

Weekly Report

Violent Conflicts Increase Income Inequality

Political unrest, civil war, and—in extreme instances—genocide have contributed to the disappointing economic growth observed in many developing countries in recent decades, particularly in Africa. Sustained periods of violence also influence the distribution of income within a society; a cross-country analysis shows that income inequality increases as a result of violent conflicts, especially in the early post-war period. Immediate post-war efforts to address the social and economic disruption caused by conflict may help to counteract this trend.

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The number of violent conflicts being fought around the globe in a given year increased steadily following the end of the Second World War, and despite a fall in the number of conflicts since the collapse of the Eastern Bloc, war still threatens the well-being of millions of people worldwide. In recent decades, the face of conflict has also changed: conflicts between sovereign nations have become rare; rather, the majority of conflicts involve national or regional crises or violent unrest.¹ Approximately one quarter of all countries worldwide are currently experiencing violent mass protests, ethnic unrest, civil war, terrorism, or genocide.

Conflicts have a wide range of political, social, and cultural impacts. The economic consequences of conflict can be particularly devastating. Studies investigating the effects of civil war on the distribution of production factors confirm that conflicts lead to a substantial drop in economic growth.² These studies underscore falling private investment as a key factor that inhibits growth. The pace and scope of economic recovery following a conflict then appear to be positively influenced first and foremost by international aid and increased social spending. In this study, we focus on the effects that violent conflict has on income distribution, a topic that has not been systematically investigated to date.³

¹ The 25 international wars that took place between 1945 and 1999 claimed a total of 3.3 million lives. By contrast, over the same time period 16.2 million people were killed in inner-state conflicts. See Fearon J., Laitin D.: Ethnicity, Insurgency and Civil War, in: American Political Science Review 97 (1), 2005, 75–90.

² See Collier, P.: On the Economic Consequences of Civil War, Oxford Economic Papers 51, 1999, 168–83 as well as Imai K., Weinstein, J.: Measuring the Economic Impact of Civil War, CID Working Paper 51, Harvard University, 2000.

³ See Bircan, C., Brück, T., Vothknecht, M.: Violent Conflict and Inequality, Work in progress, 2009.

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Box

Measuring Inequality

The distribution of income or wealth in a given country is usually determined based on household surveys. In Germany, for example, one can draw on the Socio-Economic Panel Study's longitudinal data. The magnitude of inequality is normally determined based on the so-called Gini coefficient. The formula, which is named after the Italian statistician Corrado Gini, is written as follows:

$$G = \frac{1}{2n^2\bar{y}} \sum_{i=1}^n \sum_{j=1}^n |y_i - y_j|$$

where n equals the number of observed individuals and $y_{i,j}$ the respective individual value for income or wealth. By definition, the Gini index is a number between 0 and 100. A Gini coefficient of 0 means that income is distributed with perfect equality; inequality rises as the coefficient approaches 100.

Inequality is Particularly High in Africa and Latin America

In the context of this discussion, inequality within a society is not only of relevance as an ethical concern. Discrepancies in wealth distribution, educational opportunities, or access to the labor market can also impinge on economic development. When parts of a population are not provided with opportunities to participate in economic activity, a country may forego potential growth. Moreover, if certain social groups—such as ethnic or religious communities—are systematically disadvantaged, this can trigger tensions and violent conflict.⁴

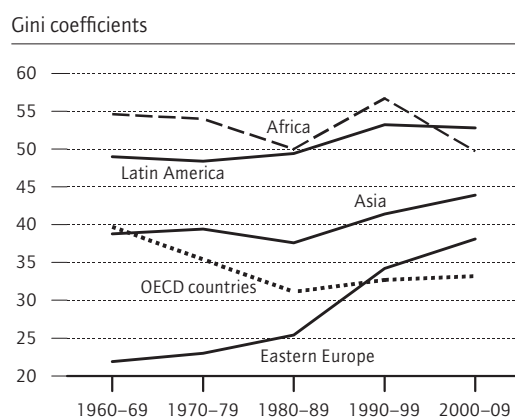
When assessing inequality, economists often focus on income distribution by measuring the Gini coefficient (see Box). A global comparison of income-distribution trends reveals considerable variation between continents. Income inequalities have been relatively stable over the past 50 years and remain much higher in Latin America and Africa than in Asia or the OECD countries. In former Eastern Bloc countries income inequality was relatively low twenty years ago, but has risen considerably since then (Figure 1).

The magnitude of income inequality in a given country is determined by a host of institutional and economic factors. Inequality is higher, for example, in countries in which democratic participation and access to education are limited.⁵ The ability of political and economic elites to exacerbate inequality through cronyism and collusion can be hedged by civil rights and a high general level of education.

⁴ Stewart, F. (Ed.): *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies*, London, 2008.

⁵ Li, H., Squire, L., Zou, H.: Explaining International and Intertemporal Variations in Income Inequality, in: *The Economic Journal* 108, 1998, 26–43.

Figure 1

Income Inequality in Various Regions of the World

Source: Calculations by DIW Berlin.

DIW Berlin 2009

Yet historical developments and the legacies of colonialism also play an important role in economic disparities.⁶

In countries with a large agricultural sector, the access to credit is of considerable importance.⁷ Microcredits, for example, enable populations to invest in machines and equipment as well as in the

⁶ For example, it has been shown that colonial policies of the European powers were determined in part by living conditions within the colonized country. A comparatively high number of colonists emigrated to regions with similar climatic conditions, where they established political institutions and legal systems of a European mold. By contrast, in regions which were not conducive to colonization because of climatic conditions or diseases such as malaria or yellow fever, exploitive institutions were established, the legacies of which persist to this day. See Acemoglu, D., Johnson, S., Robinson, J.: *Colonial Origins of Comparative Development: An Empirical Investigation*, in: *American Economic Review* 91, 2001, 1369–1401.

⁷ Tsiddon, D.: *A Moral Hazard Trap to Growth*, in: *International Economic Review* 33, 2001, 299–321.

education of the next generation. If the financial system does not provide such credits and if the assets which are provided as collateral (such as land) are also unequally distributed, then the income gap between the rich and poor is likely to widen over the long term. The effects that globalization and open markets have on income distribution ultimately hinge on trends in labor demand. While economic theory predicts that economies with a large pool of low-qualified labor should experience pay increases in the low-wage sector and, in turn, a decline in wage inequality, reality demonstrates that other outcomes are possible.⁸

Violent Conflicts Exacerbate Inequality

The effects of violent conflict on income distribution are manifold and depend in large part on the nature of the conflict and conditions in the impacted economy. Conflicts often lead to a severe decline in economic growth. The destruction of production facilities and disabling of transportation or utility networks all inhibit economic activity.

Capital flight—particularly on the part of foreign investors—can accelerate this process of a deteriorating capital stock. The consequences include higher prices for capital-intensive goods, an increase in unemployment, as well as falling wages, particularly in the low-wage sector. In such a situation, the wealthy and highly educated are typically better positioned to seek refuge for themselves and their capital abroad.

Damaged transportation and communication networks and an environment marked by insecurity and violence also hamper access to markets. Given the fact that conflict often takes place in agricultural regions, this particularly affects rural populations. When access to markets is limited, the only option is a retreat to subsistence farming, an eventuality that often entails considerable reductions in labor productivity. In extreme circumstances, hostilities may force the civil population to flee, destroy harvests, or disrupt farming activities over the long term (e.g. due to landmines).

Conflict not only impairs markets, it also severely limits the ability of governments to function. Declines in economic activity lead to reduced tax revenues. The collection of taxes is also hindered by civil disorder and disruptions to the everyday processes of government. In many cases, consider-

able increases in military spending displace social spending. The poorer segments of a population are more dependent on social services and hence the first to be affected by declines in social spending (e.g. cutbacks in education and health care).

Not Everyone Loses Out

When social structures are in a state of erosion and the government's monopoly on violence is challenged, this creates a fertile ground for corruption, illegal markets, and collusionary and unjust enrichment. The trafficking of drugs, weapons, diamonds, precious wood, or even people produces large gains for a relatively small group of profiteers, often with the support of political and military elites.

The plight of large segments of the population also presents an opportunity for merchants and middlemen to profitably sell goods essential for survival in exchange for remaining objects of worth. If conflicts erupt along ethnic or religious lines, the systematic expulsion and dispossession of civilian populations is also a common method of waging warfare.

Effects Last Well Beyond the End of War

On the whole, the economic changes associated with the outbreak of violent conflict indicate that income inequality should rise. Moreover, the economic and social disruptions caused by a conflict are often so massive that its nominal conclusion does not automatically entail a return to irenic and productive economic relations.

The repair of damaged infrastructure is just as important as the restoration of security for a return to healthy economic conditions. This is often hampered, however, by roving bands of former combatants, the ready availability of weapons, and resulting high rates of criminality. Restoring the state's monopoly on violence is necessary if criminal structures that took hold during the conflict are to be stamped out.

As there is a high risk that hostilities will be reignited in the years immediately following a conflict,⁹ in many cases belligerents refrain from demobilizing right away. As a consequence, it usually takes some time for government spending to shift away from military expenditures and toward civil investment and social programs.

⁸ Anderson, E.: Openness and Inequality in Developing Countries: A Review of Theory and Recent Evidence, in: *World Development* 33 (7), 2005, 1045–1063.

⁹ See for example Collier, P., Hoeffler, A.: Conflicts, in: Lomborg, B. (Ed.): *Global Crises, Global Solutions*, Cambridge 2005.

The return of private investors is also dependent on the restoration of peaceful market structures and political stability. Similarly, international reconstruction efforts normally take a while to get underway. Consequently, their effects, particularly in rural regions, are often delayed. The period immediately following a war is thus still marked by the dislocations caused by the conflict. As such, the road to normality is often a process that takes many years.

Increasing Inequality in Times of Conflict

The effects of violent conflict on income distribution are analyzed with the aid of data from 128 countries. Information on Gini coefficients for the time period between 1960 and 2004 are assessed with reference to data on conflicts in these countries.

The data on income inequality are derived from the UNU-WIDER World Income Inequality Database, which contains more than 5,000 Gini coefficients from various sources. In order to ensure the comparability of these data, which are based on various definitions of income, we use a regression analysis that is often applied in this connection.¹⁰

Data on violent conflicts are obtained from the UCDP/PRIO Armed Conflict Dataset. In the database, violent conflicts which caused at least 1,000 deaths in a given year are defined as wars.

Shorter Wars, Fewer Victims

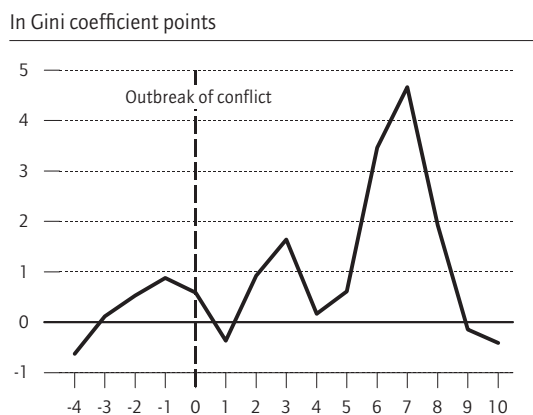
Whereas the world wars of the last century were for the most part fought between the armies of large industrialized nations, in recent decades conflicts have primarily taken place in developing countries. The contours of conflict over the past 50 years also underwent a change with the collapse of the Eastern Bloc. On average, wars that began prior to 1990 lasted considerably longer than those that began after the fall of the Berlin Wall (13.3 vs. 4.5 years).¹¹ The intensity of the conflicts has also declined: wars that began prior to 1990 caused an average of 6,000 annual battle deaths; wars that began after 1990

¹⁰ Estimates of Gini coefficients are thus based on either income or consumption data, with income being normally distributed more unequally than consumption. The magnitude of such structural differences can be estimated with econometric techniques in order to adjust Gini coefficients based on different data types. See for example Grün, C., Klasen, S.: Growth, Income Distribution, and Well-Being in Transition Countries, in: *Economics of Transition* 9 (2), 2001, 359–394.

¹¹ Conflicts which were still ongoing at the end of the observed time period were also included in the analysis. It should be noted that the majority of these ongoing conflicts began after 1990.

Figure 2

Income Inequality Over the Course of a War



Source: Calculations by DIW Berlin.

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caused half as many deaths: 3,000 per annum on average.

The data indicate that income disparities intensify in times of war. On average, the Gini coefficient is much higher during times of conflict (47 points) than during times of peace (40 points). Yet one reason for higher inequality in crisis regions could be that income disparities were high to begin with, even prior to the outbreak of conflict. In order to prevent such a bias, we examine the deviation of the Gini coefficient from its long-term average for each given country, thereby putting changes in inequality across countries on a comparable basis. Therefore we do not focus on cross-country differences in income inequality, but rather on trends in inequality within individual nations. Figure 2 shows how the Gini coefficient for all countries affected by violent conflict changes on average with the outbreak of conflict.

Rising Inequality in the Post-War Period

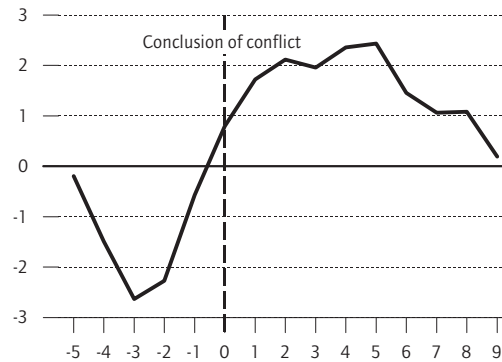
Income inequality is relatively stable prior to the outbreak of conflict, and only increases moderately. In the first few years of conflict, however, average inequality jumps considerably. During the transition from war to peace, the immediate post-war years are also marked in particular by increased inequality (see Figure 3). Inequality climaxes five years after a conflict ends, and then returns to its initial level approximately one decade after the end of conflict.

These trends are confirmed by a statistical regression analysis which, alongside the existence of a violent conflict, accounts for other determinants of inequality, including economic power, the size of the government's budget, and trade volumes in the examined countries. The rise in inequality attributable to conflict is particularly high in the post-war period (an estimated 3.0 Gini points). This is a considerable jump in inequality in light of the generally rather slow evolution of income inequality over time.

Figure 3

Income Inequality During Transition to Post-War Period

In Gini coefficient points



Source: Calculations by DIW Berlin.

DIW Berlin 2009

Conclusion

The legacies of conflict that persist into the post-war period—including continued high military expenditures, little room for redistributive social policies, and the persistence of collusive and exploitive structures—are possible explanations for rising income inequality in the first post-war years. The tendency for inequality to rise should be taken into account during reconstruction. The restoration of security, increased social spending, and the strengthening of peaceful economic activities appear to be appropriate means for counteracting rising inequality and, in certain instances, a renewed outbreak of violence.

Future research should focus on achieving a better understanding of the processes which underlie changes in income inequality. Salient policy recommendations could be achieved with an examination of conditions at the micro-level which are specific to given countries and conflicts. Because of a lack of data, it has not been possible to date to analyze distributional effects on specific income groups (i.e. are the poor getting poorer or merely the rich richer?). Ongoing data collection efforts in crisis regions will help to answer such questions.

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