

# 3

## *Poverty and Violence: An Overview of Recent Research and Implications for Foreign Aid*

EDWARD MIGUEL

**D**OZENS OF COUNTRIES around the world have suffered civil conflicts in the past few decades, with the highest concentration in Sub-Saharan Africa. The humanitarian consequences have been staggering: at least 3 million civilian deaths in the Democratic Republic of the Congo's (the former Zaire) civil war, and millions of other deaths in Sudan, Rwanda, Sierra Leone, Angola, Somalia, Uganda, Mozambique, and Liberia, among others. And civil conflict is not just an African problem, as continuing violence in the Middle East and elsewhere (Colombia, Nepal, etc.) demonstrates.

The direct humanitarian consequences of war for survivors are enormous in physical insecurity, loss of property, and psychological trauma. There may also be lasting economic development costs for societies that experience violent civil conflicts. And the international "spillover" effects of conflicts can be large for neighboring countries faced with refugee flows, lawlessness on their borders, and the illicit trades in drugs, arms, and minerals that proliferate in conflict zones. This insecurity has foreign policy implications for the United States along multiple dimensions.

But what causes this insecurity and what can be done about it? In this chapter, I first describe recent academic research that finds a strong link leading from poverty to violence in less developed countries. I then lay out some of the implications of this core finding for public policy and in particular for the design of foreign aid.

## **Poverty Leads to Violence in Less Developed Countries**

There is increasing evidence of a poverty-violence nexus, at both the macro and micro levels of analysis. This section surveys and critiques recent academic research, highlighting the key findings.

### *Cross-Country Evidence*

There are multiple hypotheses regarding the central causes of violent conflict in less developed countries. Oversimplifying a little, there are two main lines of theorizing. One set of theories stresses the role that political repression, or what are sometimes called “grievance” factors, play in driving conflict. In this view, ethnic groups that experience discrimination should be the most likely to organize armed insurrections against the state, and conflicts should be most likely to erupt in undemocratic states and those with pronounced social divisions.

A second set of theories focuses on economic conditions as paramount, rather than political factors. In other words, in this view, poverty and falling income are the key to sparking civil conflicts. This may either be because poverty breeds armed violence aimed at looting assets and natural resources or, in a variant on the theory advanced by Fearon and Laitin,<sup>1</sup> because poor states simply have limited institutional capacity to repress armed uprisings.

Of course, these two sets of theories are not mutually exclusive; a region that is neglected by the central government in terms of public investment and jobs may become poorer due to its political marginalization, leading to violence. In this case, both perspectives apply.

Turning to the evidence, there is strong support for the poverty-violence nexus. Recent academic research analyzing patterns in real-world data strongly favors the claim that poverty and falling income are the critical drivers of violent conflict in less developed countries. In fact, the poverty-violence link is arguably the most robust finding in the growing research literature investigating the causes of civil wars. But, in a twist, there is far less solid evidence linking political repression to violent conflict.

In a cross-section of countries around the world, Collier and Hoeffler find strong correlations between national income levels and economic growth rates on one hand and the occurrence of civil conflict on the other.<sup>2</sup> They make the theoretical point that joining an armed group becomes more attractive, especially for unemployed young men, when legitimate income-earning options are scarce. There are often numerous lucrative looting, mining, and

smuggling opportunities open to armed groups in many developing societies. In contrast, in their study, the measures of country democracy, income inequality, and ethnic fragmentation are not robustly associated with civil conflict, although they note that research on the role these factors play in civil war's onset remains active.<sup>3</sup>

The key methodological concern with this poverty-violence analysis is the possibility of reverse causation: Could violence be leading to poor economic outcomes in the data, rather than vice versa? Or similarly, could the same institutional factors that lead to political instability and violence also be responsible for poor economic performance?

#### *Rainfall Variation and Civil Conflict*

To address these concerns, Miguel, Satyanath, and Sergenti use an alternative statistical approach.<sup>4</sup> With annual country-level data for Africa during the period 1981–99, they studied the effect of droughts (sharp drops in rainfall) on conflict. Droughts lead to large reductions in income in Africa, where the vast majority of the population relies on rain-fed subsistence agriculture. Droughts have the analytical advantage of not being subject to reverse causality; civil war does not cause drought.

Accurate satellite-based rainfall data were utilized to deal with the absence of reliable ground-based rainfall meters in many parts of Sub-Saharan Africa. In particular, the Global Precipitation Climatology Project (GPCP) database of monthly rainfall estimates, which stretches back to 1979, was used as a source of data on weather variation.<sup>5</sup> The GPCP data rely on a combination of actual weather station rainfall gauge measures and satellite information on cold cloud cover density (which is closely related to actual precipitation) to derive rainfall estimates.

As far as the mechanics of the rainfall data are concerned, Miguel, Satyanath, and Sergenti have rainfall estimates for each point at which latitude and longitude degree lines cross, at 2.5 degree intervals.<sup>6</sup> Using this data set, Kenya, a medium-sized African country, contains eight rainfall data “nodes,” whereas the largest country, Sudan, contains thirty-four nodes. The GPCP rainfall measure at latitude-longitude degree node point  $p$  in country  $i$  during month  $m$  of year  $t$  is denoted  $R_{ipmt}$ , and the researchers denote the average rainfall across all points  $p$  and months  $m$  for that year as  $R_{it}$ . The principal measure of a rainfall shock is the proportional change in rainfall from the previous year:  $(R_{it} - R_{i,t-1})/R_{i,t-1}$ . Various alternative measures of rainfall variation were examined—including the sum of squared rainfall deviations across all nodes in a given year, absolute rainfall deviations (from average

levels), and absolute rainfall deviations greater than certain threshold levels—but these measures are not as strongly correlated with income growth. Descriptive statistics indicate that there is considerable variation in rainfall in the sample, and this holds both across countries and through time for the same country. Recall that rainfall variability is much greater in Sub-Saharan Africa than in tropical regions of Asia or the Americas.<sup>7</sup>

In terms of the civil conflict data, most contributors to the existing literature have worked with, or built on, the Correlates of War (COW) database. However, the lack of transparency and inconsistencies of the COW database are well known. For instance, it is unclear if the COW database uses 1,000 cumulative deaths or 1,000 per year when identifying a civil war. Furthermore, the arbitrary 1,000-death threshold the COW database uses to identify a civil war has the danger of excluding conflicts that may be major for smaller countries, including many African countries.

Miguel, Satyanath, and Sergenti instead used the Armed Conflict Data database developed by the International Peace Research Institute of Oslo and the University of Uppsala (referred to as PRIO/Uppsala). The PRIO/Uppsala database is more transparent in its construction than COW, and also, uniquely, records all conflicts with a threshold of 25 battle deaths per year, in addition to classifying conflicts by the standard 1,000-death threshold, thus including more small conflicts in the analysis. An armed conflict is defined in the PRIO/Uppsala database as follows: “a contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths.”<sup>8</sup> The database is careful to only focus on politically motivated violence.

Note that, like other cross-country civil war data sets, PRIO/Uppsala unfortunately does not include conflict information at the subnational level; nor does it provide the exact number of conflict deaths, and this by necessity limits certain aspects of the analysis. The analysis has other limitations. First, the above definition of conflict means that Miguel, Satyanath, and Sergenti do not capture many important types of organized violence in Sub-Saharan Africa that do not directly involve the state—for instance, clashes among pastoralist groups in northern Kenya—that are of considerable research interest in their own right. Finally, though the PRIO/Uppsala database also includes detailed information on conflicts between countries, Miguel, Satyanath, and Sergenti focus exclusively on civil wars.

The civil conflict indicator variable takes on a value of 1 for all country-year observations with a civil conflict in progress with at least 25 battle

deaths per year (or 1,000 battle deaths, in some specifications), and other observations are zeros. Civil conflict was remarkably widespread in Sub-Saharan Africa during the period 1981–99; there was civil conflict in fully 27 percent of all country-year observations, according to the PRIO/Uppsala 25-annual-battle-deaths definition; 17 percent according to the PRIO/Uppsala 1,000-deaths definition; and 24 percent under the Fearon and Laitin definition, using a 1,000-death threshold. Thirty-eight separate civil conflicts began during the sample period 1981–99—not including conflicts that were already ongoing in 1981—and 27 ended, at least temporarily.

The first step in the statistical analysis by Miguel, Satyanath, and Sergenti, and what economists call the “first-stage regression,” is determining the relationship between rainfall shocks and economic growth. This relationship is strongly positive; current rainfall growth and lagged rainfall growth are both significantly related to income growth at over 95 percent confidence, and this relationship is robust to the inclusion of country controls and fixed effects. As expected, positive rainfall growth typically leads to better agricultural production because most of Sub-Saharan Africa lies within the semiarid tropics and is prone to drought.

The next step is to determine how rainfall itself directly affects the likelihood of civil conflict, the “reduced form relationship” in econometric parlance. Drops in rainfall are associated with significantly more conflict, with a point estimate of  $-0.122$  (standard error 0.052) on lagged rainfall growth.<sup>9</sup> In the case of major conflicts, those involving more than 1,000 deaths a year, coefficient estimates on both current and lagged growth are statistically significant at 95 percent confidence. This is strong evidence that better rainfall makes conflict much less likely in Africa.

These two analyses are then combined into what economists call “instrumental variables” (IV) estimation, to back out the effect of economic growth on conflict, utilizing only the variation in income induced by rainfall shocks and thus avoiding the reverse causality problem. Because Miguel, Satyanath, and Sergenti have instrumented for economic growth, they make the causal assertion that the incidence of civil wars in Sub-Saharan Africa is influenced by economic shocks.

The researchers discovered that economic shocks have an even more dramatic impact on civil war incidence than had been previously recognized. The size of the estimated impact of lagged economic growth on conflict is huge; focusing on the IV regression with country fixed-effect controls, the point estimate indicates that a 1-percentage-point decline in gross domestic product increases the likelihood of civil conflict by more than 2 percentage

points. This implies that a drop in per capita income due to drought of 5 percent in one year increases the likelihood of a civil conflict in the following year by nearly half, a very large effect. This analysis highlights the key role that income volatility has played in generating armed violence.

Echoing Collier and Hoeffler, Miguel, Satyanath, and Sergenti do not find any meaningful direct effect of democratic freedoms or ethnic fragmentation on conflict outbreaks. They also find that the impact of economic growth shocks on the incidence of major conflicts is remarkably—and perhaps surprisingly—similar for African countries across a wide range of institutional, political, social, and economic characteristics. There are good theoretical reasons to expect to find strong effects; for instance, given an adverse economic growth shock, countries with stronger democratic institutions (and similarly, wealthier countries) may be better able to negotiate compromises among social groups to avert unrest, whereas such negotiations may more often break down in ethnically or religiously fragmented societies.

However, the relationship between economic growth shocks and conflict is similar for countries with different levels of democratic freedoms or per capita income levels in 1979. In other words, undemocratic African countries hit by negative income shocks are just as prone to civil conflict as relatively democratic countries, suggesting that even the more democratic states in Africa typically lack the institutional capability to adequately respond to negative economic shocks and avert conflict.

Economic growth shocks also do not have a differential impact in more ethnically diverse countries, in oil-producing countries, or in mountainous countries. There is no significant difference in the effect of economic growth on conflict across former British colonies, former French colonies, and former colonies of other countries; by African subregion (Central, East, Southern, and West Africa); for countries with socialist political regimes at the start of the sample period; by religious fractionalization, or several other social fractionalization measures; by population density; for a range of measures of democracy, political competition, regulation of political participation, and constitutional constraints on executive power (from the Polity IV dataset); for other political institutional measures, including the degree of federalism and government checks and balances (from the World Bank Database of Political Institutions); and for political and civil freedom (from Freedom House).

The most obvious reading of these findings is that economic factors trump all others in causing African civil conflicts, and that institutional and political characteristics have much less of an impact.

### *Additional Evidence on the Poverty-Violence Nexus*

This core relationship running from poverty to violence also holds at lower levels of analysis. In Nepal, a higher poverty rate at the district level is associated with significantly more civil war deaths, in the ongoing Maoist insurgency there.<sup>10</sup> Again, local measures of social divisions (for example, ethnic and caste diversity) are not correlated with district violence.

The existence of easily lootable resources in the context of a bitterly poor society can drive violence. Bellows and Miguel find significantly more armed clashes in Sierra Leone chiefdoms with greater diamond wealth, and less fighting in areas without these resources.<sup>11</sup> Diamonds played a key role in financing armed factions there and were a magnet for violence. Consistent with the cross-country studies mentioned above, there is a consensus both within Sierra Leone and in the academic literature that the civil war there was not predominantly an “ethnic conflict.”

Broader continent-wide trends are also consistent with the poverty-violence nexus view, although statistical analysis at this level of aggregation is by necessity more speculative. The past five years have seen a gradual reduction in the overall number of civil conflicts in Africa, with the end of several protracted civil wars (in Angola, Liberia, and Sierra Leone). Improving economic conditions are likely to be playing some role in this decrease; average per capita income growth in Sub-Saharan Africa as a whole has been positive for the first time since the 1970s, driven in part by rising global commodity prices. The bottom line is that boosting living standards may be the most effective way to reduce civil conflict in Africa—and elsewhere—in the long run.

### **Implications for Foreign Aid: Rapid Conflict Prevention Support**

Most foreign aid currently focuses on long-run investments in education, health, and infrastructure. To the extent that foreign aid promotes long-run economic growth—an issue that remains contested—this assistance would reduce civil conflict in the long run by making recipient countries richer. These more prosperous citizens should then find joining an armed insurgency less attractive than legitimate economic activities.

However, most foreign aid does little to deal with the immediate triggers of civil conflict in the short run. One implication of the research discussed above is that a larger share of foreign aid should also aim to eliminate the sharp income fluctuations that generate support for armed groups in less developed countries. Poor countries have always had much more volatile per

capita income than wealthy countries for a variety of reasons, including their dependence on rain-fed agriculture and on a limited number of volatile export commodities. When the rains fail one year, or there is a collapse in the world market price for a key export, sharp income contractions are common. Sub-Saharan African countries are particularly notorious for their highly volatile national incomes.

One possible approach is for more foreign aid to explicitly play an *insurance* role. I call this new type of aid Rapid Conflict Prevention Support (RCPS). RCPS aid would target countries experiencing temporary income drops due to poor weather or adverse commodity price movements, both of which are easily monitored by aid donors (using existing databases such as the Famine Early Warning System for Africa). There would also be little incentive for governments to “game” the system to receive such financing. These two factors—weather and global commodity prices—are largely out of the control of governments, maintaining government incentives for responsible economic policy.

This form of donor support would temporarily bolster local economic conditions at key junctures, when the risk of social instability is high. RCPS could augment rather than replace traditional forms of foreign aid. When objective underlying local economic factors improve—for example, rains improve the next year, or world coffee prices rebound—this RCPS aid to the government could quickly be reduced, as the state’s own revenues pick up. Targeting RCPS aid toward the social groups most likely to participate in armed violence—for example, in temporary job creation for unemployed young men in a dissident region—might be most effective in preventing armed conflicts from occurring in conflict-prone countries and regions. Another attractive option in rural areas would be for aid to serve as crop insurance for farmers.

Several rural insurance programs already exist in the more economically successful African countries, most notably a program that provides drought assistance to farmers in Botswana, and these could serve as “models” for other economies. Drought is a frequent visitor to Botswana, as in much of the semiarid tropics. To deal with this problem, the government has for decades implemented a multifaceted policy called the Drought Relief Program (DRP).<sup>12</sup> DRP consists of direct income support for rural households in years when the rains fail, including public works employment programs as well as food aid for the most vulnerable. The government takes drought seriously; for instance, it is estimated that up to 60 percent of rural Botswanans received some DRP assistance during the severe mid-1980s drought. In those

difficult years, DRP helped to reduce rural poverty and income inequality, preserving social stability.

Many details of RCPS design and implementation still need to be worked out, and these might vary depending on the needs and institutions of the recipient country. RCPS would ideally not be a “one-size-fits-all” program, and it could differ from the Botswanan model. For example, in some settings, channeling RCPS assistance through the government could be the most timely and cost-effective approach, whereas in other cases nongovernmental organizations would be preferred. Similarly, the decision whether to target assistance to unemployed urban workers versus farmers will depend on local social conditions.

Other types of foreign aid are related to the RCPS I have briefly described, but they differ in key ways.<sup>13</sup> Humanitarian aid also serves as a form of insurance for poor countries suffering from major natural calamities and wars. But, crucially, this aid is provided by the international community *after* a conflict has already broken out. RCPS would identify those countries most likely to suffer from conflict in the near future and would increase foreign flows *before* any violence erupts. In this sense, RCPS aid can also be seen as a cost-effective investment in future peace and security, as “prevention” rather than a costly “cure.”

Some International Monetary Fund lending also can serve as insurance, at least in theory—for example, the Compensatory and Contingency Financing Facility (CCFF) and the new Exogenous Shocks Facility. However, neither of these is currently linked to objective measures of conflict risk, and the CCFF has historically been very rarely used.<sup>14</sup> The Fund’s conditionality also eliminates many of the most conflict-prone countries from consideration for lending through these financing facilities.

Foreign aid of course has multiple goals, including long-run economic and institutional development as well as donors’ political objectives. But, arguably, too little of this aid is currently structured with the goal of preventing armed civil conflicts. Such conflicts often last for many years, have claimed millions of lives and have created failed-state havens for international criminals and terrorists. If RCPS could reduce the chance of a conflict breaking out, even slightly, would it not be worth it?

## Notes

1. James Fearon and David Laitin, “Ethnicity, Insurgency and Civil War,” *American Political Science Review* 97, no. 1 (2003): 75–90.

2. Paul Collier and Anke Hoeffler, "On the Incidence of Civil War in Africa," *Journal of Conflict Resolution* 46, no. 1 (2002): 13–28.
3. As discussed by Havård Hegre and Nicholas Sambanis, "Sensitivity Analysis of Empirical Results on Civil War Onset," *Journal of Conflict Resolution* 50, no. 4 (2006): 508–35.
4. Edward Miguel, Shanker Satyanath, and Ernest Sergenti, "Economic Shocks and Civil Conflict: An Instrumental Variables Approach," *Journal of Political Economy* 112, no. 4 (2004): 725–53.
5. The GPCP data are publicly available at <http://orbit-net.nesdis.noaa.gov/arad/gpcp/>.
6. No degree grid node fell within the national boundaries for five small African countries—Burundi, Djibouti, Gambia, Guinea-Bissau, and Rwanda—so in these cases we assigned them rainfall measures from the nearest node.
7. David E. Bloom and Jeffrey D. Sachs, "Geography, Demography, and Economic Growth in Africa," *Brookings Papers on Economic Activity* 2 (1998): 222.
8. Refer to the PRIO website ([www.prio.no/cwp/ArmedConflict](http://www.prio.no/cwp/ArmedConflict)) or the University of Uppsala website ([www.pcr.uu.se](http://www.pcr.uu.se)). A detailed description of the criteria used to code civil wars is provided in Nils Petter Gleditsch, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg, and Havård Strand, "Armed Conflict 1946–2001: A New Dataset," *Journal of Peace Research* 39, no. 5 (2002): 615–37.
9. The regression details can be found in Miguel, Satyanath, and Sergenti, "Economic Shocks and Civil Conflict."
10. Quy-Toan Do and Iyer Lakshmi, "An Empirical Analysis of Civil Conflict in Nepal," Institute of Governmental Studies, University of California, Berkeley, WP2006'14 (2006).
11. John Bellows and Edward Miguel, "War and Local Collective Action in Sierra Leone," unpublished working paper, University of California, Berkeley, 2006.
12. For further discussion, refer to Theodore Valentine, "Drought, Transfers, Entitlements and Income Distribution: The Botswana Experience," *World Development* 21, no. 1 (1993): 109–26.
13. The most closely related discussion of foreign aid and conflict prevention, to my knowledge, is Paul Collier and Anke Hoeffler, "Aid, Policy and Peace: Reducing the Risks of Civil Conflict," *Defense and Peace Economics* 13, no. 6 (2002): 435–50. They also make the claim that an increase in foreign aid is likely to reduce civil conflict risk, and they empirically demonstrate some modest reductions in conflict for aid recipients, working through the channel of faster economic growth. Yet they study the effect of existing foreign aid instruments on conflict, rather than aid with the monitoring mechanisms, timing, and targeting in the RCPS proposal.
14. The history of the Compensatory and Contingency Financing Facility is discussed in International Monetary Fund, "Buffer Stock Financing Facility (BSFF): Preliminary Considerations," Policy Development and Review Department in consultation with other departments, December 9, 1999; and International Monetary Fund, "Review of the Compensatory and Contingency Financing Facility (CCFF)," Policy Development and Review Department in consultation with other departments, December 9, 1999.