of the conflict and the 20th year, in the case of a continued conflict. These results do not capture many other complications, like political economy challenges such as conflict-driven grievances. Adding these factors would only reinforce the main findings of the report: the longer the conflict persists, the deeper the grievances and divisions will run in the Syrian society, rendering it very difficult to build efficient institutions and effective

Executive Summary

The Arab Spring protests marked the beginning of a new era in the Syrian Arab Republic in 2011. Minor public protests began almost immediately after the initial protests in Cairo in January 2011. The first large demonstrations began two months later in March, and the following months saw a process of escalation as demonstrations spread and increased in size within the country. By the summer of 2011, the armed conflict was already unfolding. Now in its sixth year, the Syrian conflict remains active and is bringing much pain and tragedy on a daily basis.

This study provides an assessment of the conflict's impact on economic and social outcomes in Syria as of early 2017. Conflicts destroy tangible and intangible assets and leave deep marks on a country's social fabric, culture, and collective memories. The Syrian conflict has quickly become a particularly harsh example of this. It is, unfortunately, not possible to capture all of these consequences in a comprehensive manner. As of March 2017, the conflict was active, and some longer-term outcomes and political, social, security-related, and institutional effects were not yet observable beyond anecdotal evidence. In addition, because of the ongoing conflict, the country has remained inaccessible to the team who produced this report, and severe data shortages forced the team to leave out much-needed analysis. Given these constraints, the analysis focuses on taking stock of the effects of the conflict in four areas: (i) physical damage, (ii) loss of lives and demographic dispersion, (iii) economic outcomes, and (iv) human development outcomes.

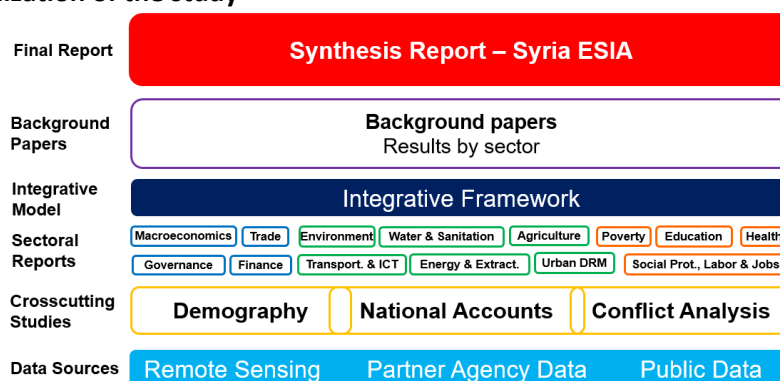
The strength of this study lies in its scope and methodology. The novel part of the data used in this study is provided by remote sensing assessments (with media verification), which focused on ten cities¹ and six sectors², and then extrapolated to eight governorates³ by using conflict intensity and asset base comparisons. Information from partner agencies in demography and sector and economic outcomes supplemented these assessments. The novelty of the analysis itself lies in its integrative framework. The results of the physical damage and loss of lives are used to employ an integrative model to match observed economic outcomes, including GDP patterns and demographic mobility (inter-governorate and outmigration from Syria). This approach provided several advantages. First, the distinct roles played by physical destruction, casualties, and economic disorganization in how conflict has manifested its impacts were separated. This separation is important because it could help prioritize actions in a future recovery and reconstruction process, by facilitating a comparison between alternative scenarios of aid composition. Second, it helped compare the results of alternative scenarios that are not observable from actual data: for example, what is the role played by migration in the conflict's economic impact? How far can the impact of the conflict on economic outcomes prevail after the cessation of the conflict? The report discusses these in detail. (Figure ES.1 shows the organization of the study.)

¹ These cities are Aleppo, Raqqa, Dar'a, Douma, Dayr az-Zawr, Homs, Hama, Idlib, Kobani, and Tadmur (also called Palmyra) which were chosen on the basis of several criteria, including conflict intensity, geographical representation, and being an important source or destination of internally displaced persons.

² These sectors are education, energy, health, housing, transportation, and water and sanitation.

³ These governorates are Aleppo, Dar'a, Dayr az-Zawr, Hama, Homs, Idlib, Raqqa, and Rif Dimashq, which were chosen because of conflict intensity.

Figure ES.1: Organization of the study



Syria before the Conflict

On the eve of the 2011 unrest, Syria was a fast-growing, lower-middle-income country. In aggregate terms, the Syrian economy was improving, albeit starting from an unfavorable base, during the 2000s. Gross domestic product (GDP) grew at an average of 4.3 percent per year from 2000 to 2010 in real terms, which was almost entirely driven by growth in non-oil sectors, and inflation averaged at a reasonable 4.9 percent.

The strong growth performance, however, did not translate into broad-based economic and political inclusion and further transparency and civil liberties. Syria was comparable to other regional economies in many socioeconomic indicators in 2010. The multidimensional poverty rate (5.5 percent) and income inequality (Gini index: 32.7) stood close to regional averages. However, the labor force participation (LFP) rate in Syria (43.5 percent) was one of the lowest in the world, low even by regional standards (the Arab Republic of Egypt and Tunisia had 49 and 47 percent LFP, respectively). This was primarily driven by the extremely low, and decreasing, role of women in the economy (LFP about 5 percentage point lower than the average for the Middle East and North Africa (MENA), which is already low by global standards, and female unemployment, at 25.2 percent, the highest in the region). Similarly, the country consistently performed unfavorably in governance and civil liberties–related indicators during the 2000s. Syria’s ratings on measures of freedom of association and assembly, and freedom of expression and belief, were low even compared with other countries in MENA.

Another important feature of Syria’s governance landscape prior to 2011 was the country’s high levels of perceived corruption and low trust in public institutions. According to global indexes, Syria’s rankings on control of corruption and control of economic monopolies declined after 2005. Although the country had already trailed the middle-income MENA peers, like Egypt, Jordan, and Tunisia, on both fronts in 2005, the gap widened substantially by 2010. These trends also undermined citizen trust in public institutions. Gallup surveys from 2009–10 show that the percentage of Syrians expressing trust in key public institutions, such as local police and the judicial system, was lower than comparators. For instance, in 2010, only 48 percent of Syrians reported trust in local police; in comparison, about 87 percent of Jordanians responded favorably.

Added to these enabling conditions were external factors that contributed to the onset of the conflict.

The Arab Spring and a sudden shift in the regional context, where armed rebellions became easier, as well as the actions chosen by various parties, led to a quick escalation of the initial protests, from civil

unrest to a long and intense armed conflict. Fueled by a “loser loses all” logic, which prevented a reasonable and compromising resolution, the conflict has persisted and intensified over time, leading to devastation for all.

The Wrath of Conflict

The conflict has inflicted extensive damage on Syria’s physical infrastructure. Cities like Homs, Aleppo, and Damascus, and many smaller towns, have served as battlegrounds for government and rebel offensives, with tragic consequences for their inhabitants. Over time, the conflict has caused the partial or full breakdown of urban systems in many cities by destroying houses and public service–related infrastructure like roads, schools, and hospitals, while leading to economic collapse in many areas. As bridges, water resources, grain silos, and other economically significant assets became strategic targets, the physical damage ratios increased. Across the 10 cities on which this study focuses, 27 percent of the housing stock has been impacted, with 7 percent destroyed and 20 percent partially damaged. The percentage varies across cities, with the highest full destruction occurring in Dayr az-Zawr (10 percent) and the highest partial damage in Tadmur (also called Palmyra, 32.8 percent). With 8 percent destroyed housing units and 23 percent partially damaged, Aleppo is also among the worst impacted cities. Across the eight governorates, about 8 percent of the housing stock has been destroyed and 23 percent partially damaged. The damage has been particularly high in the health sector, as medical facilities were specifically targeted. Estimates show that about half of all medical facilities in the eight governorates studied in this report have been partially damaged, and about 16 percent of them were destroyed. The results are similar in education sector facilities (53 percent partially damaged, and 10 percent destroyed).

Disruptions in economic networks, human capital, and connectivity have greatly magnified the effects of physical damage on public service delivery. Physical damage reflects only a subset of the effects the conflict has imposed on public service delivery in Syria. The available evidence suggests that physical damage to the electricity infrastructure has been severe, but not devastating: all the country’s hydroelectric dams and six of 18 power plants remain operational, while four more power plants are partially damaged, and one has been destroyed. However, fuel shortages and conflict-driven constraints to operation and maintenance have led to a sharp drop in public power supply. Power generation declined to 16,208 gigawatt-hours (GWh) in 2015, compared with 43,164 GWh in 2010, a drop of 62.5 percent. Much of this decline appears to be due to fuel shortages, as available generation capacity declined by about 30 percent in the same period. The decline in electricity supply has caused major disruptions. The majority of cities receive only a few hours of electricity a day. The government has applied a rationing policy via load shedding throughout the country, which affects the delivery of other services, like water, education, and health care services.

Among all the consequences of the conflict, the effects on human lives and demographic displacement have been the most dramatic. The pre-conflict population of Syria was estimated at 20.7 million in 2010 (World Development Indicators). Since 2011, the conflict has created a complex set of pressures on the country’s population. The most recent calculations by the International Organization for Migration (IOM) put the population within Syria at 18.8 million as of November 2016. Data limitations render a precise and comprehensive decomposition of the demographic changes impossible: conflict affects fertility rates and life expectancy alike. In addition, an important portion of demographic movements takes place informally: some refugees remain unregistered and, in certain cases, migrants do not factor

into in-country population or refugee totals. The casualties that are directly related to conflict are estimated between 400,000 (UN, as of April 2016) and 470,000 (Syrian Center for Policy Research, as of February 2016).

Syria has become the largest forced displacement crisis in the world since World War II. Over half of the country's pre-conflict population has been forcibly displaced. According to the United Nations High Commissioner for Refugees, the total number of Syrians presently registered as refugees outside the country in Lebanon, Turkey, Jordan, Iraq, Egypt, and North Africa is 4.9 million. In addition, more than 800,000 Syrian nationals are estimated to have sought asylum in Europe in 2015 and 2016. Many of these individuals have moved more than once, and have not been removed from registration lists in their first country of refuge. These numbers also do not include an estimated 0.4 million to 1.1 million unregistered Syrian refugees in Lebanon, Jordan, Turkey and Iraq. The number of internally displaced persons was at 5.7 million as of January 2017, with 56 percent of them remaining within their own governorates. Although those who moved within their governorate may be more likely to return to their original communities, the return migration so far has been small (0.56 million) compared with the total numbers of displaced.

The losses in GDP between 2011 and 2016 sum to about four times the size of the Syrian GDP in 2010. The destruction of physical capital, casualties, forced displacement, and breakup of economic networks has had devastating consequences for Syrian economic activity. Syria's GDP was estimated to have contracted by 61 percent between 2011 and 2015 in real terms, and by an additional 2 percent in 2016—a 63 percent decline compared with its 2010 GDP. Estimates of national account indicators, including counterfactual GDP numbers estimated by using statistical estimation methods, show that the actual GDP fell \$51 billion (in 2010 prices) short of the counterfactual GDP in 2016. Aggregating these differences between counterfactual and actual GDP numbers between 2011 and 2016 shows that the cumulative loss in GDP amounts to \$226 billion in 2010 prices, about four times the 2010 GDP.

Economic disruption has been particularly devastating in the hydrocarbons sector. The oil GDP declined by 93 percent during the same period, while the non-oil economy contracted by 52 percent due to the severe destruction of infrastructure, reduced access to fuel and electricity, low business confidence, and disruption of trade. Hydrocarbon production plunged from 383,000 barrels per day (bpd) in 2010 to 10,000 bpd in 2015 and 2016, due to Islamic State control over most of the oil-producing areas.⁴ Agricultural production also registered significant losses as a result of damage to irrigation systems and shortages of labor and inputs such as seeds, fertilizers, and fuel. The most severe contraction of the economy took place in 2012 and 2013, when economic activity shrank by 29 and 32 percent, respectively, as fighting intensified and spread across the country.

The Syrian economy suffers from severe twin deficits, depleted foreign exchange reserves, and an unsustainably high public debt. Conflict-related disruptions and international sanctions reduced Syrian exports by 92 percent between 2011 and 2015. The current account deficit was estimated to have reached 28 percent of GDP in 2016, up from 0.7 percent of GDP in 2010. The gap has increasingly been financed by withdrawing foreign exchange reserves, which declined severely, from nearly US\$21 billion in 2010 to less than US\$1 billion in 2015. Fiscal revenues dropped from 23 percent of GDP in 2010 to less

⁴ This refers to oil in areas under government control, but with the fields under rebel control, oil production is estimated at 40,000 bpd.

than 3 percent of GDP in 2015. This was mainly due to losses in oil and tax revenues, the collapse of international trade due to sanctions, a growing informal economy, and weak administrative collection capacity. In response to this shortfall, government spending was cut back (especially capital expenditures), but these measures were not enough to offset the fall in revenues. As a result, gross public debt rose from 30 percent of GDP in 2010 to a staggering 150 percent of GDP in 2015.

Rapidly shrinking job opportunities and scaled down social security programs have further aggravated a mounting humanitarian crisis. Since the onset of the conflict, jobs were destroyed at an estimated rate of approximately 538,000 per year on average between 2010 and 2015, adding 482,000 people to the unemployment pool every year. More than three in four Syrians of working age (7.7 percent, or nine million individuals) are not involved in any economic value generation: 2.9 million of them are unemployed and 6.1 million are inactive. Unemployment among youth reached 78 percent in 2015. Facing a mounting fiscal problem, the Syrian Government dramatically decreased subsidies. Prices of fuel oil increased 10-fold from 2011 to 2015. As for rice and sugar, prices increased 2.3-fold in the same period. Estimates for this report suggest that approximately six in 10 Syrians live in extreme poverty today. As of December 2016, 5.8 million individuals received in-kind food assistance. The World Food Programme alone distributes more than four million food baskets (supplements for about 1,700 kilocalories per day) each month.

Disentangling the Economic Effects of the Conflict

Which channel has been the most important in delivering the conflict's impact on the Syrian economy? The discussions have so far focused on many of the conflict-driven factors that have affected the well-being of Syrian citizens. These include casualties, forced displacement, physical destruction, limitations on the mobility of goods and people, and a vast amount of foregone opportunities. These multidimensional effects, however, comprise overlapping components. Some of the most useful pieces of information, for example, the relative importance of physical destruction, migration, and so forth, in generating the economic impact of the conflict, are not directly observable. To address some of these concerns, this study adopted an integrative framework that helps disentangle the channels of transmission of the effects of the conflict. The analysis also introduced several policy-related scenarios that could inform future recovery and reconstruction efforts.

Capital destruction, by itself, accounts only for a small share of the conflict's economic impact. If the conflict only destroyed capital (at the same rate it has done so far), without other effects (capital-destruction-only scenario), its impacts on income and welfare would be relatively limited. By the sixth year of the conflict, the cumulative losses in GDP would only be 5 percent of the actual loss if the conflict destroyed only capital without leading to casualties and economic disorganization. This is mainly because without further economic disorganization, casualties, and migration, the effects of physical destruction on profitability remain relatively limited. Thus, investments remain relatively resilient, and the destroyed capital is rebuilt relatively quickly. Simulations show that investments decrease by 80 percent in the baseline, where all shocks associated with the conflict are imposed, and they decrease by only 22 percent in the capital-destruction-only scenario. This mechanism highlights a remarkable difference between natural disasters and conflicts. When a natural disaster destroys built capital in a well-functioning market economy with strong institutions, the recovery of capital stock is rapid, and impacts are not persistent. Civil wars are different: casualties, demographic movements, and lower returns to investment compound the damage to physical capital. As a result, effective losses due to

physical capital damage are more pronounced, and they can linger into the future at a much higher rate than natural disasters.

Casualties impose insufferable distress and psychological impacts on families. Although their direct economic impact is comparable to that of the capital-destruction-only scenario, this impact is much more persistent. When conflict leads to casualties and no other effects (casualty-only scenario), change in GDP is comparable to that of the capital-destruction-only scenario: in both scenarios, the decrease in GDP during active conflict years remains lower than 5 percent of pre-conflict levels. Behind this similarity, however, lies a major difference between the two. Casualties are the primary drivers of outmigration: conflict-related casualties have led to a massive exodus of Syrians, whereas capital destruction has not. Simulations show that more than two-thirds of all outmigration can be attributed to casualty-related factors alone. Security-related factors dominate over economic reasons in explaining migration patterns: people move to have better life quality, but better life quality is largely about a lower probability of being killed in this case, not higher incomes. Another result from this analysis is that the economic impact of casualties is much more persistent than that of other factors. Even if the conflict ends in its sixth year, GDP continues to be significantly below its pre-conflict level: only a sixth of cumulative GDP losses within the first 20 years after the onset of conflict takes place during the six years of the conflict. The rest happens after the end of the conflict.

Disruptions in economic organization have been the most important channel through which the conflict has manifested its economic impact. Where does the bulk of economic impact stem from if not capital destruction and casualties? It stems from disruptions in how economic activity is organized. Conflict not only destroys productive factors, it also prevents the connectivity of people, reduces their incentive to pursue productive activities, and breaks economic networks and supply chains. Our simulations show that, by the end of the sixth year of the conflict, the cumulative GDP losses in the economic-disorganization-only scenario exceed those of the capital-destruction-only and casualties-only scenarios by about 20-fold each. These results suggest that even reinstating lost capital, by itself, would not be sufficient to bring the economy back to its pre-conflict level, if institutional and organizational challenges are not tackled simultaneously. Regardless of the source of financing, boosting public investments without a comprehensive approach would trigger further rent seeking and cronyism, which were important enabling factors in the conflict's onset, as described in the first section. Thus, recovery and reconstruction are by no means an engineering issue; our results show that the issue is primarily an economic and social one, where the incentives of Syrian citizens are at the core.

As the conflict continues, economic outcomes will further deteriorate and Syrians will continue to migrate. To provide an assessment of the possible recovery paths, the analysis employed different conflict end-date scenarios. These include a baseline, where the conflict ends in the sixth year, and two alternative scenarios, where the conflict ends in its 10th year or does not end in the near future. In all three cases, capital destruction, casualties, and economic disorganization shocks are employed. Accordingly, in the baseline, GDP recovers by about 20 percentage points (as a share of pre-conflict GDP) within four years after the conflict. In comparison, GDP will continue to deteriorate if the conflict does not end in the near future. In both alternative scenarios, the conflict will continue to be devastating for the country. When the conflict ends in its sixth year, the cumulative loss in GDP reaches 7.6 times the annual pre-conflict GDP by the 20th year. With a continued conflict, this loss stands at 13.2. Simulations also show that outmigration doubles between the sixth year of the conflict and the 20th year. Thus, the supply of migrants and forcibly displaced persons will not cease as long as there is

conflict. The rate of deterioration slows, because the conflict is geographically limited, migration drains the labor force in conflict-affected regions, and capital stock reaches a stable level with new damage and investment ratios. As a result, the economy converges to a new equilibrium.

The longer the conflict continues, the slower the post-conflict recovery will be. Another important result from the conflict end-date scenarios is that the duration of the conflict also affects the pace of recovery. Although the rate of deterioration moderates over the course of the conflict, the effects become more persistent. When conflict ends in its sixth year (baseline), GDP recoups about 41 percent of the remaining gap with its pre-conflict level within the next four years. In comparison, it recoups only 28 percent of the gap in four years if the conflict ends in its 10th year (alternative scenario). These results do not capture much of the complications like political economy challenges, such as conflict-driven grievances. Adding these factors would only reinforce the main finding here: the more the conflict persists, the deeper will run the grievances and divisions in Syrian society, rendering it very difficult to reinstate efficient institutions and economic mechanisms.

