

## **Horizontal inequality and armed conflict: a comprehensive literature review**

Solveig Hillesund<sup>a</sup>, Karim Bahgat<sup>b</sup>, Gray Barrett<sup>b</sup>, Kendra Dupuy<sup>b</sup>, Scott Gates<sup>ab</sup>, Håvard Mokleiv Nygård<sup>b1</sup>, Siri Aas Rustad<sup>b</sup>, Håvard Strand<sup>ab</sup>, Henrik Urdal<sup>b</sup>, and Gudrun Østby<sup>b</sup>

<sup>a</sup>*University of Oslo*

<sup>b</sup>*Peace Research Institute Oslo, Oslo, Norway*

### **Abstract**

Investigation of whether, how, and why inequality influences the dynamics of violent conflict has a long intellectual history. Inequality between individuals and households (vertical inequality) has dominated the literature, but recently attention has shifted to role of group-based inequalities in triggering violence. Our review of research on the relationship between conflict mobilisation, violence and “horizontal inequality” (inequalities based on group identities such as ethnicity, region, and religion) and conflict reveals solid support for the argument that high levels of horizontal economic and political inequalities among the relatively deprived make violent conflict more likely.

Keywords: armed conflict, inequality, vertical inequality, horizontal inequality, conflict prevention

### **Introduction**

What is the relationship between horizontal (group) inequality and the onset and dynamics of violent, armed conflict? Whether and how inequality might influence conflict has a long intellectual trajectory, starting with Aristotle, and the issue has achieved salience again in light of recent conflicts. Policymakers have taken note, with the World Bank convening a “Fragility Forum” with the goal of addressing how to create peaceful and inclusive societies, while Sustainable Development Goal 10 aims to reduce income inequalities. In this article, we focus on the most recent strand of the inequality-conflict literature – the literature on horizontal inequality and armed conflict. Horizontal inequalities are defined as inequalities in economic, political, or social dimensions or cultural status between culturally defined groups (Stewart 2002). In contrast to the traditional focus on economic inequalities between individuals and households (“vertical” inequalities) and to more recent studies on ethnic polarisation and fractionalisation, investigation of horizontal inequalities is better placed to explain the group dimension of recruitment and allegiance in armed conflict.<sup>i</sup>

To get a clear sense of the state of this field, we review the quantitative scholarly literature on horizontal inequality and armed conflict, outlining the major findings and highlighting knowledge gaps. There are two additional scope limitations to the study. First, we

---

<sup>1</sup> CONTACT Håvard Mokleiv Nygård havnyg@prio.org

focus only on armed conflict. Our definition of armed conflict comes from the UCDP/PRIO Armed Conflict Dataset, widely used by the UN, the World Bank and government agencies: “a contested incompatibility that 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 in one calendar year” (UCDP 2018).<sup>ii</sup> Second, our review is restricted to the literature on inequality between ethnic groups. This covers most horizontal inequality studies, but excludes the few studies that investigate inequality between regions, age groups, genders and urban versus rural areas.<sup>iii</sup> Ethnicity is defined broadly, however, to include religious as well as linguistic groups, thus covering many of the markers around which societies organise and identities coalesce.

The review shows that scholars have found strong support for the argument that high levels of group-based economic and political deprivation make armed conflict more likely. The evidence is mixed regarding the likelihood of the relatively privileged to engage in armed conflict. More research is required to understand the influence of social horizontal inequalities and within-group inequality. Further work is also needed to understand the mechanisms that link individuals to groups. Finally, several methodological issues, such as endogeneity and spurious causation, must be more thoroughly addressed.

### **The theory of horizontal inequality**

At its heart, the concern with inequality’s influence on conflict is motivated by the desire to understand why people choose to take up arms against the state. Fundamentally, inequality provides both the motive and opportunity required for people to engage in violence. The inability of previous research to come to conclusive results about how economic inequalities between individuals might trigger and sustain conflict – in particular, the inability of this literature to explain the group-based nature of conflict – spurred a new focus on inequalities between groups. We first review the theoretical underpinnings of this approach before proceeding to review the existing evidence base.

### **Mechanisms linking HI to armed conflict**

The basic contours of the horizontal inequality explanation for armed conflict revolve around three interlinked conditions: identity, motive and opportunity (Østby 2013, Gurr 1993a, 2000). While not sufficient as stand-alone factors, they combine to link inequality to conflict.

For armed conflict to break out, a sufficient number of individuals must have both the motive and opportunity to take up arms. This notion is not new, and not specific to horizontal inequality explanations of conflict. The recent turn to horizontal inequality has prompted a renewed focus, however, on the pivotal role that *group identities* play in translating objective conditions into motives and opportunities strong enough to overcome the collective action dilemma. This idea is not itself contrary to vertical inequality theory. One can easily make the claim that for vertical inequality to produce rebellion, individuals must identify with and feel solidarity towards other members of their socioeconomic class. Horizontal inequality explanations stress, however, that in most societies, social group demarcations other than socioeconomic classes – including deep-seated markers like language and religion in particular – are more likely to provide individuals with the type of group identification strong enough to make them risk their life in rebellion (Østby 2013, Gurr 1993a), despite having the opportunity to freeride. Given this logic, inequalities that cut along group lines should be more likely to spur rebellion than economic inequality between individuals.

Inequality is a symmetrical concept – it covers relative privilege as well as relative deprivation. Deprived and privileged groups have different motives to take up arms, however. The theory of relative deprivation was first formulated by Ted Gurr (1970), and states that a mismatch between the social, economic or political goods people expect or feel that they are rightfully entitled to on the one hand, and what they are capable of attaining and maintaining on the other, creates feelings of grievance and injustice, increases frustration and leads to violent conflict. The discrepancy could result from individuals comparing their situation to better days in the past, from increasing expectations over time, or from comparisons with other individuals (vertical inequality), but also from comparing the situation of one's group to that of other groups in society (Gurr 1993b, 167).

In contrast, relatively privileged groups take up arms to preserve their position of power and access to resources (Stewart 2002). These groups are motivated either by the fear that their privilege is about to be taken away, or by a more aggressive desire to dominate other groups. Whereas deprived groups argue that the current distribution is unjust, privileged groups may argue in favor of the injustice involved in redistribution arrangements wherein they are able to control the wealth their group or region produces, for instance from high-value natural resources like oil or metals and minerals, to the exclusion of other parts of society.

For armed conflict to erupt, a sufficient number of individuals must be motivated to participate. But how are individuals convinced to act on behalf of a group? To explain this, horizontal inequality researchers borrow from the wider social movement literature (see for

example Tarrow 2011). They argue that the development of a collective motive requires individuals to compare the status of their group to that of other groups, perceive the objective situation as unequal and unjust (or their position as threatened) and assign blame to another group or to the government (Cederman, Gleditsch, and Buhaug 2013). These conditions are more likely to materialise if individual group members' identification with the group is strong, as discussed above, and where groups are clearly delimited (Cederman, Gleditsch, and Buhaug 2013, Østby 2013). The process is also facilitated by strong leadership. A collective motive is more likely to develop if group elites engage in a process of collective action framing aimed at reinventing the group's narrative (Benford and Snow 2000). Because identities are fluid and thus open for re-interpretation, conflict entrepreneurs can re-define or emphasise particular aspects of identity in ways that increase group cohesion and facilitate mobilisation. Emotions such as solidarity, anger and resentment likely play an important role in this process, but their role is under-theorised and under-studied (Wood 2003).

The inherent opportunity to take up arms also differs between deprived and privileged groups. Economically privileged groups per definition have more financial resources to sustain a rebel movement. The individual opportunity cost of participation, on the other hand, is lowest for members of relatively deprived groups, who have fewer outside options (Østby 2013).

For both deprived and privileged groups, horizontal inequalities can enhance the internal opportunity to rebel, that is, the group's capacity to mobilise (Gurr 1993b, Gurr and Moore 1997, Cederman, Gleditsch, and Buhaug 2013, Cederman, Wimmer, and Min 2010, Cederman, Weidmann, and Gleditsch 2011, Østby 2013, 2008b). The collective nature of the motive and emotions that shared inequality can spur, combined with leadership, framing efforts and pre-existing social networks, help facilitate recruitment (Tarrow 2011, Cederman, Gleditsch, and Buhaug 2013). When individual group members identify strongly with the group, the group itself becomes a central source of individual rewards and punishment (Gates 2002). Members who choose to take part in or support armed conflict gain status and solidary rewards, while those who defect or refuse to join can be sanctioned with withdrawal of member benefits.

Many contextual factors could condition the relationship between inequality and conflict, by shaping the external opportunity structure that nascent rebellions face. Most of them are not specific to horizontal inequality-based movements, but confront all social movements. They include the characteristics of the political system, the nature of the political coalitions the movement faces (see e.g. Tarrow 2011), state capacity, the level of state repression (Østby 2013), the response of the state to initial demands (Cederman, Gleditsch, and Buhaug 2013)

and whether the movement can rely on international and transnational support or income from natural resources.

The mechanisms discussed here could apply to nonviolent as well as violent forms of mobilisation. Cederman, Gleditsch, and Buhaug (2013) acknowledge this. They argue that nascent movements motivated by horizontal inequality can be nonviolent, but that they are likely to turn violent if governments respond with repression. More studies are needed to determine whether horizontal inequality facilitates the overcoming of the collective action in general, while other factors determine whether violence or nonviolent tactics are used.<sup>iv</sup> The contextual factors discussed above, and other characteristics of the country, group and individual, could influence both the choice between tactics and the timing of violence (Østby 2013). Yet few contextual factors are included in empirical studies, as will become clear in the empirical section.

Finally, the relationship between horizontal inequality and armed conflict could be conditioned by within-group inequality. This concept, situated at the intersection between vertical and horizontal inequality, has received little attention in the conflict literature, but different theoretical expectations have been formulated about its potential impact on the inequality-conflict relationship. Esteban and Ray (2008, 2011) argue that ethnic alliances have a mobilisation advantage over class alliances because ethnic groups, unlike classes, can exhibit within-group economic inequality. In the context of such inequality, the relatively rich can supply conflict capital, while the poor, motivated by grievance and low opportunity costs, supply conflict labor. The opposite argument can also be made, however: that high levels of within-group inequality make between-group inequality harder for group members to perceive, and thus be motivated by. In a similar vein, Siroky and Hechter (2016) argue that contexts with low between-group inequalities but high within-group inequality, class conflict is more likely than ethnic conflict to occur., .

### **Dimensions of horizontal inequality**

Studies of horizontal inequality can be categorised along two main dimensions, by asking “inequality in what?” and “inequality between whom?”. This review covers inequality in economic, social and political resources between ethnic groups, leaving cultural inequality aside. Economic horizontal inequality concerns differences in wealth, usually measured by economic production or asset ownership indices. Social horizontal inequality concerns group differences in access to social goods, like education or health care. As a more general indicator

of socioeconomic inequality, some researchers have looked at differences in infant mortality rates. Finally, political inequality concerns unequal access to political power. In the quantitative literature, this is generally operationalised as exclusion from executive power, but the theoretical concept also covers underrepresentation in parliament and government. A final component of inequality that is common in qualitative conceptualisations of horizontal inequality but for which we lack comparable data across countries is underrepresentation in the civil service and military.

Different kinds of inequality may interact in their effect on armed conflict. The most common hypothesis is that the relationship between socioeconomic disadvantage and conflict is conditioned by political exclusion. Researchers have argued that economic disadvantage gives the masses an incentive to revolt, but that this is not enough to overcome the collective action dilemma. Political exclusion does just that by providing leaders with incentives to change the status quo (Langer 2008). Furthermore, political exclusion is easier than economic disadvantage to blame on the central government (Cederman, Gleditsch, and Buhaug 2013).

In the horizontal inequality literature, ethnicity is defined broadly, to include ethno-religious as well as ethno-linguistic groups. Different ethnic markers will be salient in different societies. In case studies, researchers who know a country well can often easily identify the most salient ethnic marker, but in cross-national studies comparable categorisation across countries is a difficult exercise. To solve this issue, one strand of the horizontal inequality literature relies on the Ethnic Political Relations (EPR) dataset (Cederman, Wimmer, and Min 2010) and includes all ethnic groups that are represented in the national political arena or that are overtly discriminated against; regardless of whether they are defined by linguistic, religious or other identity markers. Another strand gives preference to survey-based horizontal inequality indices. In this case, ethnic categories are pre-determined by the teams that develop the survey questionnaires. The strengths and weaknesses of the different approaches to measurement are discussed in more detail in the section on conceptual and methodological challenges.

## **Empirical findings**

What empirical support is there for the idea that group (as opposed to individual) inequalities provide sufficient motive, opportunity and cohesion to engage in armed conflict? We find strong support in the existing literature for relative economic deprivation, particularly in a context of political exclusion. Political horizontal inequalities seem to have a strong influence on their own, as well. There is far less support to draw strong conclusions about the influence

of social horizontal inequalities, economic relative privilege, contextual factors, within-group inequality, as well as how perceptions of inequality shape the propensity to take up arms. In the following section, we discuss methodological constraints – in terms of measurement, level of analysis and endogeneity.

### *Economic HI*

Economic inequality among ethnic groups has been studied more extensively than any other dimensions of horizontal inequality. In this section, we organise the discussion of empirical results around an important, but rarely explicit, distinction in this literature: the distinction between summary indices of inequality and measures of relative position. The former approach is relevant when the unit of analysis is the country or sub-national region. It combines information on both relatively poor and relatively rich groups within the geographic area in question, to provide an aggregate measure of the inequality in each area, that is, the wealth distribution. It facilitates predictions of how likely conflict is to break out in a particular country or region. The latter approach is used in group-level analyses. It measures the relative position an identity group occupies within the wealth distribution in a geographic area, usually a country, in order to predict the likelihood that each group will take part in conflict in that area. It further facilitates empirical disentanglement of the effects of relative deprivation from those of relative privilege. This is important, given that hypotheses about the two are underpinned by different theoretical mechanisms.

The cross-country studies that apply summary indices of economic horizontal inequality find they are positively related to armed conflict.<sup>v</sup> They use Demographic and Health Survey (DHS) data from developing countries to measure the difference in asset ownership between each country's two largest ethnic groups (cf. Østby 2008b, a), or to measure overlap between class and ethnicity (Gubler and Selway 2012, Siroky and Hechter 2016). Single-country quantitative studies of sub-national regions in Nepal (Nepal, Bohara, and Gawande 2011) and India (Vadlamannati 2011, Gomes 2015) find similar relationships.

Studies that measure relative position suggest the inequality-conflict relationship is driven more by relative deprivation than relative privilege. Early efforts at measuring group deprivation, using the Minorities at Risk (MAR) dataset's indices for economic discrimination and differentials between ethnic groups, provided little support for a direct relationship with rebellion (Gurr 1993b)<sup>vi</sup>, but new and improved data provide more conclusive results. Studies that measure relative deprivation at the ethnic group level, as the relative distance between

deprived groups' estimated GDP per capita and average national GDP per capita, have established that it is positively related to ethnic armed conflict (Cederman, Gleditsch, and Buhaug 2013, Cederman, Weidmann, and Bormann 2015, Cederman, Weidmann, and Gleditsch 2011). A similar relationship has been found between economic discrimination (using MAR data) and violent separatism among groups demanding self-determination (Cunningham 2013). And when relative group deprivation is aggregated to the country level, using the distance between group and national GDP per capita for the most deprived group in each country it increases the risk that a country comes to experience armed conflict (Buhaug, Cederman, and Gleditsch 2014).

In contrast, studies of relative privilege, measured along the same lines, return inconclusive results. Cederman, Weidmann, and Gleditsch (2011) and Cederman, Weidmann, and Bormann (2015) find statistically significant relationships in certain model specifications, but other studies suggest the uncertainty surrounding the existence of an independent relationship is very high (Buhaug, Cederman, and Gleditsch 2014, Cederman, Gleditsch, and Buhaug 2013).

In sum, the results from group-level quantitative analyses indicate that improving the economic situation of a deprived group relative to other groups should decrease the risk that the group initiates armed conflict. Our confidence in this finding is strengthened by the fact that it is consistent across different approaches to the measurement of economic horizontal inequality<sup>vii</sup>. The overall risk of conflict might not decrease correspondingly, however. Mitra and Ray (2014) develop a theoretical model of economic change and conflict that shows that when group incomes are low, increasing them will lower the risk that violence is initiated by the disadvantaged group, but also increase the violence perpetrated against the disadvantaged by privileged groups that fear that they will lose their advantage. The model is supported in a sub-national empirical analysis of Hindu-Muslim riots in 14 Indian states.

Two quantitative cross-country studies have investigated the proposition that the relationship between socioeconomic inequality and conflict might be conditioned upon political inequality. Both find some support for it. On the country level, Østby (2008a) finds the association between asset inequality and armed conflict is stronger for countries with higher levels of political discrimination. This does not hold for inequality in education. On the group level, Cederman, Weidmann, and Bormann (2015) find that the effect of relative economic deprivation is driven almost entirely by politically excluded groups. These authors further find that relative privilege is not associated with armed conflict, neither for excluded nor included groups. The latter finding is somewhat counter-intuitive, as one might expect privileged groups



whose wealth is being redistributed to other groups, or groups who that fear that it will be in the future, would be particularly likely to take up arms if they have no access to the political arena.

Most of the quantitative studies on economic horizontal inequality between ethnic groups have focused on the onset or intensity of internal armed conflicts, in which at least one non-state actor challenges the state. In complimentary analyses, Buhaug, Cederman, and Gleditsch (2014) disaggregate the conflict variable further and find that the effect of the relative deprivation of a given country's poorest group on armed conflict is driven exclusively by conflicts over territorial claims.

### ***Social HI***

Social horizontal inequality encompasses access to public goods such as education and health care. It is important to note that such inequality may translate into, and is highly associated with, economic horizontal inequality (Østby 2008b). As suggested by the preceding paragraphs, the thrust of the quantitative literature on horizontal inequality has been on the purely economic dimension, measured by estimates of GDP or with survey-based asset indices. The few quantitative studies that investigate the relationship between social horizontal inequality and civil conflict (Østby 2008b, a) use survey or census-based summary measures of inequality. They are country- and region-level studies, and do not distinguish between relative deprivation and privilege. Results suggest that country-level inequality in education is related to the onset of armed conflict in developing countries (Østby 2008b, a). More research is needed, however, on social horizontal inequality.

### ***Political HI***

The mechanisms held to underpin the relationship between horizontal inequality and conflict – identity, motive and opportunity – apply to inequality in the political realm as well. Theories of political horizontal inequality draw on additional literatures, however, related to ethno-nationalism, the principle of self-determination and how capture of the state apparatus by one ethnic group provides politically excluded groups with incentives to challenge the status quo (Cederman, Wimmer, and Min 2010, Wimmer, Cederman, and Min 2009, Cederman, Gleditsch, and Buhaug 2013).

Early empirical investigations of the relationship between conflict and political inequality among ethnic groups used indices of political discrimination and group differentials

from the Minorities at Risk project. Discrimination was measured on a scale from no discrimination via historical disadvantage and government neglect, to active discrimination policies that systematically restrict group members' access to resources, opportunities, rights and positions. Political differentials measured differences in political status and positions between groups, with negative scores representing relative advantage.

Gurr (1993b) first used these measures in an analysis of 227 communal groups throughout the world, and found that rebellion was positively related to political differentials, but negatively related to political discrimination. The latter finding was contradicted by later studies. Regan and Norton (2005) aggregated the political discrimination measure to the country level, and found it increased the risk of armed conflict. Vadlamannati (2011) found the same across sub-national regions in India.

The study of political horizontal inequality has been beset by data and measurement challenges. Gurr's MAR dataset was heavily criticised for the selection bias introduced by including only groups already considered at risk of conflict, and for the high reliance on coders' judgment to construct many of its indices – criticisms that Gurr (1993a) himself acknowledged. In response to this, the more recent literature on political horizontal inequality and conflict has converged around measures of ethnic groups' exclusion from executive power as coded by the Ethnic Power Relations (EPR) dataset, a dataset designed to reduce some of the biases in the MAR dataset.

Several studies using EPR data have found that group-level exclusion from the executive, as well as a recent loss of executive power, increases the risk of group participation in armed conflict (Cederman, Gleditsch, and Buhaug 2013, Cederman, Weidmann, and Bormann 2015, Cederman, Wimmer, and Min 2010, Cederman, Weidmann, and Gleditsch 2011). And when the political status variables from EPR are aggregated to the country level, usually by dividing the size of the largest excluded group (Wimmer, Cederman, and Min 2009, Buhaug, Cederman, and Gleditsch 2014, Cederman, Gleditsch, and Buhaug 2013) or the size of the discriminated population by that of the included population (Siroky and Hechter 2016, Cederman, Gleditsch, and Buhaug 2013), country-level political inequality has also been found to increase the risk of armed conflict. In complimentary analyses, Buhaug, Cederman, and Gleditsch (2014) disaggregate the conflict variable, and find that the effect of the size of the largest politically excluded group relative to included groups is driven by conflicts over government, whereas the effect of recent loss of power is driven by conflicts over territorial claims.

### *Perceptions as mediating variable*

A handful of quantitative studies disaggregate the causal chain from objective inequality to actual conflict and investigate its components: the link between objective and perceived horizontal inequality, and the link between perceived inequality and support for conflict. For instance, Must (2016) finds that areas and groups where people's perceptions of their economic and political status compared to other groups or regions indicate horizontal inequality are more likely to experience armed conflict.

On the individual level, researchers using African survey data generally find a link between perceived inequality and attitudinal support for political violence in studies that measure inequality with a question about unfair treatment by the government (Kirwin and Cho 2009, Miodownik and Nir 2016), but not when respondents are asked more neutral questions about their group's position relative to other group (Rustad 2016, Miodownik and Nir 2016). This is in line with the proposition from Cederman, Gleditsch, and Buhaug (2013) that for conflict to break out it is not enough that group members perceive inequality between groups; they must also come to find the situation unjust and blame the government. This conclusion is, however, based on very few studies with a limited geographical coverage, and the non-finding for the perceived position measures could be due to the fact that they conflate situations of relative deprivation and relative privilege, rather than measuring the two separately.

Perhaps the most important finding in this literature is that objective levels of inequality, while likely correlated with perceived inequalities (Gurr 1993b, Holmquist 2012), do not always overlap with people's perception of their group's status (Langer and Smedts 2013, Langer and Ukiwo 2008, Rustad 2016). In short, the link between the perceived and objective inequalities are subject to misperceptions and manipulation, and the translation of objective inequality to perceived inequality is far from automatic. Researchers should keep this in mind when studying the relationship between objective inequality and conflict on the meso and macro levels.

Bahgat et al. (2017) provide a detailed review of existing studies literature on perceived inequality. The emerging literature is promising, but more attention should be paid to the full chain of mechanisms linking horizontal inequality to conflict. More attention must also be given to linking data on objective inequality to data on individuals' perceived inequality, to data on perceived injustice and attitudinal support for violence (as mediator variables), and to data on actual participation in political violence and armed conflict. In addition, analyses that extend beyond Africa are needed.

### ***Contextual factors***

The empirical quantitative literature on contextual factors that could condition the relationship between horizontal inequality and conflict is sparse. The most consistent finding is that natural resource wealth increases the conflict potential of horizontal inequality. Asal et al. (2016) find that the effect of political exclusion on armed conflict is stronger for groups whose settlement area include oil deposits, with Hunziker and Cederman (2017) coming to a similar conclusion about oil and political exclusion's effect on secessionist conflict. Another study suggests that the effect of social inequality is strongest in democracies and inclusive electoral systems (Østby 2008a).

Since most of these conclusions are based on single studies, this is clearly an area where more systematic research is needed. In addition, the more immediate triggers of conflict that are motivated by inequality deserve more attention, since economic and social inequalities are durable and often persist for many years without violence breaking out.

### ***Within-group inequality***

Few studies of horizontal inequality analyze within-group inequality. We located two empirical studies of the hypothesised interaction between horizontal and within-group inequality. Kuhn and Weidmann (2015) provide initial support for the Esteban and Ray (2011) argument. They measure within-group inequality with a Gini coefficient calculated based on nightlight emissions within group settlement areas, and find it increases the risk of armed conflict. The effect is particularly strong for groups that also suffer from political exclusion or economic horizontal inequality; their findings hold up in an instrument variable approach. In support of the opposite argument, however, the country-level analysis of Siroky and Hechter (2016) suggests that the relationship between economic/political horizontal inequality and ethnic conflict is weaker in countries with high levels of within-group inequality, and the relationship with class conflict stronger.

### **Conceptual and methodological challenges**

Like the bulk of the studies of vertical inequality and conflict, many studies of horizontal inequality are plagued by conceptual and methodological problems. This section discusses reliance on poor data and weak measures, restricted samples, the use of an inappropriate level

of analysis (that is, explaining macro phenomena with micro-level theories), and endogeneity problems.

### ***Data quality, measurement, and samples***

Horizontal inequalities are not easy to capture. Many of the conclusions reviewed here, including all the studies of political horizontal inequality, are restricted to the groups identified as politically relevant in the EPR and MAR datasets. These datasets do not capture non-mobilised groups and they are often coded post-hoc (on the basis of rather scarce information) which increases the risk of a bias towards coding inequalities when we observed conflicts afterwards. The exclusion of politically “non-relevant” ethnic groups may be problematic mainly because what we want to capture is not only actual conflict but also potential conflict. A more comprehensive list of ethnic groups that are not (yet) politically mobilised, and their experiences with inequality and conflict, is needed. The recently assembled All Minorities at Risk (AMAR) dataset offers one promising development (Birbir et al. 2015).

Another solution to the challenge of getting objective and comparable data on socioeconomic horizontal inequalities has been to construct HI data based on national surveys which include information on both socioeconomic well-being and group affiliations (for example, Østby 2008b). The Demographic and Health Surveys (DHS), for example, can be used to generate horizontal inequality measures based on different group indicators including ethnicity, religion, region or locality of residence, and migrant status. They also allow for measuring inequalities along various dimensions, such as household assets, educational levels, and infant mortality rates. Biased information on horizontal inequalities is very unlikely when data are generated from national surveys like the DHS, as the original intention behind these was not to assess inequalities between ethnic groups. Finally, the aggregation of survey data ensures descriptive rather than evaluative data. That is, researchers’ personal judgment is not the sole source for determining group inequality scores (in contrast to the MAR project, for instance).

Household surveys offer a relatively direct measure of well-being, but on the other hand there are limitations afflicted with the use of surveys to create horizontal inequality measures, such as a restricted geographical coverage and the exclusive focus on developing countries. There may also be problems associated with representativeness at the subnational level as well as potential response biases, such as the possibility that poorer individuals might overstate (or understate) their assets.

Cederman, Weidmann, and Gleditsch (2011), and the others who devise measures of economic horizontal inequality take an alternative approach, combining their own data on ethnic groups' settlement areas (Wimmer, Cederman, and Min 2009) with data on local economic activity from Nordhaus et al.'s (2006) G-Econ dataset (Geographically-based Economic data). To proxy horizontal inequalities, they use these data sources to calculate wealth per ethnic settlement group and compare this to the average wealth of all groups in a country.

One problem with the Nordhaus data is that it cannot account for the informal economy, which very often benefits groups engaged in agriculture. This is particularly relevant for African and Asian countries where large segments of the population still depend on agricultural livelihoods. Any measure of economic productivity is a flow measure, and hence an imperfect proxy for the actual level of income or wealth. Second, a closer inspection of the documentation of the Nordhaus data reveals that the overall data quality is very poor for large parts of the developing world (where most conflicts occur).

In specific cases, it is often necessary to balance data coverage against the quality of the data. Indeed, in measuring inequality generally, both between individuals and between groups, there is constantly a tradeoff between the geographical and temporal coverage of the data on the one hand, and the quality of the data on the other hand. Moreover, there are various pros and cons associated with relying on different datasets and sources. Cederman, Weidmann, and Bormann (2015) composite indicator explores and combines the strengths of three different sources of data on local wealth: the G-Econ data, survey data on household durables, and nightlight emissions data from satellites combined with geographical data on the settlement of ethnic groups. They weight economic data more heavily in countries where official statistics is more trustworthy, and nightlight data more heavily where government statistics are poor or lacking. Since ethnic groups often overlap, however, it becomes difficult to ascertain which of the overlapping groups are benefiting from the levels of nightlights or economic productivity. They therefore developed a third step wherein income information from survey data was linked to each ethnic group and weighed more heavily in those areas where groups overlap. Cederman, Weidmann, and Bormann (2015) only utilise survey data for those areas where ethnic groups overlap. An option would have been to include survey data for all areas where it is available and experiment with different types of weighing and indexes. Jean et al. (2016), moreover, use georeferenced survey data to train a machine learning algorithm to combine nightlights and daytime satellite imagery data to produce more accurate predictors for observed poverty.

### *Level of analysis*

Cross-national studies of horizontal inequalities and political violence suffer from an additional important flaw: they explain their macro level results using arguments that essentially operate at the micro level (grievances and opportunities). Any country-level measure of HI risks failing to capture the relevant groups in society. In fact, the horizontal inequality argument only requires one under-privileged group for conflict to break out. If the rest of the population in the country is homogenous or has small income differences, a country-level measure would be attenuated and unable to capture this. This problem is present in any country-level study of HI and conflict. It is smaller, however, in the studies that disaggregate below the national level. Sub-national analysis allows one to compare the group (or region) of interest with some other unit (for example, the capital, or the national average), and hence to adhere to simple ratio measures, or group-specific measures. In a disaggregated design, it is also easier to include variables that account for intra-group inequality. There are other good reasons to disaggregate the study of conflict as well, not least the fact that conflicts rarely engulf an entire country. Finally, as described in the section of perceptions, group and region-level studies should be complemented with more studies that take the analysis of horizontal inequality and conflict down to the individual level, to properly investigate the micro-level mechanisms at play.

### *Causality*

A number of studies of the inequality-conflict relationship have raised the issue of endogeneity, but it is rarely taken into account in empirical analysis. The challenge is that while higher inequality may make the onset of conflict more likely, conflict itself can make inequality worse. This is the conflict trap: the idea that conflict is “development in reverse” (Collier and Bank 2003) and can aggravate deprivation and associated grievances that mobilise people to take up arms. Furthermore, policymakers who suspect a particular group or population segment is likely to revolt may preemptively enact policies that alter levels inequality. Such policies could bias our “naïve” estimates of the inequality-conflict relationship either upwards or downwards. Political horizontal inequality is a good example: If governments strategically exclude conflict-prone ethnic groups or regions, then regression analysis that does not account for endogeneity will overestimate the relationship between political exclusion and armed conflict. If, on the other hand, governments preemptively include conflict-prone groups in government, regression estimates will be artificially low (Wucherpfennig, Hunziker, and Cederman 2016).

Causal claims are difficult to establish for variables that are not easily manipulated by researchers, as is the case for inequality. In the inequality-conflict literature, the most commonly applied technique to address endogeneity concerns is to lag the inequality variables, but some studies have applied more comprehensive techniques, including instrumental variable analysis. The few studies that apply such techniques generally indicate that the inequality-conflict relationship holds up to fixed effects and instrumental variable (IV) analysis.<sup>viii</sup>

IV regression analysis corrects for the statistical problems caused by an endogenous independent variable, including an independent variable that is partially correlated with unobserved factors that influence the value of the dependent variable and thereby biases the estimates of the relationship between the two variables. For example, a sudden outbreak of violence in a region that results in the out-migration of members of the richer group is likely to be correlated with changes in horizontal inequality. As such horizontal inequality is correlated with the error term and the coefficient estimates are biased. By regressing the independent variable on an appropriate instrument, one can estimate the likelihood of the independent variable taking on a particular value as a function of variance that is both correlated and not correlated with the errors of the main structural equation. These estimates, including the estimated parameters and errors from the reduced form equation and the observed variables predicting horizontal inequality, are used to predict values of the independent variable that in turn are used to estimate its effect on the main dependent variable in the structural equation. This procedure produces consistent coefficients accounting for the effects of exogenously given horizontal inequality on armed conflict, having modeled and corrected for the part of dissent correlated with unobserved predictors of armed conflict.

The trick is to find an appropriate instrument. For a proper identification of the estimating equation, an IV must be correlated with the endogenous variable and exogenous to the dependent variable. If the IV is weakly correlated with the endogenous variable, it will bring a sizable bias in the estimator. Alternatively, if there is any correlation between IV and the dependent variable (or more precisely a correlation between the instrument and unobserved factors), the IV estimates will be inconsistent.

Wucherpfennig, Hunziker, and Cederman (2016) create an instrument for measuring political exclusion in a range of post-colonial states by interacting a variable denoting ethnic groups' peripherality (distance to the former colonial center) and their former colonial master (France vs. Britain), thus exploiting the fact that empires applied different strategies of colonial rule. Results indicate that the effect of political exclusion on civil conflict have been



underestimated. It seems, then, that it is more common for governments to preemptively include rather than preemptively exclude conflict-prone ethnic groups.

Three studies that instrument for economic inequality are Vadlamannati (2011), Nepal, Bohara, and Gawande (2011) and Mitra and Ray (2014). In an analysis in India, Vadlamannati (2011) uses over 80 instruments, and finds that the positive effect of economic discrimination on armed conflict holds up, but that the effect of political discrimination loses statistical significance. Nepal, Bohara, and Gawande (2011), examining the civil war in Nepal and horizontal economic inequality, rely on a measure of polarisation of wealth across regions. They instrument the percentage of households operating agricultural land, the percentage of households in which women own land, and the average number of big head livestock owned by women. They find that economic inequality is robustly and positively related to the number killed by Maoists during the civil war in 1996–2003. In a study of communal conflict in India, Mitra and Ray (2014) examine the relationship between economic HI (deprivation and privilege) and riots between Muslims and Hindus. They use expenditures by occupation as proxy of weighted average of returns for Hindus and Muslims in each occupational class. They find a robust and positive relationship between HI and conflict, stronger than the OLS estimation. The three examples demonstrate the contextual nature of the instruments used in these analyses. These instruments are unfortunately not suitable in a cross-sectional study.

The studies discussed here suggest that endogeneity poses less of a problem than initially suspected. Indeed, accounting for endogeneity led to finding a stronger relationship between HI and armed conflict. More studies of horizontal inequality that use this approach are needed, however, to cover all forms of inequality and conflict and all parts of the world. The merit and limitations of each of the instruments applied should be evaluated in more detail, and alternative instruments explored. In addition, the quantitative horizontal inequality literature might benefit from being supplemented with more qualitative and process-oriented approaches to the study of inequality and conflict. A thorough discussion of this literature falls outside the scope of this review, however.

## **Conclusion**

Quantitative research on the relationship between horizontal inequality between ethnic groups and armed conflict is rapidly expanding. While there is strong evidence that such inequality

increases the risk of armed conflict, several gaps are evident in the literature that should be addressed in future research on the topic.

First, there is fairly strong evidence of a positive relationship between horizontal economic inequalities and armed conflict, and for the argument that political context plays a strong role in shaping this relationship. But the conditions under which particular group identities become relevant for mobilising people for violence are less clear, including the roles that emotion and perceptions play in making certain identities more salient than others. Second, more research is needed on potential interactions between different types of horizontal inequalities, as well as interactions between within-group and between-group inequalities. Third, more studies that account for endogeneity and test the functional form of the inequality-conflict relationship are needed. Fourth, more research is needed to distinguish between the effects of objective and perceived horizontal inequalities. Finally, more research is needed to enhance the evidence base regarding the effects of social horizontal inequality as well as the salience of non-ethnic group identities such as region, gender and age.

## **Funding**

This work was supported by the World Bank Group for the project “PRIO Background Report on ‘Inequality and Armed Conflict’ for the World Bank / United Nations Flagship Study, “Sustaining Peace: Development and the Prevention of Armed Conflict”.

## **Notes on contributors**

Solveig Hillesund is a PhD candidate at the University of Oslo.

Karim Bahgat is a PhD student at the College of William and Mary.

Kendra Dupuy is a Senior Researcher at the Peace Research Institute Oslo.

Scott Gates is a Professor of Political Science at the University of Oslo and Senior Researcher at the Peace Research Institute Oslo.

Håvard Mogleiv Nygård is a Research Director at the Peace Research Institute Oslo.

Siri Aas Rustad is a Senior Researcher at the Peace Research Institute Oslo.

Håvard Strand is an Associate Professor of Political Science at the University of Oslo and Senior Researcher at the Peace Research Institute Oslo.

Henrik Urdal is the Director of the Peace Research Institute Oslo.

Gudrun Østby is a Senior Researcher at the Peace Research Institute Oslo.

## References

- Asal, V., M. Findley, J. A. Piazza, and J. I. Walsh. 2016. "Political Exclusion, Oil, and Ethnic Armed Conflict." *Journal of Conflict Resolution* 60 (8):1343-1367. doi: 10.1177/0022002714567948.
- Atiku-Abubakar, Jennifer J., and Yoku Shaw-Taylor. 2003. "An Empirical Profile of Weak States in Sub-Saharan Africa." *Africa Development / Afrique et développement* 28 (3/4):168-185.
- Bahgat, Karim, Gray Barrett, Kendra Dupuy, Scott Gates, Solveig Hillesund, Håvard Mokleiv Nygård, Siri Aas Rustad, Håvard Strand, Henrik Urdal, and Gudrun Østby. 2017. Inequality and Armed Conflict: Evidence and Data. In *Background report for the UN and World Bank Flagship study on development and conflict prevention*: Peace Research Institute Oslo (PRIO).
- Benford, Robert D, and David A Snow. 2000. "Framing Processes and Social Movements: An Overview and Assessment." *Annual review of sociology* 26:611-639.
- Birnir, Jóhanna K, Jonathan Wilkenfeld, James D Fearon, David D Laitin, Ted Robert Gurr, Dawn Brancati, Stephen M Saideman, Amy Pate, and Agatha S Hultquist. 2015. "Socially Relevant Ethnic Groups, Ethnic Structure, And AMAR." *Journal of Peace Research* 52 (1):110-115.
- Bound, John, David A. Jaeger, and Regina M. Baker. 1995. "Problems With Instrumental Variables Estimation When The Correlation Between The Instrument And The Endogenous Explanatory Variable Is Weak." *Journal of the American Statistical Association* 90 (430):443-450.
- Buhaug, Halvard, Lars-Erik Cederman, and Kristian Skrede Gleditsch. 2014. "Square Pegs in Round Holes: Inequalities, Grievances, and Civil War." *International Studies Quarterly* 58 (2):418-431. doi: 10.1111/isqu.12068.
- Bussmann, Margit. 2010. "Political and Socio-Economic Aspects of Gender Equality and the Onset of Civil War." *Sicherheit und Frieden (S+F) / Security and Peace* 28 (1):6-12.
- Caprioli, M. 2005. "Primed for Violence: The Role of Gender Inequality in Predicting Internal Conflict." *International Studies Quarterly* 49 (2):161-178.
- Cederman, Lars-Erik, Kristian Skrede Gleditsch, and Halvard Buhaug. 2013. *Inequality, Grievances, and Civil War*: Cambridge University Press.
- Cederman, Lars-Erik, N. B. Weidmann, and N. C. Bormann. 2015. "Triangulating Horizontal Inequality: Toward Improved Conflict Analysis." *Journal of Peace Research* 52 (6):806-821. doi: 10.1177/0022343315597969.
- Cederman, Lars-Erik, Nils B. Weidmann, and Kristian Skrede Gleditsch. 2011. "Horizontal Inequalities and Ethnonationalist Civil War: A Global Comparison." *The American Political Science Review* 105 (3):478-495.
- Cederman, Lars-Erik, Andreas Wimmer, and B. Min. 2010. "Why do Ethnic Groups Rebel? New Data and Analysis." *World Politics* 62 (1):87-+. doi: 10.1017/s0043887109990219.
- Collier, P., and W. Bank. 2003. *Breaking the Conflict Trap: Civil War and Development Policy*: World Bank.

- Cunningham, K. G. 2013. "Understanding Strategic Choice: The Determinants Of Civil War And Nonviolent Campaign In Self-Determination Disputes." *Journal of Peace Research* 50 (3):291-304. doi: 10.1177/0022343313475467.
- Deiwiks, Christa, Lars-Erik Cederman, and Kristian Skrede Gleditsch. 2012. "Inequality And Conflict In Federations." *Journal of Peace Research* 49 (2):289-304.
- Deraniyagala, Sonali. 2005. "The Political Economy Of Civil Conflict In Nepal." *Oxford Development Studies* 33 (1):47-62.
- Esteban, Joan, and Debraj Ray. 2008. "On The Saliency Of Ethnic Conflict." *The American Economic Review* 98 (5):2185-2202.
- Esteban, Joan, and Debraj Ray. 2011. "Linking Conflict to Inequality and Polarization." *The American Economic Review* 101 (4):1345-1374.
- Ezcurra, Roberto, and David Palacios. 2016. "Terrorism And Spatial Disparities: Does Interregional Inequality Matter?" *European Journal of Political Economy* 42:60-74.
- Fjelde, Hanne, and Gudrun Østby. 2014. "Socioeconomic Inequality and Communal Conflict: A Disaggregated Analysis of Sub-Saharan Africa, 1990-2008." *International Interactions* 40 (5):737-762. doi: 10.1080/03050629.2014.917373.
- Gates, Scott. 2002. "Recruitment And Allegiance: The Microfoundations Of Rebellion." *Journal of Conflict resolution* 46 (1):111-130.
- Gomes, Joseph Flavian. 2015. "The Political Economy Of The Maoist Conflict In India: An Empirical Analysis." *World Development* 68:96-123.
- Gubler, Joshua R., and Joel Sawat Selway. 2012. "Horizontal Inequality, Crosscutting Cleavages, and Civil War." *The Journal of Conflict Resolution* 56 (2):206-232.
- Gurr, Ted Robert. 1970. *Why Men Rebel*. Princeton, New Jersey: Princeton University Press.
- Gurr, Ted Robert. 1993a. *Minorities at Risk: A Global View of Ethnopolitical Conflicts*. Washington, D.C.: United States Institute for Peace.
- Gurr, Ted Robert. 1993b. "Why Minorities Rebel - A Global Analysis of Communal Mobilization and Conflict Since 1945." *International Political Science Review* 14 (2):161-201. doi: 10.1177/019251219301400203.
- Gurr, Ted Robert. 2000. *Peoples Versus States: Minorities At Risk In The New Century*. Washington, DC: US Institute of Peace Press.
- Gurr, Ted Robert, and W. H. Moore. 1997. "Ethnopolitical Rebellion: A Cross-Sectional Analysis Of The 1980s With Risk Assessments For The 1990s." *American Journal of Political Science* 41 (4):1079-1103. doi: 10.2307/2960482.
- Hillesund, S. 2015. "A Dangerous Discrepancy: Testing The Micro-Dynamics Of Horizontal Inequality On Palestinian Support For Armed Resistance." *Journal of Peace Research* 52 (1):76-90. doi: 10.1177/0022343314551080.
- Hillesund, Solveig. forthcoming. "Choosing Whom to Target: Horizontal Inequality and the Risk of Civil and Communal Violence." *Journal of Conflict Resolution*.
- Holmquist, Göran. 2012. Inequality And Indentity: Causes Of War? In *Discussion paper 72*. Uppsala: Nordiska Afrikainstitutet.
- Hunziker, Philipp, and Lars-Erik Cederman. 2017. "No Extraction Without Representation: The Ethno-Regional Oil Curse And Secessionist Conflict." *Journal of Peace Research* 54 (3):365-381. doi: 10.1177/0022343316687365.

- Jean, Neal, Marshall Burke, Michael Xie, W Matthew Davis, David B Lobell, and Stefano Ermon. 2016. "Combining Satellite Imagery And Machine Learning To Predict Poverty." *Science* 353 (6301):790-794.
- Kirwin, Matthew F., and Wonbin Cho. 2009. "Weak States and Political Violence in Sub-Saharan Africa." Afrobarometer Working Paper No. 111.
- Kuhn, Patrick M, and Nils B Weidmann. 2015. "Unequal We Fight: Between-And Within-Group Inequality And Ethnic Civil War." *Political Science Research and Methods* 3 (03):543-568.
- Langer, Arnim. 2008. "When do Horizontal Inequalities Lead to Conflict? Lessons from a Comparative Study of Ghana and Côte d'Ivoire." In *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies*, edited by Frances Stewart, 163-189. London: Palgrave Macmillan UK.
- Langer, Arnim, and Kristien Smedts. 2013. "Seeing Is Not Believing: Perceptions Of Horizontal Inequalities In Africa". CRPD Working Paper.
- Langer, Arnim, and Ukoha Ukiwo. 2008. "Ethnicity, Religion and the State in Ghana and Nigeria: Perceptions from the Street." In *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies*, edited by Frances Stewart, 205-226. London: Palgrave Macmillan UK.
- Lessmann, Christian. 2016. "Regional Inequality And Internal Conflict." *German Economic Review* 17 (2):157-191.
- Mancini, Luca, Frances Stewart, and Graham K Brown. 2008. *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies., Approaches to the Measurement of Horizontal Inequalities*. Basingstoke: Palgrave Macmillan.
- Melander, Erik. 2005. "Gender Equality and Intrastate Armed Conflict." *International Studies Quarterly* 49 (4):695-714.
- Miodownik, Dan, and Lilach Nir. 2016. "Receptivity to Violence in Ethnically Divided Societies: A Micro-Level Mechanism of Perceived Horizontal Inequalities." *Studies in Conflict and Terrorism* 39 (1):22-45.
- Mitra, A., and D. Ray. 2014. "Implications of an Economic Theory of Conflict: Hindu-Muslim Violence in India." *Journal of Political Economy* 122 (4):719-765. doi: 10.1086/676316.
- Murshed, S. M., and S. Gates. 2005. "Spatial-Horizontal Inequality And The Maoist Insurgency In Nepal." *Review of Development Economics* 9 (1):121-134. doi: 10.1111/j.1467-9361.2005.00267.x.
- Must, Elise. 2016. "When And How Does Inequality Cause Conflict? Group Dynamics, Perceptions And Natural Resources." PhD thesis, Department of Government, London School of Economics.
- Nepal, Mani, Alok K. Bohara, and Kishore Gawande. 2011. "More Inequality, More Killings: The Maoist Insurgency in Nepal." *American Journal of Political Science* 55 (4):886-906.
- Nordhaus, W., Q. Azam, D. Corderi, K. Hood, N. M. Victor, M. Mohammed, A. Miltner, and J. Weiss. 2006. *The G-Econ Database On Gridded Output: Methods And Data*. edited by Yale University. Unpublished.

- Peters, K., and P. Richards. 1998. "Why We Fight': Voices of Youth Combatants in Sierra Leone." *Africa: Journal of the International African Institute* 68 (2):183-210.
- Regan, Patrick M., and Daniel Norton. 2005. "Greed, Grievance, and Mobilization in Civil Wars." *The Journal of Conflict Resolution* 49 (3):319-336.
- Rustad, S. A. 2016. "Socioeconomic Inequalities and Attitudes toward Violence: A Test with New Survey Data in the Niger Delta." *International Interactions* 42 (1):106-139. doi: 10.1080/03050629.2015.1048856.
- Siroky, D., and M. Hechter. 2016. "Ethnicity, Class, And Civil War: The Role Of Hierarchy, Segmentation, And Cross-Cutting Cleavages." *Civil Wars* 18 (1):91-107. doi: 10.1080/13698249.2016.1145178.
- Sovey, Allison J., and Donald P. Green. 2011. "Instrumental Variables Estimation in Political Science: A Readers' Guide." *American Journal of Political Science* 55 (1):188-200. doi: 10.1111/j.1540-5907.2010.00477.x.
- Stewart, Frances. 2002. "Horizontal Inequalities: A neglected dimension of development." *QEH Working Paper Series* QEHWPS81.
- Tarrow, Sidney. 2011. *Power in Movement: Social Movements and Contentious Politics*. Cambridge University Press.
- UCDP. 2018. "Definitions." accessed 21 Feb 2018. Uppsala University, Department of Peace and Conflict Research. <http://www.pcr.uu.se/research/ucdp/definitions/>.
- Urdal, Henrik. 2006. "A Clash Of Generations? Youth Bulges And Political Violence." *International studies quarterly* 50 (3):607-629.
- Vadlamannati, Krishna Chaitanya. 2011. "Why Indian Men Rebel? Explaining Armed Rebellion In The Northeastern States Of India, 1970-2007." *Journal of Peace Research* 48 (5):605-619.
- Wimmer, Andreas, Lars-Erik Cederman, and Brian Min. 2009. "Ethnic Politics and Armed Conflict: A Configurational Analysis of a New Global Data Set." *American Sociological Review* 74 (2):316-337.
- Wood, Elisabeth Jean. 2003. *Insurgent Collective Action And Civil War In El Salvador*. New York: Cambridge University Press.
- Wucherpfennig, J., P. Hunziker, and Lars-Erik Cederman. 2016. "Who Inherits the State? Colonial Rule and Postcolonial Conflict." *American Journal of Political Science* 60 (4):882-898. doi: 10.1111/ajps.12236.
- Østby, G., R. Nordås, and J.K. Rød. 2009. "Regional Inequalities and Civil Conflict in Sub-Saharan Africa." *International Studies Quarterly* 53 (2):301-324.
- Østby, Gudrun. 2008a. "Inequalities, the Political Environment and Civil Conflict: Evidence from 55 Developing Countries." In *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies*, edited by Frances Stewart, 252-281. London: Palgrave Macmillan UK.
- Østby, Gudrun. 2008b. "Polarization, Horizontal Inequalities and Violent Civil Conflict." *Journal of Peace Research* 45 (2):143-162.
- Østby, Gudrun. 2013. "Inequality and political violence: A review of the literature." *International Area Studies Review* 16 (2):206-231.

## Notes

---

<sup>i</sup> Studies of polarisation and fractionalisation examine the degree to which society is split into different identity-based groups and the power balance between them (see Esteban and Ray 2008). Though different concepts, horizontal inequality and polarisation are similar and many authors use the terms as synonyms. Our attention will be on horizontal inequality.

<sup>ii</sup> Studies on horizontal inequality and communal conflict (Fjelde and Østby 2014, Mancini, Stewart, and Brown 2008, Atiku-Abubakar and Shaw-Taylor 2003, Hillesund forthcoming, Mitra and Ray 2014), nonviolent conflict (Regan and Norton 2005, Gurr 1993b), and attitudinal support for violence (Hillesund 2015, Rustad 2016, Miodownik and Nir 2016), fall outside the scope of this review. We also do not review qualitative or experimental studies.

<sup>iii</sup> Regarding other identity markers, only a few studies explicitly examine how gender- and age-based inequalities can fuel conflict. On gender, see Caprioli (2005); Melander (2005); and Bussmann (2010). On youth, see Urdal (2006) and Peters and Richards (1998). A few additional studies find a positive effect for regional inequalities (Lessmann 2016, Ezcurra and Palacios 2016, Østby, Nordås, and Rød 2009, Deiwiks, Cederman, and Gleditsch 2012, Murshed and Gates 2005, Deraniyagala 2005). However, it is not clear whether the measures of regional identity mainly proxy inequality between ethnic groups.

<sup>iv</sup> Initial studies suggest that HIs increase the risk of both violent and nonviolent action (Cunningham 2013, Gurr 1993b). An in-depth review of the literature on HI and nonviolent conflict falls outside the scope of this article.

<sup>v</sup> In Østby (2008b) the relationship is not statistically significant, probably due to the relatively small sample.

<sup>vi</sup> Gurr and Moore (1997) use a three-stage least squares model and find that economic discrimination helps predict grievances (as expressed by group representatives), grievances help predict mobilisation, and mobilisation helps predict ethno-political rebellion.

<sup>vii</sup> In cross-national studies, ethnic groups' economic status, the basis of all economic HI measures, is measured in two main ways: The first relies on geographically disaggregated data on GDP per capita and nightlight emissions, overlaid on ethnic groups' settlement areas (see for example Cederman, Weidmann, and Gleditsch 2011). The other aggregates cross-national survey data on asset ownership to the ethnic group level (first presented in Østby 2008b). On the relative strengths and weaknesses of different measurement approaches, see Østby (2013)

---

<sup>viii</sup> Instrumental variables are used to identify causal relationships and especially to address endogeneity concerns. However, their use is not without criticism; see Bound, Jaeger, and Baker (1995) as well as Sovey and Green (2011).