

Square Pegs in Round Holes: Inequalities, Grievances, and Civil War*

Halvard Buhaug[†], Lars-Erik Cederman[×] & Kristian Skrede Gleditsch[°]

[†] Centre for the Study of Civil War, PRIO

[×] Center for Comparative and International Studies, ETH Zurich

[°] Department of Government, University of Essex

Rough first draft, comment welcome!

March 11, 2011

Abstract

Much of the recent literature on civil war treats explanations rooted in political and economic grievances with considerable suspicion. Some researchers argue that ethnic frustrations are too widespread to be linked to internal conflict, and many empirical studies conclude that there is no relationship between ethnic fractionalization or measures of frustration and political violence to support such claims. By contrast, we argue that the indicators used in previous research, such as the ethno-linguistic fractionalization (ELF) and the Gini coefficient for income inequality, fail to capture the fundamental aspects of political exclusion and economic inequality at the group level that can motivate conflict. Whereas previous research have examined such features at the group level only, we develop new country-level indices that directly reflect horizontal inequalities among groups, including political discrimination and wealth differentials along ethnic lines. Our results show that these theoretically informed country profiles are much better predictors of civil war onset than conventional indicators, even when we control for a number of alternative factors potentially related to grievances or opportunities for conflict.

*) Prepared for presentation in the CCSS Colloquium at ETH Zürich on March 15, 2011

INTRODUCTION

After decades of scientific debate and numerous cross-national studies, the link between inequality and internal conflict remains persistently contested and frustratingly unclear. This assessment remains as valid today as it was in the late 1980s, when Lichbach (1989) published a comprehensive but inconclusive review of the literature. Whether framed as a Marxist proposition (Boswell and Dixon 1993) or a psychologically inspired thesis along the lines of “relative deprivation” (Gurr 1970), the idea that inequality triggers civil war and other types of political violence has drawn plenty of criticism (e.g. Tilly 1978; Skocpol 1979). More recently, some researchers have found support for an effect of inequality on violence (e.g., Boix 2008; Østby 2008), but most other prominent studies of civil war fail to uncover any systematic relationship and reject the influence of inequality together with other grievance-related explanations more generally (e.g. Collier and Hoeffler 2004; Fearon and Laitin 2003).

Focusing on explanations of civil war, we argue that the contradictory findings of the literature to a large extent can be attributed to the use of empirical measures of inequality and grievances that lack strong theoretical justification, and to assumptions of causal homogeneity that fail to distinguish between different types of internal conflict. In trying to “push square plugs through round holes,” scholars of civil war have thus unduly restricted the operationalization of both the independent and dependent variables in the grievance-conflict nexus.

In order to overcome these limitations, we argue in favor of replacing conventional individualist measures of grievances with indicators that tap political and economic inequalities at the group level, thus shifting the analytical focus from vertical to so-called horizontal inequality (Stewart 2008). A number of recent studies have examined horizontal inequalities and civil war (e.g., Østby 2008; Cederman, Buhaug, and Rød 2009; Cederman, Weidmann, and Gleditsch 2011). However, these studies have all considered groups as the units of analysis and considered only ethnic civil wars. As such they are therefore difficult to compare with country comparative studies of civil war more generally, and potentially sensitive to the specific delineation of groups, as some countries could give rise to a much larger or smaller number of groups than others.

Based on new country-level measures of grievances derived from group-level data, we find strong evidence that countries with prominent horizontal inequalities are much more likely to see civil war onset. Countries with radically poorer ethnic groups are more likely to experience territorial conflict, and governments that exclude large ethnic groups from central power run a much higher risk of violent challenges to their rule. Thus, both economic and political horizontal inequality tend to trigger civil-war violence when we distinguish between challenges targeting the power of the central government and challenges limited to claims over a separate part of a state’s territory. In contrast, traditional measures of individual-level grievances, such as the Gini coefficient of income inequality and various fractionalization indices, have no, or much weaker, impacts on the risk of violent civil war. We also show that

our more theoretically informed grievance measures provide better ability to predict out of sample which countries will experience civil war than conventional models of civil war.

The paper proceeds as follows. We first review the literature on inequality, grievances, and internal conflict, with particular attention to common arguments for dismissing the role of grievances in conflict. We then discuss the difference between vertical and horizontal inequality, and advance an argument for why political and economic inequalities that coincide with group cleavages are much more likely to lead violent mobilization than interpersonal inequalities unrelated to social structures. The following two sections provide a detailed discussion of our empirical measures and a presentation of the empirical analysis. Finding strong evidence that our proxies for group-level grievances in a country increase the risk of conflict, we show that such measures improve our ability to provide accurate out-of-sample forecasts of civil war onset.

INEQUALITY, GRIEVANCES, AND POLITICAL VIOLENCE

The role of grievances in conflict research attracted critical scrutiny well before Collier and Hoeffler (2004) introduced their catchy formula pitting “grievances” against “greed” as explanations of civil war. In modern conflict research, grievances are normally associated with relative deprivation theory, which postulates that frustrated material expectations tend to produce violence through psychological mechanisms (Gurr 1970). In response to these theoretical expectations, Tilly (1978) and other resource mobilization theorists questioned the explanatory power of such grievance-based accounts of political violence (see also Muller 1972; Obershall 1979; Skocpol 1979). In particular, these critics argued that frustrations are simply too common and cannot nearly be enough to trigger violence, especially since protest can be easily thwarted by powerful governments. Therefore, explanations of collective political violence need to gauge non-state challengers’ access to material and organizational resources rather than interpreting their motivations, which this line of reasoning deems to be largely irrelevant for explaining violence. More recent quantitative research on civil war reaches similar conclusions, although this literature tends to focus on cross-national comparative panel studies as opposed to the focus on broader forms of instability or dynamics of escalation in earlier sociological research (although see new studies on micro dynamics of civil wars, e.g. Kalyvas 2006; Tarrow 2007).

How do researchers contributing to the country-level literature on civil wars attempt to capture grievances? Without pretending to exhaust all possibilities, we can divide the arguments into two main dimensions, namely those that focus on ethno-political and economic grievances respectively.

Ethno-political grievances

The difficulty of measuring grievances directly has led many researchers to investigate how structural features, such as societal divisions can generate violent conflict. Although different types of cleavages, including class-based ones, can theoretically be linked to conflict onset, the most obvious alternative in such arguments is to focus on ethnic distinctions because of

their ascriptive and highly visible nature (e.g. Horowitz 1985). However, arguments linking ethnicity to conflict are not associated with a distinctive set of causal mechanisms, and many of them remain quite vague. Political economists have long suspected that ethnic diversity leads to instability and unrest. In a classical study, Rabushka and Shepsle (1972) contend that ethnic pluralism is usually incompatible with democratic stability. More recently, a series of econometric studies indicates that ethnically diverse societies harbor difficult-to-solve contention deriving from diverging preferences and differential skills and habits (for overviews, see Alesina and La Ferrara 2005; Kanbur, Rajaram and Varshney 2010). Drawing on socio-biological reasoning about ethnic groups, Vanhanen (1999) reaches a similar conclusion. Based on an extensive cross-national sample, he finds that significant ethnic divisions have a tendency to produce violent conflict. More broadly, Sambanis (2001) and Fearon and Laitin (2003) associate ethnic diversity with a larger class of arguments outlining the role of ethnic and nationalist grievances in conflict processes, whether profoundly primordialist like Vanhanen's argument, or explicitly modernist along the lines of Gellner (1983), Anderson (1991) and other prominent theorists of nationalism.

Ethnic fractionalization is the most common choice of indicator to test arguments of this type linking ethnic diversity to conflict. Fractionalization indices are operationalized in accordance with Herfindahl's formula, which can be interpreted as the probability that two randomly selected individuals in a population belong to different groups. Initially introduced by Easterly and Levine (1997) in a study of economic development, so-called ethno-linguistic fractionalization indices (ELF) are usually computed with data from the Soviet ethnographic Atlas Narodov Mira. However, fractionalization indices can be computed with other group definitions that reflect alternative and/or separate dimensions of ethnicity, including language and religion (see e.g. Alesina et al. 2003; Fearon 2003).

Some researchers have suggested alternative curvilinear relationships between diversity and conflict, where the risk of conflict will be lower at very high or low levels of fractionalization (e.g., Sambanis 2001; Collier and Hoeffler 2004). Others have argued that it is not so much diversity that increases the risk of conflict but polarization, especially a situation with two large ethnic groups confronting each other (Horowitz 1983; Montalvo and Reynal-Querol 2003; Østby 2008). Although these arguments are clearly distinct and suggest different empirical measures, they are similar to pure diversity arguments in looking primarily at the demographic size of groups rather than their political status. Moreover, any evidence for a relationship between these indicators of ethnic distributions and conflict remain equally disputed.

So far, the conflict literature has failed to yield a clear picture as regards the effect of ethnic diversity on civil conflict. Whereas some authors find evidence of a positive effect of ethnic diversity on conflict, including Sambanis (2001) and Hegre and Sambanis (2006), other influential studies find no effect at all (e.g. Collier and Hoeffler 2004; Fearon and Laitin 2003). Because of the latter camp's broad interpretation of fractionalization as a general proxy for ethno-political grievances, these authors readily come to the conclusion that these factors

have very low, or no, explanatory power. Surveying up the recent literature, Laitin (2007, p. 25) argues that

ethnic grievances are commonly felt and latent; the factors that make these grievances vital and manifest differentiate the violent from the nonviolent cases. Ex ante measures of grievance levels are not good predictors of the transformation or latent grievances into manifest ones. And it is the factor that turns latent grievances into violent action that should be considered as explanatory for that violence.

We summarize the aforementioned individual-level arguments relating to ethno-political grievances in a first main hypothesis:

H1: The probability of civil war increases with ethnic diversity.

Economic grievances

The classical formulation of relative deprivation inspired by Davies (1962) assumes that conflict-inducing frustrations stem from disappointment with actual outcomes compared to aspirations (Gurr 1970). However, relative deprivation can also be defined in relation to other, wealthier members of society at the same time point. Income inequality is the most obvious way to measure grievances that result from such interpersonal wealth comparisons. Of course, Marxist interpretations of political violence as direct consequences of class conflict constitute the locus classicus in the literature (see e.g. Bosswell and Dixon 1993). Beyond this ideologically explicit theorizing, a long-standing tradition of studies in comparative politics and sociology focus on peasant rebellions targeting radically asymmetric land distribution in the Third World (e.g. Russett 1964; Moore 1976; Scott 1976).

For example, in an influential study, Booth (1991) argues that persistent inequality and exploitation of peasants by rich landowners in Central America triggered revolutionary challenges to incumbent regimes in the 1970s and 1980s. Focusing on conflict during this period, Booth (1991, p. 34) claims that

economic development trends worsened the region's historically extreme maldistribution of wealth and income, intensifying grievances among negatively affected class groups. ... Such problems led the aggrieved to demand change and sparked growing opposition to incumbent regimes by political parties, labor unions, religious community organizers, and revolutionary groups. Violent repression of opposition demands for reform ... not only failed to suppress mobilization for change but actually helped forge revolutionary coalitions that fought for control of the state.

In this account, we can identify a distinctive causal chain starting with persistent inequality leading to grievances among the peasant population fueling demands for political change and redistribution. Denied such reforms, and possibly even encountering state-led repression, the aggrieved will see little choice but to rebel.

Because it is exceedingly difficult to measure grievances directly in large-N studies, most statistical studies rely on structural indicators of individual (or household) income inequality, most prominently the Gini coefficient, which reflects the extent to which observed income distribution differs from an equal distribution, with higher values indicating greater inequality.¹ Using this indicator as a crucial proxy for grievances, the most prominent recent studies of civil-war violence fail to find evidence of any link between inequality and conflict. While acknowledging that data problems may stand in the way of causal inference, these scholars interpret this non-finding as a confirmation of grievances' alleged irrelevance as an explanatory factor (Collier and Hoeffler 2004; Fearon and Laitin 2003).

However, Boix (2008) refines the standard argument about inequality and conflict by considering the impact of factor mobility. According to his logic, conflict is likely only in those cases where inequality relates to immobile resources, since wealthy elites are unable to move their wealth abroad should political change threaten their assets. Relying on structural measures of landownership rather than comparisons of income levels, Boix reports strong support for a link between wealth differentials and conflict behavior. Likewise, influential formal politico-economic models that take classes or social interests as actors such as Acemoglu and Robinson (2005) postulate a strong relationship between income distributions, preferences, and incentives for violent revolution.

In sum, the following hypothesis captures the preceding argument:

H2. The probability of civil war increases with economic inequality among individuals.

To sum up, the conventional literature that pitches its explanations of civil-war outbreak either at the individual level or more generally at the level of entire societies, says less about sub-state actors and structures operating between these two levels, such as ethnic groups and organizations. This lacuna may explain why these approaches have so far failed to produce convergent findings. Therefore, we now turn to theories that highlight specifically the group-level perspective.

GROUP-LEVEL HYPOTHESES LINKING INEQUALITY AND GRIEVANCES TO INTERNAL CONFLICT

As we have seen, the most prevalent proxies for grievances, such as the Gini coefficient of income inequality and indices of ethnic fractionalization, depend on individualist principles and are insensitive to other social cleavages or group structures. However, civil wars are not

¹ Other studies such as Muller and Seligson (1987) have relied on alternative measures of income distributions, such as the share of income held by the poorest or wealthiest percentiles. These measures are also based entirely on the observed income distribution for individuals or households.

primarily fought between individuals, but between governments and organized non-state groups. According to Stewart (2008, p. 11):

the majority of internal conflicts are organized group conflicts—they are neither exclusively nor primarily a matter of individuals committing acts of violence against others. What is most often involved is group mobilization of people with particular shared identities or goals to attack others in the name of the group.

In order to capture this important distinction, Stewart calls inequality among individuals vertical inequality (VI), and contrasts it to her notion of horizontal inequalities (HIs) which are defined as “inequalities in economic, social or political dimensions or cultural status between culturally defined groups” (p. 3). Of the four dimensions conceptualized by Stewart (2008), we will focus on the economic and political aspects of horizontal inequality, which can be contrasted directly to vertical inequality as a measure of economic grievances, and ethnic fractionalization as an indicator for ethno-political grievances.

Of course, the cohesion of ethnic groups cannot be taken for granted across the board (Brubaker 1996), and defection may occur in many cases (Kalyvas 2006), but social psychological theory offers strong reasons to believe that individuals often act on behalf of groups (see Tajfel and Turner 1979). Rather than relying on direct personal relations, the massive scale of social systems in the modern world leaves actors little choice but to rely on categorization to simplify reality (Gellner 1964). Mass media, education, and other identity-conferring mechanisms allow political institutions to foster collective identities that are often associated with considerable emotional commitment. Political ideologies, especially those appealing to nationalist values, are capable of engendering a strong sense of solidarity. In such cases, individual preferences are trumped by collective motivations, implying that the individual acts on behalf of the group and is willing to make major sacrifices in the name of collective identities and abstract principles (Anderson 1991).

Ethno-political grievances

Arguments hinging on ethnic diversity measured through individual-based indices, such as fractionalization, fail to capture a meaningful notion of group-level grievances and are thus poor proxies for most known theories of ethnic conflict and nationalism. Instead of focusing on merely ethno-demographic properties, such as relative group sizes in a population, it makes more sense to articulate an explicitly political account that characterizes the relationship between the ethnic group(s) in power (EGIP) and those that are excluded from access to executive power (Cederman and Girardin 2007). Importantly, tapping the political configuration of ethnicity implicitly also entails a temporal dynamic since hold on national power and other political privileges in a society are prone to changes over time.

The French Revolution initiated a new era in world politics that made nationalism the dominant source of political legitimacy. Whereas the pre-nationalist state's limited societal intrusiveness meant that borders could be adjusted primarily according to the geopolitical

demands, this flexibility ceased to exist in a system where the coincidence of cultural and political borders was central (Gellner 1983). Once the state became the coveted prize of many aspiring national movements, fierce competition broke out over its control in areas characterized by a non-coincidence of ethnic and political boundaries. By excluding entire ethnic groups from power, incumbent elites were able to hoard power and limit the distribution of the spoils to the in-group. Yet, despite the immediate advantages accruing to the favored group, such exclusionary policies are likely to trigger conflict as grievances grow among the powerless and discriminated parts of the population (Gurr 1993; Cederman, Wimmer and Min 2010).

This process requires a fair amount of political mobilization and leadership in order for a sense of moral outrage to spread in the concerned population. Indeed, emotional commitment is clearly not enough, because weak movements may be effectively crushed by powerful governments. Thus, only those rebel organizations that control sufficient material and organizational resources are able to challenge the state through violent means (Tilly 1978). Contrary to the beliefs of the resource mobilization school, however, it does not automatically follow that the power of grievances is swamped by power differentials. Instead, we postulate that the stronger the emotional power of the grievances in the first place, the more readily the rebels will be able to overcome collective-action dilemmas blocking armed resistance (Goldstone 2001; Emirbayer and Goldberg 2005). Since grievances in turn depend on the amount of initial horizontal inequality, we arrive at the following hypothesis that measures the degree of political horizontal inequality in terms of political discrimination:

H3. The probability of civil war increases with political discrimination.

Note that this hypothesis highlights the degree of discrimination in a country rather than merely focusing on the size of the excluded population (cf. Wimmer, Cederman and Min 2009). If the emotion-based mechanism outlined above holds, we should be able to detect an especially strong link between discrimination, viewed as a subset of exclusionary policies, and conflict onset. Since our analysis is pitched at the level of entire countries, which often include a large number of excluded groups, the pertinence of the usually less frequent discriminated groups as potential rebels should be especially important, since this signal is less likely to drown in the process of aggregation from groups to the country level.

Below, we explore additional aspects of the ethno-political environment, including the related claim that recent downgrading of ethnic groups' power status is particularly conducive to conflict, as well as the possibility that ethnic power sharing increases the probability of infighting.

Economic grievances

By now it should be clear that vertical inequality, measured as the Gini coefficient, does not fully capture all conflict-relevant aspects of societal inequality. In a powerful critique of such individual-level conceptions of inequality that bears strong resemblance to Stewart's notion of horizontal inequality, Tilly (1999; 2006) advances a "relational" perspective that explains

how durable inequality results from categorical differences. In Tilly's words, "a view of inequality as outcomes of individual-by-individual competition according to widely shared standards of merit, worthiness, or privilege obscures the significance of organized distinctions and interactions among members of different social categories." Rather than being a mere reflection of differences in skill or changes in the supply of resources, then, inequality thus conceived can be seen as an outcome of "politics of exclusion" whereby political elites make the distribution of goods and values dependent on membership in specific societal categories.

The explicit role played by political agency points directly to how this type of wealth discrepancies may trigger political violence. The road to conflict leads via grievances, which can be seen as emotional reactions to perceived injustice. Objective resource asymmetries are known to emerge in many ways, including through colonialism and internal domination (Williams 2003, pp. 106-107), but are not in themselves sufficient to produce grievances. Members of disfavored groups first have to be made conscious of their predicament through explicit intergroup comparison and convinced that the unequal distribution of wealth is not merely unjust, but also to be blamed on the state's incumbent elite (Gamson 1992).

Again, we expect other factors to influence the likelihood of conflict, including most importantly the power of the non-state challenger compared to the incumbent state (e.g., Cederman, Buhaug and Rød 2009; Buhaug 2010). But as already argued in connection with hypothesis H3, if the causal process is mediated by a grievance mechanism, the extent of structural inequality in a society should have a discernable impact on the outbreak of violent conflict.

In contrast to the at best mixed results of the large-N studies focusing on vertical inequality, Horowitz (1985) forcefully argues along qualitative lines that both "backward" and "advanced" groups are overrepresented as conflict groups. Likewise, Stewart (2008) reports on a series of case studies that strongly confirm the causal power of horizontal inequality. Using survey data from Africa, Østby (2008) has also been able to find confirming evidence for the thesis. More recently, Buhaug et al. (forthcoming) and Cederman, Weidmann, and Gleditsch (forthcoming) provide further support to the proposition, using spatial methods to arrive at a global estimate of wealth distribution and horizontal inequalities from disaggregated economic data.

We are now in a position to formulate our last major hypothesis:

H4. The probability of civil war increases with economic horizontal inequality.

This section has shown that the literature provides plenty of systematic evidence on both political and economic horizontal inequality, but so far, these results have either been limited to parts of the world due to data problems, or of global reach, but disaggregated to sub-national units, as in the case of the recent spatial analyses of Buhaug et al. (forthcoming) and Cederman, Weidmann and Gleditsch (forthcoming). The main goal of the current paper is to investigate whether the hypotheses advanced in these previous studies hold at the country-

level and what types of aggregated indicators are best suited to capture the theoretical arguments associated with horizontal inequality. Once such indicators have been found, it becomes possible to directly compare them to well-known studies that rely on country-years as their main unit of analysis. It is to these tasks that we now turn.

METHODS AND MEASUREMENTS

The four hypotheses are evaluated empirically through a country-level regression analysis of all members of the international system, 1960–2005 (see Gleditsch and Ward, 1999). Data on civil war onset and ethnic group involvement are derived from the Non-State Actor dataset (Cunningham et al. 2009) and the Ethnic Power Relations data (Cederman, Wimmer and Min 2010), which in turn are based on the UCDP/PRIO Armed Conflict Dataset (Gleditsch et al., 2002; Harbom and Wallensteen, 2010). We use the most inclusive definition of civil war, counting all conflicts between a state and one or more rebel groups that generated at least 25 battle-related deaths in a calendar year. We use two alternative dependent variables (DVs). The first is a standard binary indicator, where an onset is coded in the initial year of a new civil war (183 observations). In addition, we use a four-category onset indicator that separates between onsets of different conflict types (no onset is the reference group):

- i) Ethnic territorial conflict, 55 observations;
- ii) Ethnic governmental conflict, 42 observations; and
- iii) Non-ethnic conflict, 86 observations.

There is little point in disaggregating the latter category with respect to aim as nearly all non-ethnic civil wars fall in the governmental conflict category. The classification of territorial (separatist) and governmental conflict is based on the UCDP/PRIO incompatibility indicator. Furthermore, conflicts are considered ethnic if recruitment is based on ethnic affiliation and/or the rebel group makes claims on behalf of a specific ethnic community. For both DV variants, subsequent years of conflict activity are coded as zero except where a new conflict breaks out.² For sensitivity tests, we also use Fearon and Laitin's (2003) civil war data, which are classified in the same manner based on the original dataset's identification of ethnic/non-ethnic and center/exit wars.

We test a number of potential proxies for ethnic grievances and inequality. The models presented below feature standard, individual-based measures of ethnic and economic diversity: Fearon and Laitin's (2003) ethnic fractionalization index (ELF) and a Gini index for income dispersion (World Income Inequality Database, WIID). To minimize missing data problems in the WIID data, we apply linear interpolation between data points and extended the time series by copying the earliest/latest known value to earlier/later years by country.³

² The comparably low severity threshold for defining civil war implies that a country may host several distinct armed conflicts at the same time (examples include Ethiopia, India, and Myanmar). Recoding observations with ongoing conflict as missing (i.e., considering civil war countries not at risk of facing another challenger) does not substantively affect the results presented here.

³ In sensitivity tests discussed below, we also consider Reynal-Querrol's polarization index (see Montalvo and Querrol 2005) and Boix' (2008) structural inequality indices.

Measures of horizontal economic inequality were generated through a number of steps. First, we calculated group-level data on wealth for all ethnic groups in all countries by joining the G-Econ gridded dataset on economic activity (Nordhaus 2006) with the GeoEPR dataset on ethnic group settlements (Wucherpfennig et al., 2011).⁴ We then identified the richest and poorest group in each country, from which we constructed country-level inequality indicators that give the relative gap between the mean national income and the income level for the poorest and richest group, respectively:⁵

NHI: Negative horizontal inequality = country-level GDP per capita / mean per-capita income for poorest group.

PHI: Positive horizontal inequality = mean per-capita income for richest group / country-level GDP per capita.

It should be noted that the G-Econ data represent 1990 and are time-invariant. Accordingly, our economic inequality variables are static. This might seem problematic as almost all countries experienced considerable economic growth during the sample period, but with notable differences in growth rates between cases and over time. Even so, we have little reason to believe that the intrastate distribution of wealth changes much over time (see e.g. Tilly 1999; Stewart and Langer 2008). In the case of India, one of a handful of countries with reliable time-series data on economic activity at a subnational level, the economic growth rates are virtually identical for all states during the last thirty years, according to statistics from the Indian Federal Reserve Bank (see web appendix for details).⁶ Subnational regions – and ethnic groups – that are comparably poor at the outset of this empirical analysis are very likely to be among the poorest regions/groups also in the final year. A potentially more problematic aspect of the static inequality data is the problem of reverse causality, whereby relative poverty in our group-level data may be due to past conflict. Again, by referring to economic statistics for Indian states (several of which have hosted ethnic insurgencies during the last couple of decades), we find little reason for concern. To our knowledge, our indicators constitute the only available data of inter-group inequality with a global coverage.⁷

Our second inter-group grievance indicator captures inequality in ethno-political opportunities and is based on the Ethnic Power Relations data (Wimmer, Cederman and Min 2009; Cederman, Wimmer and Min 2010). The EPR project identifies political status for all politically relevant ethnic groups worldwide for all years since 1946. In this paper we focus

⁴ See Cederman, Buhaug and Rød (2009) for further documentation on how group-specific estimates can be constructed from spatial data by means of geographic information systems (GIS) software.

⁵ In ethnically homogenous countries (e.g., North Korea) and countries where ethnicity has no distinct spatial dimension (e.g., Rwanda), these measures take on the value 1.

⁶ Similarly, the relative wealth of the ethnic regions within the former Yugoslavia remained stable over several decades (see Lang 1975).

⁷ We considered using Baldwin and Huber's (2010) between-group inequality (BGI) data, generated from various Demographic and Health Surveys (DHS) as an alternative indicator of horizontal economic inequality in the sensitivity analysis. However, the limited, non-random coverage of those data implies that the results would not be directly comparable and hardly generalizable to the universe of cases.

on political discrimination as a potential source of ethnic grievance. At the country level, this is operationalized as the demographic size of the largest discriminated ethnic group (LDG) relative to the joint size of the discriminated group and the group(s) in power. This variable is bounded within the interval [0, 1]. We further include two dummy variables to control for additional aspects of the ethno-political context. The first indicator marks whether one or more ethnic group(s) in the country lost political status during the preceding year (downgrade).⁸ Second, we mark country years where the political system is founded on a division of executive power between leaders of different ethnic groups. These measures, too, were constructed from the EPR data.⁹

Figure 1 compares our group-based indices with conventional measures of ethnic and economic inequality. Evidently, economic marginalization of ethnic minorities may be substantial even in countries with seemingly egalitarian wealth structures (e.g., Russia). Similarly, discrimination of large ethnic groups are found in relatively homogenous (i.e., polarized) as well as very heterogeneous societies. We also note that many of the observations with high intergroup economic/political inequality scores (vertical axes) have a recent history of intrastate conflict.

[Figure 1 about here]

In addition to the various inequality and dispersion measures, we also consider a number of control variables that conceivably may be correlated with both horizontal inequality and conflict, including logged GDP per capita (Penn World Tables #), democracy (Scalar Index of Politics from Gates et al., 2006), logged population size (PWT), and a dummy for power-sharing arrangements. In addition, to account for possible serial dependence and a different risk pattern for conflicts already involved in intrastate fighting, we include a civil war incidence indicator.¹⁰ All controls are lagged one year to reduce possible endogeneity.

REGRESSION ANALYSIS

We estimate a series of binary and multinomial logit regressions to assess the hypotheses. We start with the conventional binary civil war onset indicator as the dependent variable. The first model, that can be referred to as the “VI Model”, is a conventional model of civil war onset that contains the ELF and Gini proxies for ethno-political and economic grievances, as well as controls for the demographic, economic, and political context. The next model, the “Reduced HI Model” also includes group-based measures of ethno-political discrimination and

⁸ The EPR data classifies politically relevant ethnic groups into one of seven possible categories according to their extent of access to central state power: monopoly, dominant, senior partner, junior partner, regional autonomy, powerless, and discriminated. Any shift downwards on this hierarchical ladder implies political downgrading.

⁹ In this sensitivity analysis reported below, we replace the LDG indicator with the N* index calculated for discriminated groups (see Cederman and Girardin, 2007).

¹⁰ The results do not change if we replace the lagged conflict dummy with Beck et al.’s (1998) suggested non-linear specification of peace years or time since previous conflict.

horizontal inequality. The third model, or the “Full HI Model,” retains all right-hand-side regressors but replaces the standard civil war onset variable with the four-category DV that separates between different types of conflict. The results are displayed in Table 1.

In line with some earlier research, Model 1 indicates that ethnic diversity is positively correlated with civil war onset.¹¹ The estimated effect is quite large in substantive terms as well as regards statistical significance. A shift from the 5th percentile (ELF=0.03) to the 95th percentile (ELF=0.86) is associated with a near threefold increase in estimated civil war risk, with all other factors held at median values. Vertical income inequality, in contrast, appears unrelated to civil war, also reflecting the majority of earlier findings. We also note that national political configuration has is largely unrelated to the likelihood of civil war. There is some indication of a parabolic effect of democracy with semi-democracies being more conflict-prone than ideal-type regimes (results not shown) although not at a magnitude normally considered noteworthy ($p > 0.1$). Consistent with Hegre and Sambanis (2006), we find that population size and level of development have significant positive and negative impacts on the risk of conflict in Model 1.

In the Reduced HI Model, we introduce the new horizontal grievance proxies as well as controls for power sharing among ethnic groups and downgrading of their power status (see Model 2). We immediately note that the effect of ethnic diversity drops by about 25% while individual income inequality remains insignificant. More importantly, we now find that ethnic politics matter. In agreement with Hypothesis 3, regimes founded on political discrimination of sizable ethnic groups are disproportionately involved in civil war, and the magnitude of the effect is on par with that of ELF. In contrast, we find little evidence that relative wealth increases conflict risk. However, the Reduced HI Model supports our expectation that countries with economically marginalized groups are more conflict prone (see Hypothesis 4). Interestingly, the inclusion of horizontal inequality also improves the performance of GDP per capita by some margin.¹² The other covariates are largely unaffected by the inclusion of the group-based grievance variables.

Models 1–2 offer empirical substance to our claim that intergroup inequalities matter more for civil war risk than vertical disparities. Yet, not all conflicts are the same; earlier research has shown that territorial (separatist) and governmental (revolutionary) conflicts differ on several dimensions (Buhaug 2006). Similarly, conflicts may be categorized as either ethnic or non-ethnic (the latter sometimes being referred to as ideological) (Sambanis 2001). Aggregating all civil wars thus could mask important effects that only pertain to a particular conflict type or run in opposite direction across distinct types of conflicts (Sambanis 2004).

¹¹ The effect of ethnic diversity is generally reported to be much weaker for major civil wars (e.g., Buhaug, 2006).

¹² The marginal impact of (negative) intergroup economic inequality should be interpreted with some care, however, as the parameter estimate shrinks significantly when the most unequal societies (Argentina, Russia, and Thailand in some years) are removed from the sample.

In the Full HI Model, we estimate the effects of the grievance proxies specifically for ethnic separatist wars (outcome i), ethnic governmental wars (ii), and non-ethnic wars (iii), almost all of which are governmental (see Model 3).¹³ The results are striking. ELF no longer exhibits a significant effect with conventional levels of confidence on any positive outcome (although the marginal impact for the point estimate on both ethnic conflict types – ignoring the large standard errors – remains quite high). At the same time, the effect of ethno-political discrimination nearly triples for ethnic governmental conflicts compared to Reduced HI Model, while it remains irrelevant for other conflict types. Indeed, the elasticity of discrimination with respect to DV outcome ii amounts to a factor of five (estimated civil war risk increases from less than 0.003 to 0.013 with a shift from p5 to p95, all other variables held at their median values. This result supports the expectation that populous, politically discriminated ethnic groups will seek to violently overthrow the ruling regime or otherwise alter the political system. Moreover, we find that countries with one or more very poor ethnic groups – which typically make up only a fraction of the country population – are likely to aim at separation from the core or demand greater levels of autonomy rather than attempting to capture governmental power. This result actually becomes stronger if we drop the outliers. Lastly, we find some evidence for class-based mobilization in that higher individual income inequality is positively associated with the risk of non-ethnic (‘revolutionary’) civil war (Goldstone 2001).

Overall, our analysis shows that conventional explanatory variables of civil war are much better at accounting for territorial than governmental conflict (see also Buhaug 2006). In fact, ethnic governmental conflicts are explained largely by a discriminatory political system and power sharing. Whereas less than one-third of all observations in our sample are characterized by a system of ethno-political power sharing, sixty percent of the cases with ethnic governmental conflict outbreak share this trait. The latter finding would suggest that consociational regimes are particularly prone to factional fighting over control of the executive (Wimmer, Cederman and Min 2009). Yet there may also be a selection effect at play here, whereby countries with higher perceived inter-ethnic competition are more likely to establish a system of institutional power sharing. It is remarkable that the only covariate that obtains moderate statistical significance for non-ethnic conflicts in the Full HI Model is the Gini coefficient. This may partly reflect considerable heterogeneity among so-called ‘ideological’ civil wars that cannot be accounted for with our explanatory variables.

[Table 1 about here]

The results from Table 1 provide suggestive evidence that grievances and inequalities matter for violent conflict, although not in the simple, individualist manner implied by the demographic and relatively apolitical arguments associated with the ELF and Gini indices. Rather, in support of our group-based indicators, political discrimination and economic marginalization of ethnic groups both exhibit positive and statistically significant effects on

¹³ Cf. Wimmer, Cederman and Min (2009), who distinguish between secessionist and non-secessionist conflicts. We prefer the distinction between territorial and governmental conflicts since it circumvents the highly heterogeneous category of non-secessionist conflicts.

the risk of civil war.

Inequity in political participation and power might in principle be associated with armed conflict of any kind; however, whenever access to these privileges is determined by ethnic affiliation and sizable groups of society are discriminated, the odds of mobilization and conflict aiming at restructuring the political system increase. Large politically discriminated groups constitute a larger threat to the ruling regime than small, peripheral minorities and are more likely to succeed in capturing and maintaining state control. Conversely, countries with large intergroup discrepancies in wealth and economic opportunities are more likely to face separatist challenges. As the income inequality measures are normalized by the average national income per capita, high inequality values by design are driven by small minority groups.

OUT-OF-SAMPLE PREDICTIONS

So far, we have shown that indicators of between-group inequalities facilitate the separation between conflict and non-conflict observations as opposed to vertical measures of ethnic and economic diversity. Calculations of marginal effect for individual variables demonstrate that this difference is not only significant in statistical terms but also quite substantive. Next, we compare the predictive performance of simplified versions of the HI Model and the VI Model. Relying on the observations for the 1960–99 period to train the models, we then use the estimated probabilities for countries in 1999 to predict civil war onset out-of-sample, within the next decade, i.e., 2000–09. To facilitate direct comparison, we exclude the VI indicators from the HI model (unlike Model 2) and estimate both models on the exact same sample of observations.¹⁴ The selection of control variables is identical to the models presented above.

As a first test, we apply a simple classification scheme and compare binary prediction scores for the two models with data on actual outbreaks of civil war. We first aggregate the yearly probabilities for 1999 into risk of conflict over the subsequent decade p^* ¹⁵, and then convert the continuous prediction scores into a binary predicted onset/no onset outcome by using $p^*=0.5$ as the classification criterion. The results are presented in Table 2.

[Table 2 about here]

According to the VI model, 14 of the 130 sample countries should experience civil war onset during the first decade of the new millennium ($p^*>0.5$). Four of these predictions were accurate whereas another 22 civil wars were not correctly predicted. The remaining 104 out-of-sample observations have $p^*<0.5$ and hence are classified as no onset. 94 of these

¹⁴ A number of countries are dropped due to missing data on the Gini indicator. The results of the out-of-sample assessment do not change if we allow each model to be estimated on (and generate predictions for) the full valid sample.

¹⁵ The probability of conflict over the decade is defined from the annual probabilities p by $p^* = 1 - (1 - p)^{10}$, i.e., as the complement that none of the 10 years will see conflict.

predictions were true while ten non-war observations are missed (false positives). The HI model fares better, as seen by comparing the share of all observations that fall along the NW-SE diagonal. It successfully predicts twice as many civil war onsets (eight) while the number of false onsets drops to nine. At the same time it correctly identifies 95 non-onset countries whereas the number of false negatives (i.e. missed civil wars) is 18. In other words, using $p^* > 0.5$ as the classification criterion, the HI model correctly identifies 44% of all civil war onsets and 91% of the non-onsets during the subsequent decade; the corresponding figures for the VI model are 15% and 90%, respectively.

A more comprehensive comparison of the models' predictive capability is provided by the Receiver Operating Characteristic (ROC). ROC curves visualize the rate of true positives against the rate of false positives across the full range of possible cut-off points c for a binary variable $p^* > c$ (see Hosmer and Lemeshow 2000). The better a model predicts, the more steeply the curve rises and the larger the area under the curve (AUC, expressed as share of the total area of the plot). As seen in Figure 2, the ROC curve is higher for the HI model almost across the board and the AUC score is notably larger than that of the VI model.¹⁶ Evidently, the predictions from the model with the group-based indicators of horizontal inequality exhibit a stronger and more consistent covariation with the countries that see civil war onset out of sample than the predictions from models that consider standard grievance proxies based on individual-level ethnic/economic dispersion indices.

[Figure 2 about here]

Figure 3 provides a complementary assessment of the discrepancy in predictions between the VI and HI models. For most countries, the predictions of the two models are similar, but there are some notable exceptions. The risk of conflict in Russia from 2000 to 2009, for example, is twice as high in the horizontal or group-based model compared to the vertical inequality model, reflecting the comparatively large between-group economic and political inequalities in the country. Similar patterns are found for Rwanda and Yugoslavia as well, although in the latter case the HI model returned a false positive prediction (i.e., false as there was no new conflict onset after 2000). Conversely, some countries are worse off when judged by the ELF and Gini indicators than by ethno-political discrimination and income deviation for the poorest group. Tanzania and the Philippines are both considered to be about 50% more at risk in the VI model (neither experienced civil war outbreak). The least likely case that actually saw civil war in the prediction period is the USA ($p_{HI}^* = 0.17$), which is perhaps a questionable classification of the Uppsala data.¹⁷ Ethiopia is the most likely candidate for

¹⁶ The predictive power of the VI model exceeds the HI model in a narrow band where the true positive rate is very high (>0.75) and the false positive rate is also quite high. Hence, since the left part of curve – where the rate of true vs. false positives is the highest – is the most relevant, it is difficult to see the higher performance of the VI model in this area as strong support for the model.,.

¹⁷ Somewhat controversially, the UCDP/PRIO data project treats the 9/11 attacks as a civil war in the USA. Had al-Qaeda limited itself to striking civilian targets (i.e., not attacking the Pentagon), this conflict would not have fulfilled the inclusion criteria for an armed intrastate conflict.

conflict that did not see a new civil war outbreak ($p_{HI}^* = 0.77$). Of the 18 false negatives for the HI model (triangles seen in the lower left quadrant of Figure 3), a majority either endured a civil war at the outset of the prediction period (six countries) or had not experienced conflict in at least a decade (six cases) – each of which condition lowers the a priori probability of a new civil war onset.

[Figure 3 about here]

SENSITIVITY ANALYSIS

Although the results presented thus far are encouraging, we need to say more about their robustness. One possible concern relates to the inclusive nature of the UCDP/PRIO data, which cover all armed intrastate conflicts with at least 25 annual casualties. Among other things, the comparatively low fatality threshold allows recording multiple conflicts in the same country at the same time. It could be that our results are driven by a number of low-intensive conflicts and that the reported relationship between inequality and conflict is not representative for more severe and (arguably) more politically relevant civil wars.¹⁸ In Table 3, we replace the UCDP/PRIO conflict data with Fearon and Laitin's (2003) civil war data. This dataset is limited to including armed conflicts that generated at least 1,000 deaths in total, with a yearly average of at least 100 deaths, and with at least 100 killed on each side. Model 4 is a re-estimation of Model 2 whereas Model 5 is identical to Model 3 except for choice of DV.¹⁹

We immediately note the weak and insignificant effect of ethnic diversity in Model 4, which stands in contrast to its substantial impact in Model 2. Evidently, countries with many ethnic groups are more likely to be challenged by smaller (and almost always peripheral) insurgencies but these are unlikely to escalate to full-blown civil wars. Vertical income inequality, too, appears irrelevant for major civil war risk, replicating the result reported above. Inequality in wealth and political rights, when measured between groups rather than individuals, however, still matter. Regimes consisting of relatively small political elites, with widespread discrimination of large ethnic groups, are systematically and substantively over-represented in the conflict sample. Ethnocracies (LDG at 95th percentile) are twice as conflict prone as democratic and inclusive societies (LDG at 5th percentile), all else held constant. The marginal impact of high negative economic inequality is comparable, increasing the estimated

¹⁸ For example, Fearon (2010) speculates that the comparably low fatality threshold of the UCDP/PRIO data leads to an overrepresentation of conflict observations in populous and highly ethnically fractionalized countries. However, we note that at least in our dataset the ELF score for conflict countries is actually marginally lower when all UCDP/PRIO intrastate conflicts are considered than when the sample is restricted to Fearon and Laitin's (2003) major civil war countries.

¹⁹ In order to separate between different types of civil war we relied on Fearon and Laitin's original classification of ethnic wars as well as their distinction between "center" (i.e. governmental) and "exit" (territorial) civil wars. These models contain fewer observations as Fearon and Laitin's civil war data only run through 1999. In models not shown, we also use a beta version of Fearon's (2010) updated civil war data for the entire sample period, 1960–2008. The results do not change.

civil war risk more than twofold with a corresponding shift in values for the NHI indicator. We interpret this as additional empirical evidence that ethnicity matters for understanding conflict, whereby the (extent of) unequal distribution of economic and political privileges between ethnic groups has a consistent and positive impact on the probability of rebellion.

Next, we reassess the specific expectations on how ethno-political and economic grievances might relate to various types of civil war. Again, the results are encouraging in the sense that our key HI indicators replicate the pattern found in Table 1. The effect of intergroup ethnic and political disparities is evident even in the limited sample of severe civil wars. Economic marginalization of one or more ethnic minorities significantly increases the risk of separatist conflict but not other forms of organized, state-based violence. In contrast, political discrimination of the most likely contenders for state power (i.e., the largest groups not in government) increases the likelihood of governmental ethnic conflict by a factor of four but has no systematic bearing on territorial or non-ethnic wars.²⁰ Interestingly, our group-based controls for downgrading and power sharing lose much of their impact on major civil wars. While this might indicate that certain ethno-political constellations and events might carry greater potential for escalating conflict to all-out wars than others, we are reluctant to put too much emphasis on the observed differences due to the rareness of these outcomes. Except for the positive and significant association between ethnic fractionalization and ethnic territorial wars, Model 5 reveals only trivial effects for the vertical inequality measures, adding further weight to our argument that it is the sociopolitical configuration of ethnicity, rather than diversity per se, that matters.

[Table 3 about here]

To further assess the robustness of the reported findings, a number of sensitivity tests were carried out. Space constraints prevent a thorough presentation of this analysis here; instead, we refer to the web-based appendix for complete documentation of these tests. Among other things, we sequentially replaced each of the four sets of inequality indicators with alternative measures. As an alternative measure of demographic diversity, we used Montalvo and Reynal-Querol's (2005) ethnic polarization index (RQ) whereas the Gini index of income disparity was replaced by Boix' (2008) proxies for immobile economic assets. Neither of these alterations substantively affected the behavior of the group-based inequality indicators. Furthermore, we replaced the weakest link-inspired measure of ethno-political discrimination (LDG) with a derivative of Cederman and Girardin's (2007) N* index, reflecting extent of political discrimination (instead of exclusion more generally). Unsurprisingly, the N* index replicated our earlier finding; extensive ethno-political discrimination is associated with ethnic governmental conflict but not with other forms of civil war. Finally, we replaced the relative wealth/poverty indices (PHI, NHI) with a unified between-group inequality measure (REF? Baldwin and Huber OR Mancini chapter from Stewart 2008), analogous to the Gini index, based on the G-Econ dataset. This indicator performed less well than the directed

²⁰ Calculations based on a shift in discrimination from the 5th to the 95th percentile value, holding all other factors in Model 5 at median values.

indices and failed to return a statistically significant coefficient on any type of civil war outcome. Evidently, large negative discrepancies from the country average income level (i.e., where one of a few groups are comparably poor and remaining groups are relatively equal) are more hazardous than large positive deviations (where a small elite is wealthy and most other groups are equally poor).

Our sensitivity tests also include logistic and linear fixed-effects regression to correct for possible (time-independent) unobserved factors that might correlate with civil war onset. Moreover, we explore the sensitivity of our findings to changes in model specifications, sample inclusion criteria, and outlier manipulation. These tests further increase our confidence in the importance of ethno-political and economic grievances for understanding where and when civil wars break out.²¹

CONCLUSION

Despite widespread agreement among practitioners and laymen that material and political inequalities matter for popular unrest and civil war, prominent scholars in the empirical civil war literature dismiss this link by referring to the alleged ubiquity of grievances that hinders separating between cases of peace and war. Our findings suggest that there are good reasons to be skeptical of this claim. A major reason why earlier research has failed to converge on a robust relationship between measures of societal inequalities and civil war is due to theoretical misspecification and, consequently, poor validity of applied measurements. Instead of considering interpersonal differences in opportunities and privileges as the main markers of grievance in a society, we have shown that political and socioeconomic disparities increase the risk of civil war primarily when they overlap with ethnic cleavages at the group level.

While several recent disaggregated studies have been able to tease out such effects at the sub-national level, this paper is the first one to propose country-level measures of both economic and political horizontal inequality that allow us to compare the effect of such mechanisms compared to vertical inequality. As a way to overcome the information loss associated with aggregation from sub-state to state level analysis, our new indicators operate according to the principle of the “weakest link”. Which parts of the chain are most likely to trigger civil-war onset? Thus we operationalize ethno-political grievances in terms of the size of the largest discriminated group within a country rather than measuring the total excluded population. Furthermore, we measure economic horizontal inequality by comparing the relative wealth of the poorest and most affluent groups in relation to the country average.

Once the conflict types have been properly unpacked, a clear picture emerges. First, we find that the presence of ethnic groups that are much poorer than the country as a whole increases the risk of territorial conflict. Second, our results indicate that large discriminated groups boost the probability of governmental civil wars. In contrast, conventional proxies for ethnic diversity and vertical economic inequality lose almost all of their effect as soon as horizontal

²¹ [Insert guidance on where the web appendix can be accessed.]

inequalities are accounted for. These findings are robust to a series of sensitivity tests. Of course, it could be that further improved data and more sophisticated indicators of individual-level inequality could resurrect conventional grievance arguments. However, our study casts doubt on the too-often unreflective reliance on standard proxies, such as ELF and the Gini coefficient, in the absence of explicit conflict mechanisms. It would seem that, despite their popularity in the econometric literature, the arguments that attempt to link ethnic diversity with the outbreak of civil war have been especially poorly articulated and insufficiently anchored in specific conflict-inducing mechanisms.

The findings presented here are of significant policy relevance, for at least two reasons. First, our group-based indices of horizontal inequalities make us more able to predict the locus and timing of future civil wars than do conventional measures of ethnic fractionalization and income disparity (e.g., Goldstone et al. 2010). In particular, the inherently dynamic feature of ethno-political discrimination in many countries demonstrate a systematic pattern of covariation with civil war outbreak.

Second, our results verify earlier findings on the importance of ethno-nationalist politics for translating societal inequalities into political violence. This perspective tells us that conflicts will remain extremely difficult to resolve, and if resolved, likely to recur, as long as the underlying problems of exclusion or horizontal inequality continue to fester. Thus, including and empowering previously excluded and discriminated populations, and reducing inequality along ethnic lines through a fairer distribution of public goods are more likely to promote peace and stability than short-sighted attempts to “strengthen the state” by supporting illegitimate and exclusionary regimes in the name of “stability.” Rather than dismissing grievances out of hand, researchers and policy makers would do well to carefully consider their effects on the outbreak of civil war.

REFERENCES

- Acemoglu, Daron and Simon Robinson. 2005. Unbundling Institutions. *Journal of Political Economy* 113(5): 949-995.
- Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg. 2003. Fractionalization. *Journal of Economic Growth* 8:155-94.
- Alesina, Alberto and Eliana La Ferrara, 2005. Ethnic Diversity and Economic Performance. *Journal of Economic Literature* 43(3): 762-800.
- Anderson, Benedict. 1991. *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. London: Verso.
- Baldwin, Kate and John D. Huber. 2010. Economic versus Cultural Differences: Forms of Ethnic Diversity and Public Goods Provision. *American Political Science Review* 104: 644-662.
- Beck, Nathaniel, Jonathan N. Katz, and Richard Tucker. 1998. Taking Time Seriously: Time-Series—Cross-Section Analysis with a Binary Dependent Variable. *American Journal of Political Science* 42(4): 1260–1288.
- Boix, Carles. 2008. Economic Roots of Civil Wars and Revolutions in the Contemporary World. *World Politics* 60 (3): 390-343.
- Booth, John A. 1991. Socioeconomic and Political Roots of National Revolts in Central America. *Latin American Research Review* 26:33-73.
- Boswell, Terry, and William J. Dixon. 1993. Marx's Theory of Rebellion: A Cross-Nation Analysis of Class Exploitation, Economic Development, and Violent Revolt. *American Sociological Review* 58 (5):681-702.
- Brubaker, Rogers. 1996. *Nationalism Reframed: Nationhood and the National Question in the New Europe*. Cambridge: Cambridge University Press.
- Buhaug, Halvard. 2006. Relative Capability and Rebel Objective in Civil War. *Journal of Peace Research* 43(6): 691–708.
- Buhaug, Halvard. 2010. Dude, Where's My Conflict? LSG, Relative Strength, and the Location of Civil War. *Conflict Management and Peace Science* 27(2): 107-128.
- Buhaug, Halvard, Kristian Skrede Gleditsch, Helge Holtermann, Gudrun Østby and Andreas F. Tollefsen. Forthcoming. It's the Local Economy, Stupid! Geographic Wealth Dispersion and Conflict Outbreak Location. *Journal of Conflict Resolution*.

- Cederman, Lars-Erik, Halvard Buhaug, and Jan Ketil Rød. 2009. Ethno-Nationalist Dyads and Civil War: A GIS-Based Analysis. *Journal of Conflict Resolution* 53(4): 496-525.
- Cederman, Lars-Erik, and Luc Girardin. 2007. Beyond Fractionalization: Mapping Ethnicity onto Nationalist Insurgencies. *American Political Science Review* 101(1): 173-185.
- Cederman, Lars-Erik, Nils B. Weidmann, and Kristian Skrede Gleditsch. 2011. Horizontal Inequalities and Ethno-Nationalist Civil War: A Global Comparison. Forthcoming in *American Political Science Review*.
- Cederman, Lars-Erik, Andreas Wimmer, and Brian Min. 2010. Why Do Ethnic Groups Rebel? New Data and Analysis. *World Politics* 62(1): 87-119.
- Collier, Paul and Anke Hoeffler. 2004. Greed and Grievance in Civil War. *Oxford Economic Papers* 56 (4): 663–595.
- Collier, Paul and Nicholas Sambanis, eds. 2005. *Understanding Civil War, Vols I & II*. Washington, DC: World Bank.
- Cunningham, David E., Kristian Skrede Gleditsch, and Idean Salehyan. 2009. It Takes Two: A Dyadic Analysis of Civil War Duration and Outcome. *Journal of Conflict Resolution* 53(4): 570-597
- Davies, James Chowning. 1962. Toward a Theory of Revolution. *American Sociological Review* 6:5-19.
- Easterly, William and Ross Levine. 1997. Africa's Growth Tragedy: Policies and Ethnic Divisions. *Quarterly Journal of Economics* 112:1203–1250.
- Emirbayer, Mustafa, and Chad Alan Goldberg. 2005. Pragmatism, Bourdieu, and Collective Emotions in Contentious Politics. *Theory and Society* 34:469-518.
- Fearon, James D. 2003. Ethnic and Cultural Diversity by Country. *Journal of Economic Growth* 8(#): 195-222.
- Fearon, James D. 2010. Governance and Civil War Onset. Background paper to the World Development Report 2011. Washington, DC: World Bank.
- Fearon, James D., and David D. Laitin. 2003. Ethnicity, Insurgency, and Civil War. *American Political Science Review* 97(1): 75–90.
- Gamson, William. 1992. *Talking Politics*. New York: Cambridge University Press.

- Gates, Scott, Håvard Hegre, Mark Jones and Håvard Strand. 2006. Institutional inconsistency and political instability: Polity duration, 1800–2000. *American Journal of Political Science* 50(4): 893–908.
- Gellner, Ernest. 1964. *Thought and Change*. London: Widenfeld & Nicolson.
- Gellner, Ernest. 1983. *Nations and Nationalism*. Ithaca, NY: Cornell University Press.
- Gleditsch, Kristian Skrede and Michael D. Ward, 1999. A Revised List of Independent States since 1816. *International Interactions* 25(4): 393–413.
- Gleditsch, Nils P., Peter Wallensteen, Michael Eriksson, Margareta Sollenberg, and Håvard Strand. 2002. Armed Conflict 1946–2001: A New Dataset. *Journal of Peace Research* 39 (5): 615–637.
- Goldstone, Jack A. 2001. Toward a Fourth Generation of Revolutionary Theory. *Annual Review of Political Science* 4:139-187.
- Goldstone, Jack A., Robert H. Bates, David L. Epstein, Ted Robert Gurr, Michael B. Lustik, Monty G. Marshall, Jay Ulfelder and Mark Woodward. 2010. A Global Model for Forecasting Political Instability. *American Journal of Political Science* 54(1): 190-208.
- Gurr, Ted Robert. 1970. *Why Men Rebel*. Princeton, NJ: Princeton University Press.
- Gurr, Ted Robert. 1993. *Minorities at Risk: A Global View of Ethnopolitical Conflicts*. Washington, DC: United States Institute of Peace Press.
- Harbom, Lotta & Peter Wallensteen (2010) Armed conflicts, 1946-2009. *Journal of Peace Research* 47(4): 501-509.
- Hegre, Håvard and Nicholas Sambanis. 2006. Sensitivity Analysis of Empirical Results on Civil War Onset. *Journal of Conflict Resolution* 50(4): 508-535.
- Horowitz, Donald L. 1985. *Ethnic Groups in Conflict*. Berkeley: University of California Press.
- Hosmer and Lemeshow 2000. #.
- Kalyvas, Stathis N. 2006. *The Logic of Violence in Civil War*. New York: Cambridge University Press.
- Kanbur, Ravi, Prem kumar Rajaram, and Ashutoshi Varshney. 2010. Ethnic Diversity and Ethnic Strife: An Interdisciplinary Perspective. *World Development* 39:147-158.

- Laitin, David D. 2007. *Nations, States and Violence*. Oxford: Oxford University Press.
- Lang, Nicholas R. 1975. The Dialectics of Decentralization: Economic Reform and Regional Inequality in Yugoslavia. *World Politics* 27 (3): 309-335.
- Lichbach, Mark I. 1989. An Evaluation of 'Does Economic Inequality Breed Political Conflict' Studies. *World Politics* 41(4): 431-470.
- Montalvo, José G., and Marta Reynal-Querol. 2005. Ethnic polarization, potential conflict, and civil wars. *American Economic Review* 95 (3): 796-816.
- Moore, Barrington Jr. 1966. *Social Origins of Dictatorship and Democracy*. Boston: Beacon Press.
- Muller, Edward. 1972. A Test of a Partial Theory of Potential for Political Violence. *American Political Science Review* 66(3): 928-959.
- Nordhaus, William D. 2006. Geography and Macroeconomics: New Data and New Findings. *Proceedings of the National Academy of Sciences of the United States of America* 103 (10): 3510–3517.
- Oberschall, Anthony. 1978. Theories of Social Conflict. *Annual Review of Sociology* 4: 291-315.
- Østby, Gudrun. 2008. Polarization, Horizontal Inequalities and Violent Civil Conflict. *Journal of Peace Research* 45(2): 143–162.
- Penn World Tables. #.
- Rabushka, Alvin, and Kenneth A. Shepsle. 1972. *Politics in Plural Societies: A Theory of Democratic Instability*. Columbus, OH: Charles. E. Merrill.
- Russett, Bruce M. 1964. Inequality and Instability: The Relation of Land Tenure to Politics. *World Politics* 16:442-54.
- Sambanis, Nicholas. 2001. Do ethnic and nonethnic civil wars have the same causes? A theoretical and empirical inquiry. *Journal of Conflict Resolution* 45 (3): 259-282.
- Sambanis, Nicholas. 2004. Using Case Studies to Expand Economic Models of Civil War. *Perspectives on Politics* 2:259-279.
- Scott, James C. 1976. *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. New Haven: Yale University Press.

- Skocpol, Theda. 1979. *States and Social Revolutions: A Comparative Analysis of France, Russia, and China*. Cambridge: Cambridge University Press.
- Stewart, Frances, ed. 2008. *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies*. Basingstoke: Palgrave Macmillan.
- Stewart, Frances and Arnim Langer. 2008. Horizontal Inequalities: Explaining Persistence and Change. In *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies*, ed. F. Stewart. Houndmills: Palgrave Macmillan.
- Tajfel, Henri, and John C. Turner. 1979. An Integrative Theory of Intergroup Conflict. In *The Social Psychology of Intergroup Relations*, ed. W. G. Austin and S. Worchel. Monterey, CA.: Brooks Cole.
- Tarrow, Sidney. 2007. Inside insurgencies: Politics and violence in an age of civil war. *Perspectives on Politics* 5(3): 587-600.
- Tilly, Charles. 1978. *From Mobilization to Revolution*. New York: McGraw-Hill.
- Tilly, Charles. 1999. *Durable Inequality*. Berkeley and Los Angeles: University of California Press.
- Tilly Charles. 2007. Poverty and the Politics of Exclusion. In Narayan, D. and Petesch, P. (ed.), *Moving out of Poverty: Cross-Disciplinary Perspectives on Mobility*. World Bank, Washington DC.
- Vanhanen, Tatu. 1999. Domestic Ethnic Conflict and Ethnic Nepotism: A Comparative Analysis. *Journal of Peace Research* 36:55-73.
- Williams, Robin M. Jr. 2003. *The Wars Within: Peoples and States in Conflict*. Ithaca, New York: Cornell University Press.
- Wimmer, Andreas, Lars-Erik Cederman, and Brian Min. 2009. "Ethnic Politics and Armed Conflict: A Configurational Analysis of a New Global Dataset." *American Sociological Review* 71(#): 867–897.
- Wucherpfennig, Julian; Nils B. Weidmann, Luc Giardin, Lars-Erik Cederman and Andreas Wimmer. 2011. Politically Relevant Ethnic Groups across Space and Time: Introducing the GeoEPR Dataset. *Conflict Management and Peace Science* doi:10.1177/0738894210393217.

Table 1. Determinants of civil war onset, 1960–2005

	(1)	(2)	(3)		
	VI Model	Reduced HI Model	Full HI Model		
	All civil wars	All civil wars	Eth. terr.	Eth. gov.	Non-eth.
ELF	1.148** (0.424)	0.974* (0.428)	1.713 (0.977)	1.623 (0.892)	0.394 (0.521)
Gini	-0.005 (0.010)	-0.004 (0.010)	-0.039 (0.025)	-0.029 (0.025)	0.024* (0.011)
LDG		1.288** (0.346)	-0.219 (0.830)	3.476** (0.626)	0.666 (0.588)
PHI		-0.045 (0.175)	-0.036 (0.252)	-0.810 (0.857)	0.045 (0.246)
NHI		0.321** (0.119)	0.497** (0.161)	-0.082 (0.388)	0.201 (0.215)
Downgrade		0.860** (0.255)	1.391** (0.418)	0.944 (0.526)	0.422 (0.448)
Power sharing		-0.029 (0.221)	-0.769 (0.484)	0.862* (0.438)	0.062 (0.314)
Democracy	0.176 (0.319)	0.350 (0.345)	1.374* (0.607)	-0.091 (0.819)	-0.157 (0.452)
Population	0.249** (0.069)	0.234** (0.079)	0.408** (0.123)	0.067 (0.184)	0.167 (0.101)
GDP capita	-0.382** (0.140)	-0.432** (0.147)	-0.773* (0.329)	-0.405 (0.305)	-0.188 (0.194)
Civil War lag	0.161 (0.279)	-0.026 (0.298)	0.193 (0.466)	-1.022 (0.992)	0.168 (0.357)
Constant	-5.968** (0.782)	-6.311** (0.850)	-8.511** (1.729)	-4.729* (2.043)	-7.216** (1.095)
Pseudo R ²	0.06	0.08		0.11	
Observations	5,219	5,219		5,219	

Note: Binary (1 & 2) and multinomial (3) logit coefficients with standard errors clustered on countries in parentheses. LDG = largest discriminated group; PHI = positive horizontal inequality; NHI = negative horizontal inequality. ** p<0.01, * p<0.05

Table 2. Classification table for out-of-sample prediction, 2000–09

	VI Model		HI Model	
	Predicted no onset	Predicted onset	Predicted no onset	Predicted onset
Observed no onset	94	10	95	9
Observed onset	22	4	18	8

Table 3. Alternative civil war data, 1960–99

	(4)	(5)		
	All cw	Eth. terr.	Eth. gov.	Non-eth.
ELF	0.183 (0.562)	1.834* (0.909)	-0.154 (0.825)	-1.316 (0.944)
Gini	0.007 (0.013)	0.001 (0.020)	0.005 (0.022)	0.022 (0.024)
LDG	1.501** (0.473)	-0.767 (0.978)	3.654** (0.749)	-0.300 (0.982)
PHI	-0.179 (0.247)	-0.068 (0.289)	-0.070 (0.475)	-1.451 (1.712)
NHI	0.526** (0.148)	0.549** (0.153)	0.456 (0.414)	0.370 (0.596)
Downgrade	0.332 (0.458)	0.279 (0.653)	0.601 (0.810)	0.112 (0.942)
Power sharing	0.317 (0.308)	-0.349 (0.467)	0.871 (0.554)	1.066* (0.510)
Democracy	0.423 (0.492)	0.159 (0.639)	0.835 (0.752)	0.337 (1.081)
Population	0.207* (0.084)	0.461** (0.117)	-0.266 (0.187)	0.252 (0.146)
GDP capita	-0.580** (0.186)	-0.405 (0.231)	-0.878** (0.291)	-0.444 (0.415)
Civil War lag	-0.631 (0.344)	-0.619 (0.583)	-32.060** (0.453)	-0.094 (0.607)
Constant	-6.808** (1.121)	-10.550** (1.588)	-4.151* (1.980)	-7.200** (2.634)
Pseudo R ²	0.06		0.11	
Observations	4,433		4,433	

Note: Logit and mlogit coefficients with standard errors clustered on countries in parentheses. LDG = largest discriminated group; PHI = positive horizontal inequality; NHI = negative horizontal inequality.

** p<0.01, * p<0.05

Figure 1. Vertical versus horizontal inequality for the year 2000

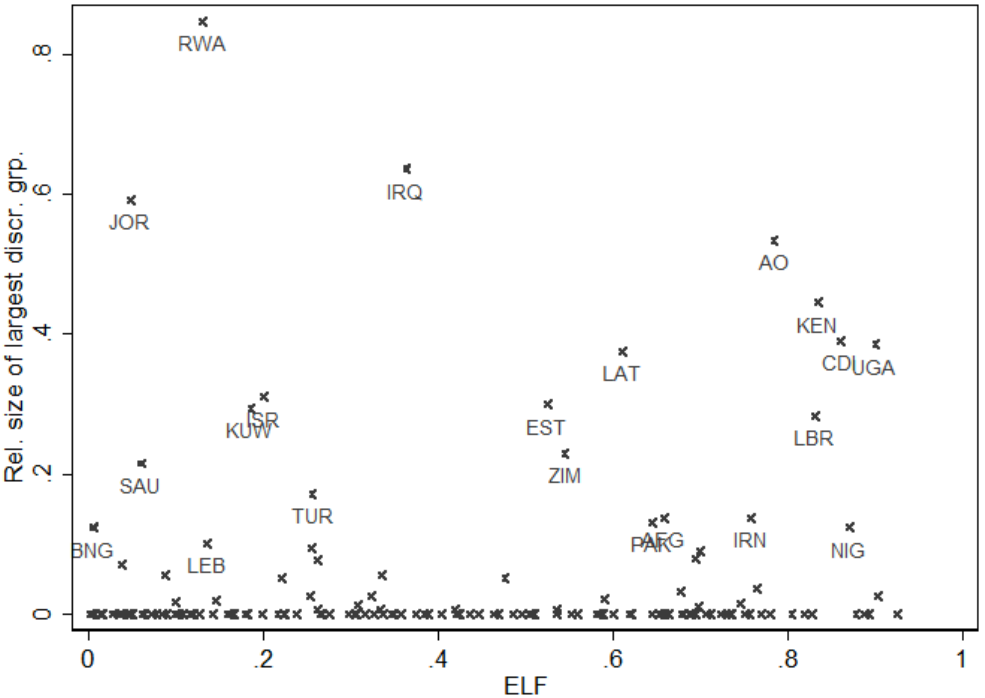
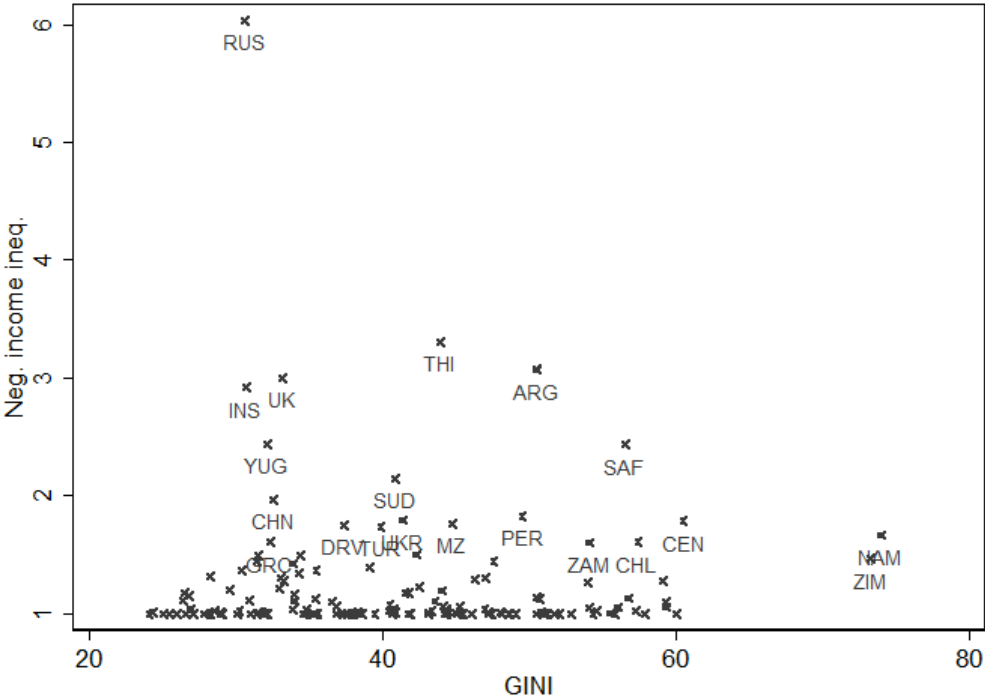


Figure 2. ROC curves for VI and HI model predictions, 2000–09

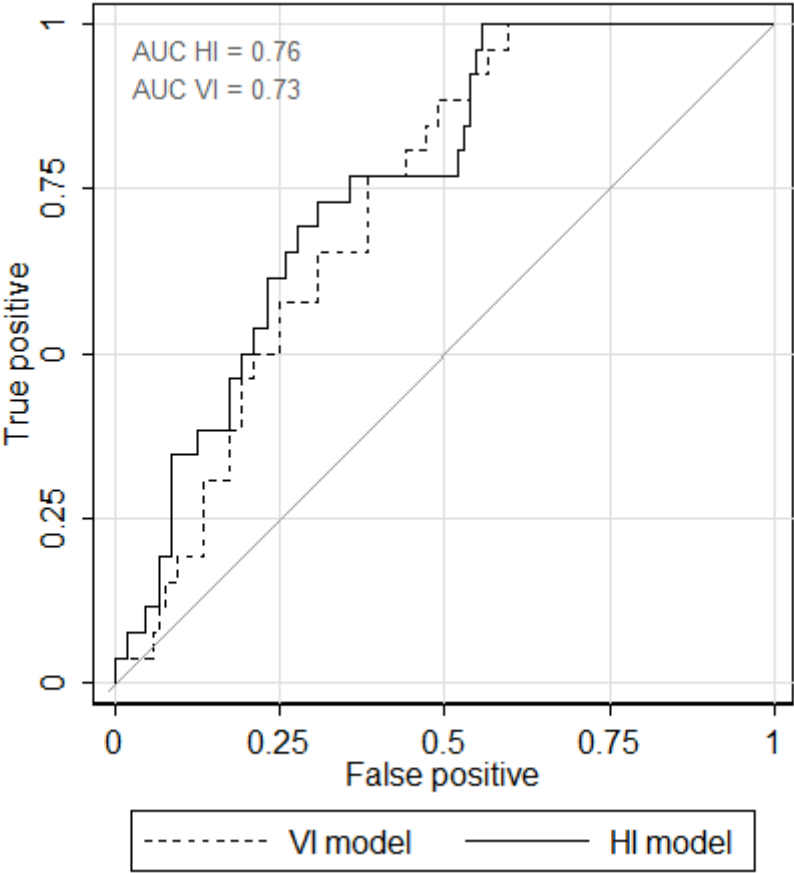


Figure 3. Comparison of out-of-sample predictions for HI and VI models, 2000–09

