

Annual Review of Economics

The Elusive Peace Dividend of Development Policy: From War Traps to Macro Complementarities

Dominic Rohner^{1,2} and Mathias Thoenig^{1,2}

¹Faculty of Business and Economics (HEC Lausanne), University of Lausanne, 1015 Lausanne, Switzerland; email: dominic.rohner@unil.ch, mathias.thoenig@unil.ch

²Centre for Economic Policy Research, London EC1V 0DX, United Kingdom

Annu. Rev. Econ. 2021. 13:111–31

First published as a Review in Advance on April 5, 2021

The *Annual Review of Economics* is online at economics.annualreviews.org

<https://doi.org/10.1146/annurev-economics-073120-102652>

Copyright © 2021 by Annual Reviews.
All rights reserved

JEL codes: D74, F51, H56, O10

**ANNUAL
REVIEWS CONNECT**

www.annualreviews.org

- Download figures
- Navigate cited references
- Keyword search
- Explore related articles
- Share via email or social media

Keywords

conflict, civil war, poverty, development, policy

Abstract

This article reviews the literature on civil conflict and development with a focus on the socioeconomic consequences of violence and on promising policies for fostering peace. We make four main points. First, one of the reasons conflict is still often overlooked as key factor for development is that conflict costs are typically underestimated, in particular the shadow costs of deterrence. Second, there are several types of war traps that hold countries back, both economically and politically. Third, to break these traps, policies must be calibrated to address jointly both poverty and social tensions, as there is a strong macro complementarity between peace and development objectives. We document how single-minded policies that ignore this dual challenge can spectacularly fail, and we discuss in depth a series of particularly promising policies. Fourth, we highlight the increasing potential of novel data collection methodologies and the need for policy evaluation tools in violent contexts.

1. INTRODUCTION

In the last decade, the world has experienced an increase in the number of violent intrastate conflicts. Reported battle-related deaths reached in 2014 their highest number in 20 years (Allansson et al. 2017). As hotspots of violence are typically located in low-income countries, the question of the two-way causation between poverty and conflict has been deeply scrutinized in the recent academic literature. Unfortunately, the policy aspects have been widely overlooked in spite of their paramount importance. This is regrettable, because pacification is a subtle and complex process in which both economic and political considerations matter: Policies that combat poverty do not automatically eradicate conflict and can spectacularly backfire when they fail to take into account conflict dynamics.

Drawing on the existing literature reviewed below, this article formulates four key arguments. First, the literature is likely to underestimate the actual costs of conflict. The main reason is that, in many contexts, the mere risk of conflict entails costly actions that ultimately prevent conflict. Hence, the quantitative assessment of these (often very substantial) costs of prevention is challenging because conflict remains an off-equilibrium threat and does not appear in the data sets on conflict incidence. Another reason for underestimating the costs of conflict is that most quantitative studies focus on visible and measurable costs, namely material damages, that are relatively short-term. By contrast, a full range of costs—from depleted social capital to generation-specific scars (e.g., education, mental health, labor-market prospects)—are much harder to price in spite of being pervasive for a longer time period. Put differently, destroyed buildings and roads are quick to reconstruct, and the incurred price of reconstruction is tangible; by contrast, mending the social fabric of a society torn apart by violence is an open problem for which reliable price estimates are typically missing. Second, we identify a series of war traps wherein self-reinforcing dynamics lead to vicious cycles of poverty and violence. Most prominently, conflicts deteriorate material conditions and social ties, which in turn constitute a powerful breeding ground for future violence. Hence, studying the impact of conflict on development without taking into consideration such self-reinforcing dynamics may lead to seriously wrong conclusions. Third, the policy response should be calibrated in such a way as to address jointly the peace and development objectives, since there exists a strong macro complementarity between them. In particular, it would be a mistake to believe that the tool kit of anti-poverty policies will mechanically and automatically translate into a reduction of violence and social tensions. On the contrary, economic policies should be complemented with political and institutional interventions, taking on board lessons from political science. This also calls for a more integrative development model with “no one left behind” in terms of territories and population segments. Our fourth message is that the evaluation of development policies in violent context should be encouraged. In particular, the macro complementarity mentioned above calls for the use of structural models that can quantify counterfactual interventions and the extent of general equilibrium feedback effects—which makes them a crucial complement to other study designs such as randomized control trials and (quasi-)natural experiments.

While there exist several surveys studying the general drivers and consequences of war (see, e.g., Blattman & Miguel 2010), the current review is, to the best of our knowledge, the first of its kind focusing specifically on the developmental consequences of political violence, its associated conflict traps, and the appropriate policy responses.¹

¹The insightful survey of Ray & Esteban (2017) studies the opposite direction of causality, namely by investigating the impact of poverty and ethnicity on conflict, and, in contrast to the present contribution, it does not focus on conflict traps and the assessment of particular policies.

The remainder of the review is organized as follows: In Section 2 we present an array of overall cost estimates of armed conflict, before discussing in Section 3 the channels through which conflicts deploy their main effects. Section 4 describes how the aforementioned consequences of fighting can give birth to vicious cycles and war traps. In Section 5 we discuss particular policies that have the potential to break those traps, and we provide a perspective for the evolution of the research field, highlighting the role of external validity and quantitative models of conflict and development. Section 6 concludes.

2. ESTIMATES OF THE OVERALL COSTS OF WAR

2.1. Stylized Facts on Conflicts

To begin, we briefly lay out some well-known facts on the prevalence of different types of conflict. From the UCDP/PRIO Armed Conflict Dataset (Themnér & Wallensteen 2012) we see that between 1946 and 2019, about 76% of all wars were civil conflicts, and only 10% were either interstate or colonial (extrasystemic) wars, with the remainder being hybrid internationalized civil wars. In terms of evolution, since 1946 there has been an upward trend in civil wars from 8 per year in 1946 to 30 per year in 2019, and over this time period internationalized interstate wars have also risen sharply from 2 to 22 per year. Overall, 54 distinct conflicts have taken place in 2019—with no other year since 1946 having recorded a higher number of conflicts per year.

2.2. Human Costs

First and foremost, let us keep in mind the high levels of human fatalities generated by conflict. Besides the deaths of combatants, a specificity of civil conflicts pertains to the high vulnerability of civilian populations and the high prevalence of sexual violence (Cohen 2013). Between 1945 and 1999 an estimated 16.2 million people have perished in 127 civil wars (Fearon & Laitin 2003), and according to Ghobarah et al. (2003), for each person killed in a civil war, there is on average one additional indirect fatality due to, for example, disrupted health services, diseases, food insecurity, contaminated water, etc. By way of comparison, between 1945 and 1999 an estimated 3.3 million people got killed in 25 interstate wars (Fearon & Laitin 2003). Further, taking into account all types of political violence (including purges and mass killings, not just civil wars), Bae & Ott (2008, p. 107) compute even bigger numbers: “The 20th century is replete with incidents of civilian killings by the state. Conflict-related deaths in that century were put at 109.7 million or 4.35% of the world population.” A large-scale deleterious impact of conflicts on civilian populations relates to forced displacements, which affected 65.6 million persons in 2016. Over the 2005–2016 period, this amount has increased by a factor of five, and more than half of them were children (UNHCR 2017).

2.3. Economic Costs

The macroeconomic impact of conflicts can be large. When it comes to economic costs in terms of foregone growth, the survey of Bozzoli et al. (2010, p. 166) summarizes the existing cost estimates of war as follows:

Mass violent conflicts have a negative effect on annual GDP growth of between one to three percentage points. Neighboring countries, meanwhile, suffer around one third of the costs that directly affected conflict countries have to endure. Post-conflict countries can expect a recovery period with generally higher growth rates than before the war. Some studies find an ongoing recovery over the medium term, but even these countries do not necessarily catch up completely.²

²Smith (2014) and Hoeffler (2017) provide other surveys of this literature.

Cerra & Saxena (2008) and Mueller (2012) are among the few scholars who have assessed the macroeconomic costs of conflicts in a cross-country quantitative framework. Mueller (2012) finds that the average civil war leads to a permanent loss in output of 18%, making civil wars more devastating than economic (financial, banking, currency) crises. According to Collier (2008) the average 7-year war lowers GDP by about 15%.

When it comes to prominent evidence for a single country, Abadie & Gardeazabal (2003) find that GDP per capita in Spain's Basque Country dropped about 10 percentage points relative to a synthetic control region without terrorism, and Besley & Mueller (2012) compute a very substantial cost of conflict for Northern Ireland, with the peace dividend raising house prices by several percentage points.

Concerning the impact of interstate conflicts on growth, Organski & Kugler (1977) conclude that major interstate wars lead to a 10–15% reduction in wealth for a period of 15–20 years following the conflict, before catching up again. Following a cost accounting rather than a regression approach, Stiglitz & Bilmes (2008) provide a cost estimate of the Iraq war corresponding to \$3 trillion. Glick & Taylor (2010) assess the trade costs of interstate wars, finding that war reduces trade by 80% and that this reduction is persistent (i.e., trade is still reduced by 42% after 5 years). The trade costs of war are estimated to be about 3% of the permanent GDP flow for major wars (and taking into account also fatality costs would more than double this estimate).

Conflicts have negative spillovers on the economic development of other countries. At the regional level, in the case of Middle Eastern conflicts (e.g., Iraq, Syria), Rother et al. (2016) find that, on average, countries that border these high-intensity conflicts (e.g., Jordan) experience an annual decline of 1.4 percentage points in their GDP. Part of the spillover is channeled by the aforementioned and well-studied violence-driven disruption of international trade (Martin et al. 2008a,b; Glick & Taylor 2010). A striking example of a global negative spillover of violence has been studied by Besley et al. (2015); they show that the 2008 surge of attacks by Somali pirates in the Indian Ocean led to a 8–12% increase in shipping costs and an estimated world welfare loss of \$630 million.

2.4. The Shadow Costs of Containing Violence: *Si Vis Pacem, Para Bellum!*

The economic burden of conflict and violence is not limited to actual war outbreaks. The containment and prevention of fighting also have substantial costs. According to the World Bank's World Development Indicators (<https://data.worldbank.org>), an average country currently spends slightly above 2% of its GDP for military expenditures. For illustration, take the example of the astronomical costs sustained by major powers around the world to maintain an arsenal of nuclear missiles. These are not meant to be ever actually used but constitute a costly deterrence device. This logic is in line with a series of game-theoretic models of politics and conflict where war is—at least for a range of parameter values—an off-equilibrium threat point that does not materialize in equilibrium but still affects a variety of choices to prevent it (see, e.g., Acemoglu & Robinson 2001, Laurent-Lucchetti et al. 2019).

In addition to these tangible monetary costs, in countries with draft or militia armies, one needs to take into account the opportunity cost of time not spent for production. In Switzerland, which has a general draft for young men, the military budget would typically underestimate the actual cost of maintaining the armed forces, because the opportunity cost of time of those enrolled would also have to flow into the equation. This opportunity cost of time is of course much larger in countries that are actually at war, given that a much larger share of the population is drafted.

We are not aware of any academic paper that attempts to assess these shadow costs of containing violence in a quantitative setup—a very challenging task, given its off-equilibrium path

flavor. One unfortunate consequence of this lack of credible estimates of the shadow costs is that in survey articles and policy documents the overall costs of conflicts are (potentially severely) underestimated.

However, indirect estimates of the order of magnitude of such shadow costs draw a bleak picture. Accounting exercises factoring in the public and private expenditures required to contain, prevent, and deal with the consequences of violence suggest massive costs at the world level as large as \$14.7 trillion (at purchasing power parity) in 2017, roughly 12.4% of the world GDP (Inst. Econ. Peace 2018). Similarly, the costs of humanitarian assistance targeting conflict responses and post-conflict reconstruction are large and have been rising over the last two decades, representing the majority of overall assistance. Note that total funding requirements for humanitarian action in 2016 reached \$22.1 billion, with 86% of the total requests for UN humanitarian assistance targeting conflict zones (UN News 2016).

3. THE MAIN CHANNELS THROUGH WHICH CONFLICT AFFECTS DEVELOPMENT

Beyond the aforementioned aggregate costs, we study in this section through what mechanisms wars may affect development. A better understanding of these channels of transmission is important to guide policy measures in a post-conflict environment. In particular, assessing the temporality is key because some wars continue to deploy effects long after fighting has ceased, whereas for other conflicts the economic and social recovery can be surprisingly fast.

3.1. Physical Destruction and Infrastructure

Physical destruction during war has been discussed only by a handful of papers, mostly with the purpose of using conflict as a natural experiment for testing theories of economic growth and economic geography. Overall, the main findings of this literature are that destroyed buildings can be reconstructed and that physical destruction does not have lasting consequences (contrary to the destruction of human and social capital, as discussed below). These studies look at historical episodes of reconstruction in a given country and exploit spatial variations in the intensity of destruction across areas (e.g., cities) as exogenous shocks on postwar indicators of local development (e.g., city size). For example, the influential paper by Davis & Weinstein (2002) on post-1945 Japan finds evidence of mean reversion in the sense that most cities returned to their relative position in the distribution of city sizes within about 15 years. In the same vein, Brakman et al. (2004) look at post-1945 Germany and detect no long-term impact on city growth in West Germany; interestingly, however, they find a negative and persistent impact in East Germany. They impute this contrast to the fundamental role played by economic and political institutions in postwar reconstruction, a point that we discuss further below in the section dedicated to reconstruction policies. In another context, Miguel & Roland (2011) find that the large-scale bombing campaign of Vietnam had a huge humanitarian cost in the short run, but they do not detect any local poverty traps in the long run. An important distinction is pointed out by Collier (1999), who argues that the extent of destruction strongly depends on the structure of the economy: War-vulnerable sectors are the ones that are intensive in transactions and assets, while sectors featuring only very limited transactions and assets (e.g., subsistence farming) are more likely to recover quickly.

In short, economic loss due to physical capital destruction can be substantial but is temporary. To some extent, this conclusion comes as no surprise: There is a widespread consensus among economists and historians that the period of high growth in the aftermath of World War II was mostly due to the catch-up effect of countries that experienced severe physical capital loss on their

territory (think of the Trente Glorieuses in France, the German Wirtschaftswunder, the spectacular Japanese postwar economic recovery, the economic boom in Italy, etc.). This conclusion is also in line with the macroeconomic growth literature that quantifies the speed of conditional convergence in models of physical/human capital accumulation and typically predicts this kind of catch-up [see the seminal contributions by Mankiw et al. (1992) and Barro & Sala-i-Martin (1995)].

3.2. Impact of War on Institutions and the Social Fabric

The social and institutional legacies of conflict, despite being “arguably the most important,” remain the “least understood of all war impacts” (Blattman & Miguel 2010, p. 42). As highlighted above, wars—at least in the short run—destroy physical infrastructure. It is quite intuitive that this could harm state capacity; if, for example, a hospital or administration building gets targeted by bombing, the state’s means of carrying out its missions are harmed. At the same time, a substantial literature from economics and other social science disciplines has found that states in war are obliged to build up a strong army machinery, and therefore external threats and wars can also trigger investments in state capacity, as stressed by Tilly (2017) and Voigtländer & Voth (2012b), who base most of their supportive evidence on European history. As far as Africa is concerned, Osafo-Kwaako & Robinson (2013) do not detect any effect of conflict fostering future state building and political centralization.

Beyond analyzing state capacity, a sizable series of papers looks at the consequences of wars on meta-level social structures, reaching mixed conclusions. Some evidence supports the view that conflict can result in heightened political participation and local collective action (Bellows & Miguel 2009, Blattman 2009, Gilligan et al. 2014). By contrast, military intervention from external countries is associated with very different effects: Kocher et al. (2011) and Dell & Querubin (2018) show that the US bombing in Vietnam weakened local governance, reduced noncommunist civic engagement, and shifted local control in favor of the Viet Cong insurgents. There is also a fair amount of research (based on experiments and observational data) on the impact of warfare on trust and social capital at the individual level. There, too, results are contrasting, and Bauer et al. (2016) provide a comprehensive survey and meta-analysis for navigating this large literature. Importantly, several studies find that conflicts tend to increase parochial altruism and in-group trust within communities (Voors et al. 2012, Gilligan et al. 2014, Cacault et al. 2015) and to deplete generalized trust, especially out-group trust between communities (Rohner et al. 2013a, Cassar et al. 2013, Besley & Reynal-Querol 2014).

All these intangible elements are key long-run determinants of growth and development—social capital and trust in particular (Algan & Cahuc 2010). Moreover, designing policies and interventions aiming at reconstructing or fostering intergroup trust is not straightforward, as suggested by the literature on the historical persistence of anti-Semitism, intergroup grievances, and military rivalries (Goertz & Diehl 1993, Voigtländer & Voth 2012a, Fouka & Voth 2016). Thus, in many cases the depletion of social capital after a war is likely to have long-standing consequences on development. However, as discussed further below, enduring distrust and grievances are not a fatality, and some policy measures have led to promising results.

Finally, forced migration is a channel through which conflicts are likely to impact the social fabric of society. As discussed above, millions of people are displaced each year from their home regions due to interstate wars, civil conflicts, and natural disasters; this phenomenon was already present at various points in history (think, e.g., of the so-called migration period or the mass population movements after World War II) and is still common today (e.g., Syrian civil war refugees, Rohingya expelled from Myanmar). There exists a small and expanding literature studying the

long-run impact of conflict-driven migration on development (see Becker et al. 2020 for a key contribution) that points toward massive quantitative effects. Actually, even relatively short historical episodes may have long-lasting effects, including through induced migration. For example, Ochsner (2017) studies the economic consequences of the Red Army's misdeeds in 1945 in Southern Austria (dismantling, pillaging, and sexual crimes). He looks at differences in spatial economic activity across the arbitrarily drawn (and lasting only for 74 days) liberation demarcation line between the Red Army and the Western Allies. His regression discontinuity design (RDD) results show that the Red Army occupation is associated with a relative population decline of around 26–31% and a drop in labor productivity more than 70 years after, with selective migration patterns across the demarcation line being a first-order driver of persistence.

3.3. Destruction of Human Capital

One particularly important consequence of warfare exposure is that schooling gets in many cases partly or fully suspended, with wide-ranging and long-lasting consequences. In particular, several papers find that fighting substantially reduces human capital accumulation (Chamarbagwala & Morán 2011, Shemyakina 2011, León 2012, Verwimp & Van Bavel 2013). This contrasts, though, with the impact of interstate conflicts. It has been found, indeed, that international military rivalries can also drive up education investments (Aghion et al. 2019).

Further, a recent literature focuses on the impact of Jewish persecution during World War II as a shock to the human capital and the skill composition of the general population. Acemoglu et al. (2011) document that, in Russia, the cities that experienced the Holocaust most intensely have had worse economic and political outcomes since the collapse of the Soviet Union, this lasting impact of the Holocaust being partly attributable to a permanent change in the social structure (i.e., the size of the middle class). Waldinger (2016) finds that while the exodus of scientists during World War II had persistent negative effects, the actual bombing of German cities had no lasting impact. In particular, a 10% shock to physical capital reduced output by 0.05 standard deviations in the short run, and the reduction did not persist. Akbulut-Yuksel & Yuksel (2015) find that German children who were of school age during the persecution of Jews had fewer years of schooling in adulthood and were less likely to have finished high school or gone to college.

Importantly, war does not only affect human capital directly, through the destruction of educational facilities and the like, but it also hinders human capital accumulation indirectly, both through economic deprivation (as discussed above) and through the impact of war exposure on health and behavior, as discussed in the next subsection.

3.4. The Impact of War on Health and Behavior

There is a further array of individual-level effects of war exposure. Crucially, there are negative health impacts: Bedard & Deschênes (2006), Akresh et al. (2012b), Akresh et al. (2012a), and Minoiu & Shemyakina (2014) show that war-exposed children suffer from adverse health effects both in the short and the long run, with economic losses being an important channel through which armed conflict negatively impacts child health. In the same vein, Barenbaum et al. (2004) and Derluyn et al. (2004) find that wars have adverse consequences on mental and psychological health.

Another important dimension is how war exposure early in life affects behavior later in the life cycle. Miguel & Roland (2011), Cecchi et al. (2016), and Couttenier et al. (2019) show that conflict exposure leads to a higher propensity for competitive, aggressive, or violent behavior later in life. It has also been found that army enlistment can favor political radicalization and aversion

to peace building, at least in extreme circumstances. In particular, Vlachos (2016) finds a political radicalization effect of forced conscription to the German army for men from eastern France during World War II, and Hirsch-Hoefler et al. (2016) show that individual conflict exposure reduces the support for peace building in Israel.

4. WAR TRAPS

4.1. Evidence on Vicious Cycles of War Recurrence

Wars tend to recur in ever the same countries, and past wars are strong predictors of future wars. Collier & Hoeffler (2004) find that, in the post-1945 period, two thirds of all conflict outbreaks took place in countries where multiple civil conflicts were recorded; Derouen & Bercovitch (2008) document that more than three-quarters of all civil conflicts stem from enduring rivalries among ethnic groups that repeatedly enter into conflict with each other. As shown by Rohner et al. (2013b), the persistence of conflict is still detected even when controlling for country fixed effects. Thus, war recurrence is unlikely to be solely due to persistent triggers (say, natural resource abundance), and self-reinforcing dynamics—whereby a war today is planting the seeds for war tomorrow—are likely drivers of persistence unless policies are put in place to break such war traps.

Several vicious cycles may drive the persistence of civil conflict. Conceptually, we can think of two categories of cycles: (a) a positive feedback loop between war and poverty whereby economics and politics are intertwined (e.g., poverty and violence mutually reinforce each other), and (b) a positive feedback loop from current conflicts on future conflicts whereby political motives (e.g., grievances) become autonomous drivers of the perpetuation of violence and economic interests are not central anymore. One immediate implication is that the diagnosis of the nature of the vicious cycle is essential for calibrating the development policy response. Indeed, in the case of the second, politics-only type of vicious cycle, interventions targeting only economic objectives tend to be particularly inefficient: Not only they are ineffective at bringing back peace, but they are also more at risk of not reaching their primary objectives because their full effects are heavily constrained by the perpetuation of violence. As argued below, some political measures (e.g., institutionalized power sharing) can help prevent the self-perpetuation of these autonomous noneconomic vicious cycles of mounting intergroup grievances.

4.2. Feedback Loop: Poverty to Future Conflict

The war–poverty trap is set in motion when political problems self-perpetuate because of poverty or economic issues. To simplify, conflicts are the political manifestation of underdevelopment, and in turn underdevelopment is the economic manifestation of conflicts. We discuss below a couple of mechanisms explaining why the nexus between poverty and war features a bidirectional causality such that conflicts fuel poverty and, in turn, economic deprivation is a powerful breeding ground for future conflicts.

4.2.1. Mechanism 1: from poverty to conflict. We have already discussed the abundant evidence on conflict harming economic growth and development. Thus, we now survey the empirical literature interested in the other direction of causality, from poverty to conflict (see also the survey in Ray & Esteban 2017). The early studies, based on country-level data, raised several concerns about identification issues, as exemplified by the discussions on weather-related instrumental variables by Dell et al. (2014) and Burke et al. (2015). Some results were unstable, with even conflicting findings among studies on the impact of commodity price shocks on conflict outbreak (Brückner & Ciccone 2010, Bazzi & Blattman 2014). This state of affairs led some scholars to question the

validity of the relationship between poverty and conflict (Djankov & Reynal-Querol 2010). Recent data-related improvements settled most of this empirical controversy. Causal analysis is now often based on unexpected income shocks at the subnational level. Following the seminal contribution by Miguel et al. (2004), a frequently used source of exogenous variations is adverse weather conditions that are clearly associated, in the data, with a reduction of economic growth and an increase in fighting (Hidalgo et al. 2010, Dell 2012, Hsiang et al. 2013, König et al. 2017, Vanden Eynde 2018). An alternative exogenous source of income variations is the one induced by commodity price fluctuations. In particular, Dube & Vargas (2013) find that a drop in coffee prices in Colombia puts pressure on wages and can induce conflict events. In line with this, Berman et al. (2021) show that spikes in fertilizer prices can increase the likelihood of conflict.

Two main channels have been envisioned for interpreting these empirical regularities. The first one relates to the opportunity cost of fighting and basically states that individuals trade off the economic returns to violence against opportunity costs. The second one emphasizes how economic deprivation harms state capacity. The two channels have been perceived as observationally equivalent by many researchers, with adverse income shocks significantly and substantially increasing the risk of conflict in both cases. Though challenging, the question of disentangling these two channels is important, because their policy implications differ drastically (i.e., targeting populations versus infrastructures). Very recently, McGuirk & Burke (2017) have made substantial progress on the question; their findings point toward the prominent role of the opportunity cost.

In a nutshell, the literature has highlighted that, on the one hand, war causes impoverishment and, on the other hand, poverty fuels social tensions and political violence. We expect a series of vicious cycles linked to conflict and economic deprivation (and their covariates, such as low social and human capital) mutually reinforcing each other. Such vicious cycles can result in enduring war-poverty traps.

4.2.2. Mechanism 2: conflict and human capital/health nexus. Low education (Rohner & Saia 2019) and precarious health conditions (Cervellati et al. 2017) can be powerful drivers of conflict. Because war exposure drives down both human capital and health indicators (see Section 3), this can lead to a human capital/health-conflict vicious cycle. Again, the logic is similar to the one underlying the first mechanism above: War harms the economic potential, this time by destroying education and physical health, which leads to a depletion of human capital. In turn, reduced human capital has been found to increase the risk of conflicts, due both to the lower opportunity costs of fighting and to the fueling of social tensions and grievances (see De la Brière et al. 2017, Rohner & Saia 2019), which is the focus of our next section.

4.3. Feedback Loop: Grievances and Intergroup Trust

In this subsection we develop the notion that the logic of violence can self-perpetuate through grievances, distrust and activation of latent cleavages (ethnic, cultural, linguistic, or religious). By grievances we understand perceptions of exclusion (political, economic, or social), a sense of injustice, and the blaming of other groups or the state for it that manifest themselves, among other things, in distrust between groups. Economic mechanisms linked to development and human capital are not at the forefront of the vicious cycles and the war traps related to grievances. This obviously does not deny any role to poverty in these cycles, but it simply implies that beyond purely economic factors, a series of social and political mechanisms are at work, and that breaking such war traps requires moving beyond strictly economic policies.

Put bluntly, the mechanism we have in mind is that intergroup conflict leaves behind political scars and grievances that may facilitate the mobilization of fighters, fueling the risk of future wars.

In terms of game-theoretic models, these types of vicious cycles of self-perpetuating war have been studied, for example, by Rohner et al. (2013b) and Acemoglu & Wolitzky (2014). Rohner et al. (2013b) have constructed a rational choice model where the outbreak of a war results in lower intergroup trust and less frequent business relationships; by decreasing the opportunity cost of a war, this, in turn, increases the likelihood of future violence. This bidirectional relationship can give birth to what one could call a social capital–conflict vicious cycle.

In terms of the empirical evidence, the idea that grievances lead to conflict has been present in political science for many decades [see, e.g., the seminal works by Gurr (1970) and Horowitz (2000)].³ The activation of grievances can be engineered by elites, for example, through the mobilization of collective memories, emotions (anger, frustration), and narratives. While there has been a series of qualitative studies on the persistence and reactivation of grievances, there still exists relatively little quantitative work on this topic (see, e.g., Cederman et al. 2010, Fouka & Voth 2016, Ochsner & Roesel 2017). This relative lack of quantitative assessment of the activation of grievances is surprising, given how crucial this process is for designing the reconciliation process (on the role of narratives in reconciliation, see next section).⁴ We foresee here an avenue for future research at the crossroad of the conflict and media literature, drawing on machine learning and text analysis. Studying how grievances can persist over time, be reactivated, or be strategically manipulated by group leaders is of paramount importance.

A crucial factor can be horizontal inequalities between groups: The persistence and reactivation of grievances is often facilitated by the presence of economic disparities across groups (Fearon & Laitin 2003, Collier & Hoeffler 2004, Østby 2013, Stewart 2016, Huber & Mayoral 2018). This implies that economic and redistribution policies can help in curbing the grievance feedback loop on violence. Up to now, the empirical evidence on this has been quite slim (see, e.g., Crost et al. 2016), and pursuing this research question constitutes in our view a fruitful avenue for future work.

Last but not least, a further grievance-related vicious cycle is plausible: Wars often imply the calling of a state of emergency that suspends parts of constitutional rights, and fighting frequently entails violations of civil liberties and political rights. In turn, as discussed below, the lack of rule of law and of democratic political processes can be a powerful driver of grievances and insurgency. The resulting type of institutional breakdown–conflict vicious cycle constitutes a further mechanism through which grievance-related war traps can arise.

5. POLICIES TO BREAK THE WAR TRAP

5.1. First Principles: Fostering Development and Peace

We start the current section by formulating general first principles of how to tackle war traps, before studying a battery of particular policies. A key point concerns the dual facet of development policy: Poverty and conflict should be addressed simultaneously, due to the presence of a strong complementarity between the economic and political objectives. If problems of underdevelopment and political instability are treated disjointly, this entails a large risk of being stuck in a conflict trap, as argued below. In particular, it would be a mistake to believe that the tool kit of anti-poverty

³Shesterinina (2016) offers a case study of the Georgian–Abkhaz war of 1992–1993 and a survey of the political science literature on social structures for civil war mobilization.

⁴A likely reason for this lack of empirical works is that the first generation of empirical studies dismissed the role of grievances. In particular, the seminal study by Humphreys & Weinstein (2008) finds that evidence on participation to conflict is more consistent with explanations based on economic motives than on grievances. We advocate for a reexamination of the question in light of the now available and large micro-level data sets.

policies will mechanically and automatically translate into a reduction of violence. A fascinating study by Blattman et al. (2017) illustrates the empirical relevance of this complementarity between policy interventions (at the individual level in this paper). In Liberia, the authors recruited criminally engaged men—including former ex-combatants from two civil wars—and randomized a cognitive behavioral therapy designed to foster a battery of noncognitive skills. They also randomized \$200 grants. Their results point toward a reinforcement effect: While the effects of cash alone and therapy alone dissipated over time, they find that, when cash followed therapy, crime and violence decreased dramatically for at least one year. Thus, if just disbursing cash does not suffice, the key question becomes, what are the most promising policies that can simultaneously foster development and peace? Let us start with some examples of successful versus unsuccessful policies before setting up a simple formal model.

5.1.1. Policy macro complementarity. There is no doubt that a well-designed development program can curb both poverty and violence. International trade is an area where this dual facet of development policy (targeting both economics and politics) has been long recognized. In the aftermath of World War II, the construction of the European Union was based on the dual purpose of pacifying Western Europe and promoting economic reconstruction in an impoverished Europe. As shown by Martin et al. (2012), this logic explains the signature of many free trade agreements across the world since 1945; the reverse of the medal is that, for example, the United States–China trade war is both an economic and a geopolitical conflict. These reconstruction efforts after World War II were mirrored in the Marshall Plan aiming at restoring production capacities in Europe. As discussed above, this productive investment has been followed by an unprecedented economic boom of 30 years with growing human capital, surging wages, and a historically long span of peace in Europe.

A similar example of a policy aiming at raising human capital and productive efficiency has been the INPRES school construction program in Indonesia in the 1970s, which led to a historical boost in educational attainment. While the primary purpose of the program was to raise human capital, productive capacities, and wages, it achieved the double dividend of not only fostering economic advancement but also curbing conflict (Rohner & Saia 2019). Interestingly, many of the desirable consequences of the program—in terms of both economic and political outcomes—have surged over the course of many years, affecting not only the first but also the second generations of pupils.

One common feature of the aforementioned policies generating a powerful macro complementarity between development and peace is that they aim at fostering development not by disbursing one-off cash but by promoting long-run productive capacity, for example, through human capital investments or the building up of trade networks or production joint ventures. We revisit this feature in the simple formal model below.

5.1.2. Policies that backfire. By contrast, policies that fail at addressing jointly the two facets of poverty and political conflict may backfire. There are numerous examples of aid policies being potentially counterproductive when they are detached from local knowledge and do not take into account ground conditions and local ethnic politics. In a fascinating and controversial paper, Nunn & Qian (2014) causally find that an increase in US food aid may raise the incidence of armed civil conflict in recipient countries. Although their macro-level analysis prevents them from an in-depth investigation of the channels through which this happens, they provide substantial evidence that aid stealing by the fighting groups is likely to be the main driving force. Interestingly, they detect no effect of food aid on conflict in countries without a recent history of civil conflict. This means that a given policy can work well in a set of peaceful countries, but transposing it without adaptation to a context of conflict may result in worse outcomes. In other words, ill-designed

development policy can be detrimental to peace in contexts with latent cleavages in which the country is already trapped in a poverty–violence spiral.

Relatedly, Crost et al. (2014) document how insurgents in the Philippines have sabotaged a large World Bank–funded development program because its prospective success could have weakened their support in the population. Their RDD estimations point toward an increase in insurgent–initiated incidents in the early stages of program preparation. Quite surprisingly, it is because the program was potentially successful that it was sabotaged, leading in this context to a positive correlation between foreign aid and conflict. One lesson from this is that state capacity and the means to guarantee public security can be necessary preconditions for some types of policies.

Similar results have been found, for example, by Weintraub (2016), Wood & Molfino (2016), and Sexton (2016); Findley (2018) offers a literature review. Strikingly, these countervailing effects of aid have typically been detected in contexts where one major consequence of the policy intervention was to increase the overall amount of financial liquidities that could be looted in a given region, without affecting individual returns to productive activities. Drawing on this pattern, De la Brière et al. (2017) have advocated for investing mineral rents in human capital rather than in appropriable financial assets.

Although the World Bank is aware of this dual aspect of development policy (World Bank 2018), (unsurprisingly) there are only few quantitative evaluations of pacification policies and post-conflict interventions. This is a pervasive problem in the political economy literature, magnified here by the fact that implementing randomized controlled trials (RCTs) is notoriously difficult in a violent context. Collecting further, well-identified empirical evidence on the impact on conflict of various anti-poverty policies constitutes a fruitful avenue for future work.

5.2. A Simple Model on the Economics and Politics Complementarity

Before zooming in on particular promising policies, we want to take one step back and formalize in an extremely simple setting the main forces at work. Formal models of contest have been developed already several decades ago (see, e.g., Hirshleifer 2001 and the survey in Konrad 2009) but have quite rarely been linked to particular economic policies. An exception is the theoretical paper by Dal Bó & Dal Bó (2011) that illustrates how conflict exerts a social constraint on policy analysis: They show how a (first best) desirable economic policy in times of peace may turn to be detrimental in reality because of its impact on conflict.

In what follows, we consider (without any claim to novelty) the simplest possible workhorse model of contest from this literature and illustrate in this extremely simple and transparent setting the contrasting effects of particular anti-poverty policies that may promote peace or backfire. Consider a framework where two risk-neutral players (groups), A and B , fight to appropriate a prize R . Each player $i \in \{A, B\}$ optimally allocates their effort between a productive activity paid at a market price w (e.g., farming) and fighting for R (e.g., rents from natural resources) under the time constraint $l_i + f_i = 1$, where l_i and f_i stand for the time dedicated to laboring and fighting, respectively. Fighting success of i —to be interpreted as their probability of victory or, alternatively, the appropriated share of the prize—is modeled with a standard contest success function,

$$\mathbb{P}_i = \frac{\rho_i f_i}{\rho_i f_i + \rho_{-i} f_{-i}}, \quad 1.$$

where the nonnegative ρ s capture the fighting efficiencies of A and B . The payoff function of i is given by

$$\pi_i(f_i, f_{-i}) = \mathbb{P}_i(f_i, f_{-i}) \times R + (1 - f_i) \times w. \quad 2.$$

In this setting, the Nash equilibrium is unique, and the equilibrium level of fighting is given by

$$f_i^* = \frac{B}{4} \times \frac{R}{w}, \quad 3.$$

where $B \equiv \frac{\rho_A \rho_B}{(\frac{\rho_A + \rho_B}{2})^2}$. This parameter captures the balance of fighting power between the two players; it lies between 0 (fully unbalanced) and 1 (fully balanced). A well-known feature of the contest success function setup is that fighting efforts increase with the balance of power—a direct consequence of strategic interactions. More importantly for our purpose, we see that more fighting takes place when the prize is larger (high R) and when the opportunity cost of fighting is small (low w).

Aggregate welfare is given by $\mathcal{W} \equiv \pi_A + \pi_B = R + 2w - (f_A + f_B)w$. In words, the welfare loss attached to conflict stems from the fact that aggregate violence (i.e., total fighting effort $f_A + f_B$) diverts labor from production to appropriation. Note that in a slightly more evolved setting, one could add further direct costs of conflict by including a term consisting of multiplying fighting efforts with some linear destruction cost d ; however, this would not affect our main conclusions but would simply reduce somewhat the equilibrium fighting efforts.

Combining these observations with Equation 3, we obtain that the equilibrium level of welfare is given by

$$\mathcal{W}^* = R + 2w - B \times \frac{R}{2}. \quad 4.$$

The social optimum is reached when the welfare loss is minimized. This corresponds to a case where a benevolent social planner imposes a peaceful arrangement where the rent is shared between the two players with no fighting (i.e., the limit case in which $f_A = f_B \approx 0$). In that case, we have

$$\mathcal{W}^{\text{peace}} = R + 2w. \quad 5.$$

Let us assume that a development agency has to decide whether to allocate an amount Δ of aid toward increasing the rent (i.e., $R + \Delta$) or toward increasing labor income (i.e., $w + \Delta/2$, as the amount is divided between the two groups). If the agency is able to enforce peace, then it is indifferent between the two policies. But if peace cannot be maintained, then the policies have drastically diverging consequences on fighting incentives and welfare. The rent-oriented policy (e.g., disbursing cash without any support or program attached) exacerbates violence (see Equation 3), and there is some crowding out of production such that the resulting increase in aggregate welfare represents only a fraction, $(1 - B/2)$, of the initial aid (see Equation 4). By contrast, the productivity-enhancing policy (e.g., entailing the promotion of trade or human capital) reduces violence and its benefits are fully transmitted to aggregate welfare. In other words, the economic facet of development policy must factor in the social and political constraints linked to conflict. Ignoring this macro complementarity between economics and politics leads to miscalibrated policies that can have a detrimental impact on violence.

What does this mean in terms of the aforementioned anti-poverty policies? When policies aim to tackle underdevelopment by distributing one-off aid, a main effect can be to increase R , thereby triggering additional fighting effort, which could crowd out at least in part the initial positive effect of cash injection. In contrast, when policies aim at fostering productive capacity (e.g., by increasing human capital) and eventually also wages w , this leads to a higher opportunity cost of appropriation and is hence expected to lead to the double dividend of reduced poverty and reduced fighting.

These straightforward implications of a canonical contest model have, surprisingly, only rarely been analyzed within a unified empirical test. One exception is offered by Dube & Vargas (2013), who show that in Colombia a boom in the labor-intensive coffee industry (associated with higher wages for workers) has a pacifying effect, whereas higher oil prices increase the spoils of appropriation and are associated with greater fighting efforts.

Put in simple terms, one implication is that economic policies should be complemented with political and institutional interventions that call for a more integrative development, with productive investments in human and physical capital instead of one-off cash payments and with no one left behind in term of territories and population segments. If each group in society has promising production perspectives, its incentives for leaving the labor force to join armed rebel forces are slim.⁵

In what follows, we briefly highlight a series of particular policies that have been found promising to promote peace by increasing the opportunity cost of conflict, improving institutional quality, and attenuating grievances.

5.3. Policies That Increase the Opportunity Cost of Conflict

In what follows, we discuss the role of labor market access, education, and weapon embargoes.

5.3.1. Labor market access. A recent study by Blattman & Annan (2016) experimentally shows for Liberian ex-fighters that the persistence of violence can be attenuated by economic opportunities. In line with this evidence, Couttenier et al. (2019) find that adult asylum seekers who have been exposed during childhood to civil conflict and/or mass killing in their origin countries tend to perpetrate more violent crimes in Switzerland; crucially, this deleterious effect vanishes almost entirely for those who are granted an access to the Swiss labor market.

5.3.2. Education and human capital. Schooling construction has been found to be a major peace-promoting force by Rohner & Saia (2019). This paper exploits arguably exogenous variation in the intensity of the INPRES school construction program during the 1970s in Indonesia, finding that a 1 standard deviation increase in schools built (i.e., 1.25 more schools per 1,000 school-aged children) results in a drop of a quarter of the baseline conflict risk.

5.3.3. Weapons embargo. Restricting the access to weapons through the Arms Trade Treaty and international embargoes could be another policy that makes engaging in fighting more costly. There exists indeed ample evidence that weapons availability fuels violence (Dube et al. 2013, Benson & Ramsay 2016, Hultman & Peksen 2017, Gallea 2019). One caveat concerns the implementation: While weapons embargoes are seen as less costly for the general population compared to general trade sanctions, it has been found that they are typically not easy to enforce (Moore 2010).

5.4. Policies That Improve Institutional Quality

Below we discuss the role of democracy and power sharing and of policies addressing the natural resource curse.

⁵On the incentives for left-behind individuals and groups to engage in enduring fighting, readers are referred to Esteban et al. (2012, 2020) and the literature cited therein.

5.4.1. Role of democracy and power sharing. There is a substantial body of evidence that sound institutions and a mature democracy reduce considerably the scope for conflict (see, e.g., Hegre 2001, Besley & Persson 2011, Laurent-Lucchetti et al. 2019). In line with the argumentation above, Collier & Rohner (2008) find indeed a macro complementarity between development and democracy, with the conflict-reducing effect of democracy present above all for higher levels of development.

5.4.2. Breaking the natural resource curse. The literature linking natural resources to conflict ranges far back in time (see e.g., Fearon & Laitin 2003, Collier & Hoeffler 2004, Mehlum et al. 2006, Morelli & Rohner 2015, Berman et al. 2017). Importantly, the detrimental political instability effects of resource abundance are not a fatality, as good institutions can make sure that natural resources are a blessing and not a curse (Mehlum et al. 2006). As far as specific mining characteristics are concerned, Berman et al. (2017) find that transparency/traceability initiatives and corporate social responsibility are key ramparts against the potentially harmful impacts of the mining industry on peace.

5.5. Policies That Attenuate Grievances

As shown by Cilliers et al. (2016), truth and reconciliation processes can foster reconciliation and strengthen social capital, but at the price of worsened psychological health. As stressed by Cantoni et al. (2017), school curricula can affect people's beliefs and attitudes and may play a role in reconciliation processes, which could be a fruitful avenue for future research.

5.6. Policy Evaluation

Our reading of the literature shows that the evaluation of policy interventions in conflict and post-conflict contexts is still in its infancy. One obvious reason is that the frontier tool kit for evidence-based policy evaluation (e.g., RCTs) is notoriously hard to implement when violence is pervasive. We believe that future studies should try to tackle this challenge. Indeed, our previous discussion on the macro complementarity between economic and political objectives suggests that the lessons drawn from interventions (and their evaluations) designed in a peaceful context should be transposed with great caution into a conflictual environment. In other words, the optimal designs of anti-poverty policies in peace and in war may drastically differ.

A powerful way of addressing this challenge is to set up and estimate structural models of conflict and development that allow for the quantification of counterfactual policy interventions. Following such an approach can yield additional insights, as the structural estimation tool kit is able to deal with general equilibrium effects and to assess nonlinear effects of policy changes of variable magnitude, contrary to RCTs, RDDs, and so on. Thus, it seems important to complement pure theory and reduced-form estimation with structural models englobing both theory and empirics, especially given the two-way causation between conflict and development. This methodology has so far been used only rarely in the economics of conflict. There exist, though, a few exceptions of recent papers making first steps in this direction. Esteban et al. (2012) start out from a model of contest to derive predictions on indicators of diversity and inequality that are directly taken to the data. König et al. (2017) structurally estimate a contest-network model using data from the Second Congo War, which allows them to predict the impact of key player removal, embargoes, and bilateral pacification between armed groups [see also the recent related paper by Amarasinghe et al. (2020)]. Following a trend similar to the one observed recently in other fields (e.g., labor economics or trade), we expect structural estimations to become useful additions to the tool kit available to the conflict literature in the coming years.

6. CONCLUSIONS

Several conclusions arise from the above discussion. One key reason conflict is still often overlooked as a major factor in development policies is that conflict costs are often underestimated, as the shadow costs of costly deterrence spending are typically disregarded by policy makers. Once the true costs of political tensions are taken into account, anti-poverty measures are more likely to adequately take into consideration their impact on political stability. This would typically shift the focus from one-off cash transfers to longer-run investments in human capital, sound institutions, and productive capacities. While the former (cash) constitutes spoils to be appropriated, the latter (increased productive capabilities) raises wages and drives up the opportunity cost of leaving the workforce to join an armed group. Moreover, there exists a series of conflict traps, some related to vicious cycles and poverty and others linked to the persistence and activation of grievances. In order to break these conflict traps, policies need to address jointly both poverty and social tensions, as there exists a strong macro complementarity between the two. Policies that focus only on poverty or only on conflict are in many cases doomed to fail, and the most promising policy measures typically advance both peace and development at the same time. The idea that development policies should be combined with conflict prevention is now well rooted in the doctrine of international agencies, as testified by the joint United Nations–World Bank initiative called Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict (see World Bank 2018). Still, the macro complementarities highlighted in this review are not well understood yet, and the particular policies proposed above are still underused.

In terms of an outlook on the evolution of this literature, we expect machine learning and geographical information systems to play an increasingly important role. Digitally driven data design, geolocalized data and remote sensing data, machine learning, web scraping, and text analysis will all constitute increasingly helpful tools to generate novel data to answer novel research questions. Beyond this evolution of the data collection tools, we also predict a return of theory and an increasing importance of external validity considerations. While exploiting exogenous variations around some small-scale thresholds in well-defined micro settings can be extremely valuable and insightful, this approach needs to be combined with larger-scale studies that cover larger areas and that are micro-founded in theory. In many contexts—and this is our fourth and last major conclusion—structurally estimated quantitative models can play a useful role.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

ACKNOWLEDGMENTS

D.R. gratefully acknowledges financial support from the ERC Starting Grant POLICIES FOR PEACE-677595. M.T. acknowledges financial support from the SNF-Grant 182242.

LITERATURE CITED

- Abadie A, Gardeazabal J. 2003. The economic costs of conflict: a case study of the Basque Country. *Am. Econ. Rev.* 93:113–32
- Acemoglu D, Hassan TA, Robinson JA. 2011. Social structure and development: a legacy of the Holocaust in Russia. *Q. J. Econ.* 126:895–946
- Acemoglu D, Robinson JA. 2001. A theory of political transitions. *Am. Econ. Rev.* 91:938–63

- Acemoglu D, Wolitzky A. 2014. Cycles of conflict: an economic model. *Am. Econ. Rev.* 104:1350–67
- Aghion P, Jaravel X, Persson T, Rouzet D. 2019. Education and military rivalry. *J. Eur. Econ. Assoc.* 17:376–412
- Akbulut-Yuksel M, Yuksel M. 2015. The long-term direct and external effects of Jewish expulsions in Nazi Germany. *Am. Econ. J. Econ. Policy* 7:58–85
- Akresh R, Bhalotra S, Leone M, Osili UO. 2012a. War and stature: growing up during the Nigerian civil war. *Am. Econ. Rev.* 102:273–77
- Akresh R, Lucchetti L, Thirumurthy H. 2012b. Wars and child health: evidence from the Eritrean–Ethiopian conflict. *J. Dev. Econ.* 99:330–40
- Algan Y, Cahuc P. 2010. Inherited trust and growth. *Am. Econ. Rev.* 100:2060–92
- Allansson M, Melander E, Themnér L. 2017. Organized violence, 1989–2016. *J. Peace Res.* 54:574–87
- Amarasinghe A, Raschky P, Zenou Y, Zhou J. 2020. *Conflicts in spatial networks*. CEPR Discuss. Pap. 14300, Cent. Econ. Policy Res., London
- Bae SH, Ott AF. 2008. Predatory behavior of governments: the case of mass killing. *Def. Peace Econ.* 19:107–25
- Barenbaum J, Ruchkin V, Schwab-Stone M. 2004. The psychosocial aspects of children exposed to war: practice and policy initiatives. *J. Child Psychol. Psychiatry* 45:41–62
- Barro RJ, Sala-i-Martin X. 1995. *Economic Growth*. New York: McGraw-Hill
- Bauer M, Blattman C, Chytilová J, Henrich J, Miguel E, Mitts T. 2016. Can war foster cooperation? *J. Econ. Perspect.* 30:249–74
- Bazzi S, Blattman C. 2014. Economic shocks and conflict: evidence from commodity prices. *Am. Econ. J. Macroecon.* 6:1–38
- Becker SO, Grosfeld I, Grosjean P, Voigtlander N, Zhuravskaya E. 2020. Forced migration and human capital: evidence from post-WWII population transfers. *Am. Econ. Rev.* 110:1430–63
- Bedard K, Deschênes O. 2006. The long-term impact of military service on health: evidence from World War II and Korean War veterans. *Am. Econ. Rev.* 96:176–94
- Bellows J, Miguel E. 2009. War and local collective action in Sierra Leone. *J. Public Econ.* 93:1144–57
- Benson B, Ramsay K. 2016. *Trading fire: the arms trade network and civil war*. Work. Pap., Vanderbilt Univ., Nashville, TN
- Berman N, Couttenier M, Rohner D, Thoenig M. 2017. This mine is mine! How minerals fuel conflicts in Africa. *Am. Econ. Rev.* 107:1564–610
- Berman N, Couttenier M, Soubeyran R. 2021. Fertile ground for conflict. *J. Eur. Econ. Assoc.* 19:82–127
- Besley T, Fetzer T, Mueller H. 2015. The welfare cost of lawlessness: evidence from Somali piracy. *J. Eur. Econ. Assoc.* 13:203–39
- Besley T, Mueller H. 2012. Estimating the peace dividend: the impact of violence on house prices in Northern Ireland. *Am. Econ. Rev.* 102:810–33
- Besley T, Persson T. 2011. The logic of political violence. *Q. J. Econ.* 126:1411–45
- Besley T, Reynal-Querol M. 2014. The legacy of historical conflict: evidence from Africa. *Am. Political Sci. Rev.* 108:319–36
- Blattman C. 2009. From violence to voting: war and political participation in Uganda. *Am. Political Sci. Rev.* 103:231–47
- Blattman C, Annan J. 2016. Can employment reduce lawlessness and rebellion? A field experiment with high-risk men in a fragile state. *Am. Political Sci. Rev.* 110:1–17
- Blattman C, Jamison JC, Sheridan M. 2017. Reducing crime and violence: experimental evidence from cognitive behavioral therapy in Liberia. *Am. Econ. Rev.* 107:1165–206
- Blattman C, Miguel E. 2010. Civil war. *J. Econ. Lit.* 48:3–57
- Bozzoli C, Brück T, Sottas S. 2010. A survey of the global economic costs of conflict. *Def. Peace Econ.* 21:165–76
- Brakman S, Garretsen H, Schramm M. 2004. The strategic bombing of German cities during World War II and its impact on city growth. *J. Econ. Geogr.* 4:201–18
- Brückner M, Ciccone A. 2010. International commodity prices, growth and the outbreak of civil war in Sub-Saharan Africa. *Econ. J.* 120:519–34
- Burke M, Hsiang SM, Miguel E. 2015. Climate and conflict. *Annu. Rev. Econ.* 7:577–617
- Cacault M, Goette L, Lalive R, Thoenig M. 2015. Do we harm others even if we don't need to? *Front. Psychol.* 6:729

- Cantoni D, Chen Y, Yang DY, Yuchtman N, Zhang YJ. 2017. Curriculum and ideology. *J. Political Econ.* 125:338–92
- Cassar A, Grosjean P, Whitt S. 2013. Legacies of violence: trust and market development. *J. Econ. Growth* 18:285–318
- Cecchi F, Leuvelde K, Voors M. 2016. Conflict exposure and competitiveness: experimental evidence from the football field in Sierra Leone. *Econ. Dev. Cult. Change* 64:405–35
- Cederman LE, Wimmer A, Min B. 2010. Why do ethnic groups rebel? New data and analysis. *World Politics* 62:87–119
- Cerra V, Saxena SC. 2008. Growth dynamics: the myth of economic recovery. *Am. Econ. Rev.* 98:439–57
- Cervellati M, Sunde U, Valmori S. 2017. Pathogens, weather shocks and civil conflicts. *Econ. J.* 127:2581–616
- Chamarbagwala R, Morán HE. 2011. The human capital consequences of civil war: evidence from Guatemala. *J. Dev. Econ.* 94:41–61
- Cilliers J, Dube O, Siddiqi B. 2016. Reconciling after civil conflict increases social capital but decreases individual well-being. *Science* 352:787–94
- Cohen Dk. 2013. Explaining rape during civil war: cross-national evidence (1980–2009). *Am. Political Sci. Rev.* 107:461–77
- Collier P. 1999. On the economic consequences of civil war. *Oxf. Econ. Pap.* 51:168–83
- Collier P. 2008. *The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It*. Oxford, UK: Oxford Univ. Press
- Collier P, Hoeffler A. 2004. Greed and grievance in civil war. *Oxf. Econ. Pap.* 56:563–95
- Collier P, Rohner D. 2008. Democracy, development, and conflict. *J. Eur. Econ. Assoc.* 6:531–40
- Couttenier M, Petrencu V, Rohner D, Thoenig M. 2019. The violent legacy of conflict: evidence on asylum seekers, crime, and public policy in Switzerland. *Am. Econ. Rev.* 109:4378–425
- Crost B, Felter JH, Johnston PB. 2014. Aid under fire: development projects and civil conflict. *Am. Econ. Rev.* 104:1833–56
- Crost B, Felter JH, Johnston PB. 2016. Conditional cash transfers, civil conflict and insurgent influence: experimental evidence from the Philippines. *J. Dev. Econ.* 118:171–82
- Dal Bó E, Dal Bó P. 2011. Workers, warriors, and criminals: social conflict in general equilibrium. *J. Eur. Econ. Assoc.* 9:646–77
- Davis DR, Weinstein DE. 2002. Bones, bombs, and break points: the geography of economic activity. *Am. Econ. Rev.* 92:1269–89
- De la Brière B, Filmer D, Ringold D, Rohner D, Samuda K, Denisova A. 2017. *From Mines and Wells to Well-Built Minds: Turning Sub-Saharan Africa's Natural Resource Wealth into Human Capital*. Washington, DC: World Bank
- Dell M. 2012. *Path dependence in development: evidence from the Mexican Revolution*. Work. Pap., Harvard Univ., Cambridge, MA
- Dell M, Jones BF, Olken BA. 2014. What do we learn from the weather? The new climate-economy literature. *J. Econ. Lit.* 52:740–98
- Dell M, Querubin P. 2018. Nation building through foreign intervention: evidence from discontinuities in military strategies. *Q. J. Econ.* 133:701–64
- Derluyn I, Broekaert E, Schuyten G, De Temmerman E. 2004. Post-traumatic stress in former Ugandan child soldiers. *Lancet* 363:861–63
- Derouen KR, Bercovitch J. 2008. Enduring internal rivalries: a new framework for the study of civil war. *J. Peace Res.* 45:55–74
- Djankov S, Reynal-Querol M. 2010. Poverty and civil war: revisiting the evidence. *Rev. Econ. Stat.* 92:1035–41
- Dube A, Dube O, García-Ponce O. 2013. Cross-border spillover: US gun laws and violence in Mexico. *Am. Political Sci. Rev.* 107:397–417
- Dube O, Vargas JF. 2013. Commodity price shocks and civil conflict: evidence from Colombia. *Rev. Econ. Stud.* 80:1384–421
- Esteban J, Flamand S, Morelli M, Rohner D. 2020. *A dynamic theory of secessionist versus centrist conflict*. CEPR Discuss. Pap. DP14635, Cent. Econ. Policy Res., London
- Esteban J, Mayoral L, Ray D. 2012. Ethnicity and conflict: an empirical study. *Am. Econ. Rev.* 102:1310–42

- Fearon JD, Laitin DD. 2003. Ethnicity, insurgency, and civil war. *Am. Political Sci. Rev.* 97:75–90
- Findley MG. 2018. Does foreign aid build peace? *Annu. Rev. Political Sci.* 21:359–84
- Fouka V, Voth HJ. 2016. *Reprisals remembered: German–Greek conflict and car sales during the Euro crisis*. Work. Pap. 587, Stanford Univ., Stanford, CA
- Gallea Q. 2019. *Arming opposition: measuring the effect of arms transfers on internal conflict*. Tech. rep., Univ. Lausanne, Lausanne, Switz.
- Ghobarah HA, Huth P, Russett B. 2003. Civil wars kill and maim people—long after the shooting stops. *Am. Political Sci. Rev.* 97:189–202
- Gilligan MJ, Pasquale BJ, Samii C. 2014. Civil war and social cohesion: lab-in-the-field evidence from Nepal. *Am. J. Political Sci.* 58:604–19
- Glick R, Taylor AM. 2010. Collateral damage: trade disruption and the economic impact of war. *Rev. Econ. Stat.* 92:102–27
- Goertz G, Diehl PF. 1993. Enduring rivalries: theoretical constructs and empirical patterns. *Int. Stud. Q.* 37:147–71
- Gurr TR. 1970. *Why Men Rebel*. Princeton, NJ: Princeton Univ. Press
- Hegre H. 2001. Toward a democratic civil peace? Democracy, political change, and civil war, 1816–1992. *Am. Political Sci. Rev.* 95:33–48
- Hidalgo FD, Naidu S, Nichter S, Richardson N. 2010. Economic determinants of land invasions. *Rev. Econ. Stat.* 92:505–23
- Hirsch-Hoefler S, Canetti D, Rapaport C, Hobfoll SE. 2016. Conflict will harden your heart: exposure to violence, psychological distress, and peace barriers in Israel and Palestine. *Br. J. Political Sci.* 46:845–59
- Hirshleifer J. 2001. *The Dark Side of the Force: Economic Foundations of Conflict Theory*. Cambridge, UK: Cambridge Univ. Press
- Hoeffler A. 2017. What are the costs of violence? *Politics Philos. Econ.* 16:422–45
- Horowitz DL. 2000. *Ethnic Groups in Conflict*. Berkeley: Univ. Calif. Press
- Hsiang SM, Burke M, Miguel E. 2013. Quantifying the influence of climate on human conflict. *Science* 341:1235367
- Huber JD, Mayoral L. 2018. *Group inequality and civil conflict*. Work. Pap., Columbia Univ., New York
- Hultman L, Peksen D. 2017. Successful or counterproductive coercion? The effect of international sanctions on conflict intensity. *J. Confl. Resolut.* 61:1315–39
- Humphreys M, Weinstein JM. 2008. Who fights? The determinants of participation in civil war. *Am. J. Political Sci.* 52:436–55
- Inst. Econ. Peace. 2018. *The economic value of peace*. Sydney, Aust.: Inst. Econ. Peace
- Kocher MA, Pepinsky TB, Kalyvas SN. 2011. Aerial bombing and counterinsurgency in the Vietnam War. *Am. J. Political Sci.* 55:201–18
- König MD, Rohner D, Thoenig M, Zilibotti F. 2017. Networks in conflict: theory and evidence from the great war of Africa. *Econometrica* 85:1093–132
- Konrad KA. 2009. *Strategy and Dynamics in Contests*. New York: Oxford Univ. Press
- Laurent-Lucchetti J, Rohner D, Thoenig M. 2019. *Ethnic conflicts and the informational dividend of democracy*. Work. Pap., Univ. Geneva, Geneva, Switz.
- León G. 2012. Civil conflict and human capital accumulation: the long-term effects of political violence in Perú. *J. Hum. Resour.* 47:991–1022
- Mankiw NG, Romer D, Weil DN. 1992. A contribution to the empirics of economic growth. *Q. J. Econ.* 107:407–37
- Martin P, Mayer T, Thoenig M. 2008a. Civil wars and international trade. *J. Eur. Econ. Assoc.* 6:541–50
- Martin P, Mayer T, Thoenig M. 2008b. Make trade not war? *Rev. Econ. Stud.* 75:865–900
- Martin P, Mayer T, Thoenig M. 2012. The geography of conflicts and regional trade agreements. *Am. Econ. J. Macroecon.* 4:1–35
- McGuirk E, Burke M. 2017. *The economic origins of conflict in Africa*. NBER Work. Pap. 23056
- Mehlum H, Moene K, Törvik R. 2006. Institutions and the resource curse. *Econ. J.* 116:1–20
- Miguel E, Roland G. 2011. The long-run impact of bombing Vietnam. *J. Dev. Econ.* 96:1–15
- Miguel E, Satyanath S, Sergenti E. 2004. Economic shocks and civil conflict: an instrumental variables approach. *J. Political Econ.* 112:725–53

- Minoiu C, Shemyakina ON. 2014. Armed conflict, household victimization, and child health in Côte d'Ivoire. *J. Dev. Econ.* 108:237–55
- Moore M. 2010. Arming the embargoed: a supply-side understanding of arms embargo violations. *J. Confl. Resolut.* 54:593–615
- Morelli M, Rohner D. 2015. Resource concentration and civil wars. *J. Dev. Econ.* 117:32–47
- Mueller H. 2012. Growth dynamics: the myth of economic recovery. Comment. *Am. Econ. Rev.* 102:3774–77
- Nunn N, Qian N. 2014. US food aid and civil conflict. *Am. Econ. Rev.* 104:1630–66
- Ochsner C. 2017. *Dismantled once, diverged forever? A quasi-natural experiment of Red Army's misdeeds in post-WWII Europe.* ifo Work. Pap. 240, ifo Inst., Univ. Munich, Munich, Ger.
- Ochsner C, Roessler F. 2017. *Activated history—the case of the Turkish sieges of Vienna.* CESifo Work. Pap. 6586, CESifo, Munich, Ger.
- Organski AF, Kugler J. 1977. The costs of major wars: the phoenix factor. *Am. Political Sci. Rev.* 71:1347–66
- Osafo-Kwaako P, Robinson JA. 2013. Political centralization in pre-colonial Africa. *J. Comp. Econ.* 41:6–21
- Østby G. 2013. Inequality and political violence: a review of the literature. *Int. Area Stud. Rev.* 16:206–31
- Ray D, Esteban J. 2017. Conflict and development. *Annu. Rev. Econ.* 9:263–93
- Rohner D, Saia A. 2019. *Education and conflict: evidence from a policy experiment in Indonesia.* HiCN Work. Pap. 304, Househ. Confl. Netw., Berlin, Ger.
- Rohner D, Thoenig M, Zilibotti F. 2013a. Seeds of distrust: conflict in Uganda. *J. Econ. Growth* 18:217–52
- Rohner D, Thoenig M, Zilibotti F. 2013b. War signals: a theory of trade, trust, and conflict. *Rev. Econ. Stud.* 80:1114–47
- Rother MB, Pierre MG, Lombardo D, Herrala R, Toffano MP, et al. 2016. *The economic impact of conflicts and the refugee crisis in the Middle East and North Africa.* IMF Staff Discuss. Note, Int. Monet. Fund, Washington, DC
- Sexton R. 2016. Aid as a tool against insurgency: evidence from contested and controlled territory in Afghanistan. *Am. Political Sci. Rev.* 110:731–49
- Shemyakina O. 2011. The effect of armed conflict on accumulation of schooling: results from Tajikistan. *J. Dev. Econ.* 95:186–200
- Shesterinina A. 2016. Collective threat framing and mobilization in civil war. *Am. Political Sci. Rev.* 110:411–27
- Smith RP. 2014. The economic costs of military conflict. *J. Peace Res.* 51:245–56
- Stewart F. 2016. *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies.* New York: Springer
- Stiglitz JE, Bilmes LJ. 2008. *The Three Trillion Dollar War: The True Cost of the Iraq Conflict.* New York: W.W. Norton & Co.
- Themnér L, Wallensteen P. 2012. UCDP/PRIO armed conflict dataset. *J. Peace Res.* 49:565–75
- Tilly C. 2017. War making and state making as organized crime. In *Collective Violence, Contentious Politics, and Social Change: A Charles Tilly Reader*, ed. E Castañeda, CL Schneider, pp. 121–39. London: Routledge
- UN News (United Nations News). 2016. Global humanitarian appeal for 2017 requires record \$22.2 billion in funding. *UN News*, Dec. 5. <https://news.un.org/en/story/2016/12/546932-global-humanitarian-appeal-2017-requires-record-222-billion-funding-un>
- UNHCR (United Nations High Comm. Refug.). 2017. *Global Trends: Forced Displacement in 2016.* Geneva, Switz.: UNHCR
- Vanden Eynde O. 2018. Targets of violence: Evidence from India's Naxalite conflict. *Econ. J.* 128:887–916
- Verwimp P, Van Bavel J. 2013. Schooling, violent conflict, and gender in Burundi. *World Bank Econ. Rev.* 28:384–411
- Vlachos S. 2016. *The legacy of war exposure on political radicalization.* Work. Pap., Univ. Lausanne, Lausanne, Switz.
- Voigtländer N, Voth HJ. 2012a. Persecution perpetuated: the medieval origins of anti-Semitic violence in Nazi Germany. *Q. J. Econ.* 127:1339–92
- Voigtländer N, Voth HJ. 2012b. The three horsemen of riches: plague, war, and urbanization in early modern Europe. *Rev. Econ. Stud.* 80:774–811
- Voors MJ, Nillesen EE, Verwimp P, Bulte EH, Lensink R, Van Soest DP. 2012. Violent conflict and behavior: a field experiment in Burundi. *Am. Econ. Rev.* 102:941–64

- Waldinger F. 2016. Bombs, brains, and science: the role of human and physical capital for the creation of scientific knowledge. *Rev. Econ. Stat.* 98:811–31
- Weintraub M. 2016. Do all good things go together? Development assistance and insurgent violence in civil war. *J. Politics* 78:989–1002
- Wood RM, Molfino E. 2016. Aiding victims, abetting violence: the influence of humanitarian aid on violence patterns during civil conflict. *J. Glob. Secur. Stud.* 1:186–203
- World Bank. 2018. *Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict*. Washington, DC: World Bank

Contents

Emmanuel Farhi, Economist Par Excellence <i>Jean Tirole</i>	1
The Political Economy of Deep Integration <i>Giovanni Maggi and Ralph Ossa</i>	19
Large Games: Robustness and Stability <i>Ronen Gradwohl and Ehud Kalai</i>	39
Does Vote Trading Improve Welfare? <i>Alessandra Casella and Antonin Macé</i>	57
What Shapes the Quality and Behavior of Government Officials? Institutional Variation in Selection and Retention Methods <i>Claire S.H. Lim and James M. Snyder Jr.</i>	87
The Elusive Peace Dividend of Development Policy: From War Traps to Macro Complementarities <i>Dominic Robner and Mathias Thoenig</i>	111
Why Does Globalization Fuel Populism? Economics, Culture, and the Rise of Right-Wing Populism <i>Dani Rodrik</i>	133
Systemic Risk in Financial Networks: A Survey <i>Matthew O. Jackson and Agathe Pernoud</i>	171
The International Aspects of Macroprudential Policies <i>Kristin J. Forbes</i>	203
Estimating DSGE Models: Recent Advances and Future Challenges <i>Jesús Fernández-Villaverde and Pablo A. Guerrón-Quintana</i>	229
Firm Dynamics and Trade <i>George Alessandria, Costas Arkolakis, and Kim J. Ruhl</i>	253
The Economics of Currency Risk <i>Tarek A. Hassan and Tony Zhang</i>	281
Empirical Models of Industry Dynamics with Endogenous Market Structure <i>Steven T. Berry and Giovanni Compiani</i>	309

The Macroeconomics of Financial Speculation <i>Alp Simsek</i>	335
Uncertainty Spillovers for Markets and Policy <i>Lars Peter Hansen</i>	371
A Helicopter Tour of Some Underlying Issues in Empirical Industrial Organization <i>Ariel Pakes</i>	397
The Story of the Real Exchange Rate <i>Oleg Itskhoki</i>	423
Choice in Insurance Markets: A Pigouvian Approach to Social Insurance Design <i>Nathaniel Hendren, Camille Landais, and Johannes Spinnewijn</i>	457
The Econometrics of Early Childhood Human Capital and Investments <i>Flavio Cunha, Eric Nielsen, and Benjamin Williams</i>	487
Sufficient Statistics Revisited <i>Henrik J. Kleven</i>	515
The Blossoming of Economic Epidemiology <i>David McAdams</i>	539
Directed Technical Change in Labor and Environmental Economics <i>David Hémons and Morten Olsen</i>	571
Inflation Inequality: Measurement, Causes, and Policy Implications <i>Xavier Jaravel</i>	599
Theoretical Foundations of Relational Incentive Contracts <i>Joel Watson</i>	631

Indexes

Cumulative Index of Contributing Authors, Volumes 9–13	661
--	-----

Errata

An online log of corrections to *Annual Review of Economics* articles may be found at <http://www.annualreviews.org/errata/economics>