

# **Inequality and Conflict in Federations**

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## **Abstract**

Case study evidence suggests that inequality between regions in federations affects the risk of secessionist conflict. However, the conventional quantitative literature on civil war has found little support for a link between economic inequality and civil war. This article argues that this seeming discrepancy in part stems from differences in the conceptualization of inequality and operationalization. The authors adopt a spatial approach, based on recently geo-coded data on economic wealth, ethnic settlements and administrative units in 31 federal states between 1991 and 2005, and demonstrate strong evidence that regional inequality affects the risk of secessionist conflict. The results indicate that both relatively developed and underdeveloped regions are indeed more likely to be involved in secessionist conflict than regions close to the country average. The findings on inequality remain robust even when controlling for ethno-nationalist grievances and other potentially confounding factors.

## Introduction

Does interregional inequality cause secessionist conflict in federations? Case study evidence reveals numerous examples of ethno-nationalist conflict and secessionism where economic issues appear to have played an important role, with the perhaps most prominent examples in the conflicts during the post-Cold-War break-ups of the Soviet Union and Yugoslavia. Although theories of nationalism have emphasized how inequality has motivated secessionism in Europe and not necessarily in violent ways, there are also strong reasons to believe that similar mechanisms can help account for violent conflict in the developing world. For example, observers have emphasized how the Biafran conflict in Nigeria in 1967 or the secessionist conflict in Punjab in the early 1980s were fueled by perceptions of economic injustice (Bookman, 1992). Closer scrutiny of the cases highlighted in prior studies demonstrates that both relatively poor regions such as Biafra, the former Eastern Region of Nigeria, as well as relatively richer regions such as Slovenia and Croatia have been involved in violent secessionist conflict. While the mere wealth difference between a region and the rest of the state does not necessarily result in violence, such apparent distributional inequities are likely to develop into contentious issues between a region and the center. In particular in cases where regions have a distinct ethnic identity, perceived ethnic discrimination through economic disadvantages may trigger or reinforce ethno-nationalist grievances, thus increasing the risk of secessionist conflict.

However, recent large-N studies (e.g. Collier & Hoeffler, 2004; Fearon, 2003) have mostly dismissed inequality as a cause of civil war and claim that there is no empirical support for this claim. We argue that their findings reflect choices regarding the units of analysis and measures of inequality rather than demonstrate that there is no relationship. Conventional individual-level measures of inequality do not capture group or regional differences, which are highly salient in ethno-nationalist and secessionist conflict.

By relying on regional measures of inequality, our paper explores whether there is evidence for a general link between economic inequality and secessionist conflict in federations. Most previous

studies of regional inequality and secessionist conflict have been limited in scope due to a lack of suitable cross-national data. In fact, few systematic studies cover more than a particular world region. We try to overcome these shortcomings through more extensive tests based on new geo-coded data on administrative units (Author) and spatial economic data from Nordhaus (2006) to derive measures of interregional inequality for 31 federal countries between 1991 and 2005. Combining these measures with recently collected data on ethnic settlement patterns allows us to examine empirically propositions on regional inequality and secessionist conflict in federations on a much broader basis than previous studies. Our results indicate that both relatively poor and affluent regions are more likely to see secessionist conflict.

Moreover, while recent research has shown that ethnic grievances due to political exclusion or domination by other groups may increase the risk of secession (see e.g. Walter, 2009; Wimmer, 2002), most existing research on inequality and secessionist conflict has ignored political inequalities, and not considered the relationship between economic and political inequalities. However, federal states often host a multitude of nationalities, and the boundaries of ethnic groups and regions sometimes overlap. In such polities, interregional inequalities may trigger economic grievances that give rise to violent, ethno-nationalist struggles. Conversely, ethno-nationalist grievances can also exacerbate conflicts over economic issues such as centralization and regional transfers. Since political and economic grievances may coincide, it is sometimes not even clear whether the predominant conflict issue is cultural or national autonomy or economic inequalities between groups.<sup>1</sup> While some of the literature on regional inequality takes into account the regional concentration of ethnic groups (e.g. Bakke & Wibbels, 2006; Sambanis & Milanovic, 2009), few analyses of the effect of regional inequality on conflict have considered ethno-nationalist grievances explicitly. We find strong evidence that ethno-nationalist grievances indeed are positively associated with secessionist conflict

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<sup>1</sup> See Connor (1994) for a discussion of the relevance of economic factors versus factors relating to the ethnic group in ethno-nationalist wars, and critique of the argument that secessionism primarily is driven by economic factors. By contrast, Hechter (1975) emphasizes the economic origins of ethnic separatism, and Gourevitch (1979) maintains that 'the location of [...] economic activities within each country clearly has something to do with the emergence of peripheral nationalism' (p.319).

and that economic inequality increases the risk of conflict, and the two appear to have independent effects on conflict.

The paper is structured as follows: The next section reviews the literature on horizontal and regional inequality and their relationship to secessionist conflict. In the third and fourth sections, we discuss ethno-nationalist grievances and regional autonomy as other explanatory factors of secessionist conflict respectively, followed by sections presenting our hypotheses and the statistical analysis. We close by discussing the significance and limitations of our results.

## **Inequality and conflict**

### ***Individual and group inequality***

Inequality plays a prominent role in the literature on the causes of civil wars. Classical contributions include important studies of peasant uprisings, viewed as a response to rural poverty (e.g. Scott, 1976; Moore, 1966). Other scholars have linked conflict to various types of inequality in terms of structural social imbalances such as uneven income or land distributions (Russett, 1964; Muller, 1985; Muller & Seligson, 1987). However, as with grievance perspectives more generally, this literature has attracted sustained criticism from scholars who emphasize resource mobilization (Snyder & Tilly, 1972) and individual rational actor models (Weede, 1987; see Lichbach, 1989, for an overview of the debate). This skepticism over inequality-based explanations of conflict has been reinforced by the more recent wave of quantitative studies of civil war pioneered by Paul Collier at the World Bank from the late 1990s. Linking inequalities directly to grievances, these authors typically operationalize inequality by the Gini coefficient of the income distribution among individuals or households. Collier and Hoeffler (2004), for example, dismiss inequality as a cause of civil wars since they find no relationship between individual income inequality and conflict. In another important study, Fearon and Laitin (2003) also reject both ethnic and political grievances as explanations of civil war, based on measures of individual-level income inequality as well as a purely demographic indicators of ethnic diversity such as the ethno-linguistic fractionalization index. Based

on this operationalization, the authors conclude that neither economic inequality nor ethnic grievances increase the risk of conflict.

However, since these empirical results are based on individual level measures, disregarding the relationship between inequality and other social cleavages, it is still possible that there may be important relationships between inequality and conflict. In fact, there are good reasons to believe that civil-war violence arises from interaction involving collective actors, such as ethnic groups or political organizations, rather than being a primarily individual-level phenomenon. By distinguishing 'vertical' from 'horizontal' inequality, Stewart (2009) and her colleagues shift the focus away from individual-level measures to a group-level logic that is more readily applicable to understanding possible incentives for internal conflict. Defining horizontal inequalities as 'inequalities in economic, social or political dimensions or cultural status between culturally defined groups', Stewart (2009: 11) asserts that the recent quantitative literature has largely overlooked inequality's conflict-inducing impact due to its tendency to rely on individualist, rather than group-based, indicators of wealth differences:

But 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.

Although limited data availability has made it difficult to evaluate the relationship between horizontal inequalities and conflict in cross-national comparative studies, there are several case studies that show that relatively deprived ethnic groups seem more likely to engage in violent challenges of governmental authority (Stewart, 2009). More recently, statistical evidence based on selective, cross-national samples has been presented (Østby, 2008; Østby, 2009; Østby, Nordås & Rød, 2009). Yet, to our knowledge, there is no systematic study that investigates the relationship between inequality and secessionist violence in federations around the world.

## ***Regional inequality***

Most of the existing literature on horizontal inequality analyzes inequality between ethnic groups. In this paper, we instead focus on inequality between regions in federations, which may or may not coincide with particular ethnic groups and their settlement patterns. There are number of reasons why we believe it is helpful to focus on regions as potential units that may experience conflict. First, focusing on regional units rather than on ethnic groups at least partly circumvents criticism of group reification that has been directed at group-based accounts of ethnic conflict (e.g. Brubaker, 2004; Kalyvas, 2006). One problem with explanations of ethnic conflict based on ethnic groups concerns the potential endogeneity of groups to conflict. Using ethnic groups as fixed actors of ethnic conflict contradicts much of the constructivist literature on ethnicity and nationalism, which holds that ethnic groups can be molded and shaped through social interactions (e.g. Brass, 1991; Fearon & Laitin, 2000). A focus on regions rather than on ethnic groups partly solves this problem,<sup>2</sup> and also enable us to consider the extent of non-ethnic secessionist conflict.<sup>3</sup>

Second, it is more straightforward to identify regions or administrative units than ethnic groups. The precise and officially defined delineation of the territorial borders of regions makes it straightforward to identify the relevant units. In contrast, determining the membership of ethnic groups and their settlement patterns is much more difficult, especially in instances where there exists multiple and potentially overlapping relevant religious, linguistic and/or caste cleavages, as for example in the case of India (Laitin & Posner, 2001). Furthermore, changes in regional boundaries tend to be officially documented, while ethnic group membership is usually more fluid depending on social, economic and political processes, and ethnic groups are rarely geographically separated in a simple manner.

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<sup>2</sup> While we do use data on ethnic groups in the statistical analysis (see below), the ethnic group constellations coded in the data can vary in time and space, which is in keeping with constructivist conceptions of ethnic identities.

<sup>3</sup>The conflict data we use in the empirical analysis includes one non-ethnic secessionist conflict (Dagestan in the USSR in 1999).

Third, we only consider regions in *federations* since such units have a particularly important status compared to sub-state units in other types of states. A main characteristic of federal states is that their territories are geopolitically divided, and that this division has some constitutional or formal recognition (Bednar, 2009). This makes a first-level administrative unit in a federation a more meaningful unit of analysis than a first-level administrative unit in other types of states, which usually have a much more limited political role. Indeed, Feeley and Rubin (2008: 81) go as far as ascribing ‘a personality’ to the subunits, and ‘an existence independent of their function’.

More generally, we argue that the effects of economic inequality in federations is particularly explosive compared to the situation in non-federations. Federalism, maybe more so than other forms of government, promises to guarantee fair governance through a system of shared rule and self-rule. As Elazar points out,

One of the primary attributes of federalism is that it cannot, by its very nature, abandon the concern for either power or justice but must consider both in relationship to each other, thus forcing people to consider the hard realities of political life while at the same time maintaining their aspirations for the best polity. It is not unfair to say that one purpose of federalism is to achieve this linking of the real and the ideal [...] with the messianic aspirations for justice. (Elazar, 1987: 84)

Failure to live up to this promise is likely to provoke harsh reactions from the federal units, which will carefully monitor their relationship to the center and often extend their autonomy demands, especially as regards the distribution of wealth and resources.

The theoretical literature suggests that inter-regional inequality will *directly* affect nationalist mobilization and secessionist conflict, and also will be linked *indirectly* to conflict depending on *the ethnic composition of the region*. To illustrate the direct effect, scholars investigating the former Soviet Union point to how rich regions are more likely to mobilize for secession. For example, Roeder (1991) claims that secessionist nationalism can be viewed as a reaction to redistributive policies in

comparably wealthy regions of the former Soviet Union, such as the Baltic region and parts of the Caucasus, which contributed disproportionately to the federal government and national economy. In an attempt to escape these burdens, these regions tried to shift the burdens to local minorities while at the same time giving preferential access to educational, political and economic opportunities to the titular ethnic group. As a result, nationalism and separatism were rife in these parts of the country (Roeder, 1991). This view is supported by Hale (2000), who stresses the fear of exploitation in comparably rich Soviet regions. His quantitative analysis of former Soviet republics demonstrates that the developed regions tried to break out sooner than less developed parts of the country. He furthermore provides statistical evidence that individual separatist attitudes tend to be higher in wealthier republics. In former Yugoslavia, many Slovenes expressed resentments over the region's disproportionate contribution to the federal budget.<sup>4</sup> Other regions rich in natural resources, such as Punjab in India and Bougainville in Papua New Guinea, complain that they receive too little from central funds given their contributions to the overall economy (Bookman, 1992).

Based on a different conception of economic grievances, many researchers argue that poor regions are more likely to seek secession. Some of these accounts follow the logic of Gellner (1969) and Hechter (1975), who suggest that differences in regional economic development to the detriment of peripheral regions fuels nationalism. Hechter's (1975) 'internal colonialism' thesis asserts that exploitation of peripheral regions breeds secessionist grievances. In his study of regional nationalism, Gourevitch (1979) notes that since 1945, banking, manufacturing, resource extraction and agribusiness had moved from Quebec to the neighboring province Ontario. This declining economic investment by Anglophone regions in the former region was the cause, rather than the effect, of separatist nationalism in Quebec, accompanied by accusations against the capital for its alleged exploitation of the province, undermining its economic development. Moreover, Quebec's separatist sentiment was largely accompanied by discontent with macroeconomic policies of the central

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<sup>4</sup> This type of resentment is nicely captured by the Basque saying that Spain is a 'cow with its muzzle in the Basque country and its udder in Madrid'; likewise Katanga is considered the 'milk cow for the whole Congo' (Horowitz, 1985:250,257)

government (Bookman, 1992). While this conflict has not turned violent yet, many others have. Violent conflict may result if ethnic groups lack avenues for non-violent political participation. Central governments are also more likely to forcefully oppose secessionist movements when a region contains natural resources. Both conditions applied in the case of Biafra, where the central conflict was the distribution of oil revenue in the Eastern Region. The disagreement turned violent in 1967, which may plausibly stem from the increasing discrimination and political exclusion of the Igbo, the majority ethnic group in the Eastern Region from 1965 on (Wucherpfennig et al., 2010), and blocking the avenue for alternative means of political protest.

Furthermore, a recent statistical study by Østby, Nordås and Rød (2009) on regional inequality in 22 sub-Saharan African states helps us understand the mechanisms behind inequality and violence more generally. Based on geo-coded survey data, the study finds that relatively deprived regions are most likely to experience a civil war onset. The authors argue that in these regions, elites can easily draw on welfare differences and create a common enemy to unify the population and motivate them for rebellion.

Few scholars have considered the possibility that *both* rich and poor regions may have reasons to fight secessionist wars. In his analysis of regional economic development, Gourevitch (1979) identifies inequality as an important, though not the unique, factor influencing the emergence of nationalism, arguing that underdeveloped regions and developed but politically excluded regions tend to develop nationalism. He finds that both rich and poor regions in several Western countries have developed strong peripheral nationalism. Similarly, Horowitz (1985) stresses that both advanced and backward regions can develop grievances over revenue imbalances. According to Horowitz, more advanced regions are likely to see themselves as subsidizing poorer regions, and backward regions may not receive the per capita proportionate spending they would need to catch up economically with the rest of the country. Bookman reports similar results based on a study of 37 secessionist regions, and asserts that 'all regions may claim that they are giving too much or that they

are getting too little from the center, so that both relatively low- and relatively high-income states have a basis for complaint' (Bookman, 1992: 115).<sup>5</sup>

Common to most of these cases is regional disagreement with central economic policies that leave the federal subunits economically worse off than they aspire to be. The affluent regions feel they contribute too much to the federal budget and the less wealthy provinces feel they receive too little to catch up with the rest of the country. Although existing studies provide valuable insights into which regions are most conflict prone and why, they are typically limited to a few cases and hence potentially select on the dependent variable. For example, Roeder (1991) and Hale (2000) focus primarily on the former Soviet Union. Hechter (1975) analyzes peripheral nationalism of the British Isles from 1536 to 1966. Østby, Nordås and Rød's data study of sub-Saharan Africa includes no regions substantially above the country average. In sum, the restricted samples in previous studies limit their representativeness. Indeed, we cannot exclude that the answers reached as to whether regional inequality influences conflict may depend on the particular region considered.

## **Ethnic regions, ethno-nationalist grievances and regional autonomy**

As indicated in the introduction, it is often difficult to disentangle conflict dynamics and identify the core conflict issue. In his work on nationalism and secessionism, Hechter (2000) argues that economic interests and cultural claims often go together in conflicts. Conflict issues tend to coincide if the geographical boundaries of the region overlap with the boundaries of ethnic group settlements. This is often the case in ethno-federations, where subnational administrative units are designed to serve as homelands for ethnic groups that are geographically concentrated. In fact, much of the theoretical and empirical literature discussed above explicitly or implicitly assumes ethnic regional concentration. This assumption makes sense given that the Soviet Union was an ethno-

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<sup>5</sup> In a more recent study, Sambanis and Milanovic (2009) contend that there are push factors affecting conflict processes of both rich and poor regions. With increasing interregional inequality, wealthy regions become exposed to more transfer duties, which could prompt them to seek exit. Poorer regions, on the other hand, might welcome an improvement in their economic status through secession, even if the main reason for secession is unrelated to economic factors.

federal construction, or that in Great Britain the Scots and Welsh reside in their 'own' delineated regions. Likewise, Gourevitch (1979) focuses on differences in economic growth in 'regions with ethnic potential', i.e. regions with distinct linguistic, institutional or historical traditions, or in other words, ethnic regions. He finds that in the presence of ethnically structured socio-economic inequalities regions with unequal growth are particularly prone to develop strong nationalism. Along similar lines, Bakke and Wibbels (2006) present statistical evidence for their hypothesis that the co-occurrence of interregional inequality and regionally concentrated ethnic groups in federations increase a country's risk of armed rebellion.<sup>6</sup>

However, demographic measures of ethnic configurations, such as concentration and fractionalization, do not provide much by way of explanation as to why leaders use ethnicity to 'structure' conflict along ethnic lines or exactly how violence arises. These measures do not consider groups' (lack of) access to state power and ethno-nationalism, which is an important oversight because nationalism is an inherent part of almost all violent secessionist conflict processes. Explicitly introduced by the French Revolution, the principle of nationalism dictates the political legitimacy depends on self determination in the name of the nation. Under such conditions, foreign domination can be expected to generate political grievances among dominated groups denied sovereignty (Gellner, 1983: 1). Exclusion from central power on ethnic grounds, then, highlights the identity boundaries of the excluded groups and leads to ethnic politicization. Moreover, excluded groups are more likely to resort to arms since other non-violent avenues to power are blocked. Thus, the key to such explanations is not ethnicity itself, but rather the way nationalism politicizes ethnicity in ways that tend to produce violence.

Once properly conceptualized and measured, ethnic nationalism can be shown to generate collective violence. In particular, recent quantitative studies indicate that if groups are deprived of access to

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<sup>6</sup> Unfortunately, their work does not indicate whether the poor and/or the rich regions are most prone to conflict since their unit of analysis is countries and they examine inequality rather than relative deprivation and relative wealth. Sambanis and Milanovic (2009) study intra-regional inequality and ethnic distinctiveness in combination. However, their dependent variable is the actual level of regional sovereignty and not conflict.

state power, conflict becomes more likely (Gurr, 2000; Cederman, Wimmer & Min, 2010). By confirming similar findings in the qualitative literature on nationalism (e.g. Mann, 2005; Brass, 1991), these studies go a long way toward overturning the earlier conventional wisdom that tended to dismiss the role of ethnic grievances in the recent quantitative research on civil wars. Moreover, these results add credence to Stewart's (2009) multi-dimensional notion of horizontal inequality, as political exclusion of ethnic groups can be seen as a form of political horizontal inequality.

Regions in ethno-federal states often hold substantial regional power even if excluded from central state power. However, some scholars consider regional autonomy by concentrated ethnic groups to have a detrimental effect on the integrity of the state (e.g. Hale, 2000). Regional autonomy – as implied by the concept – is a matter of regions, not of groups, meaning that these territories with clearly defined boundaries are equipped with decision-making institutions that can be used to challenge the government's authority. Thus, regional autonomy can facilitate collective action such as civil war and secession in particular.

A large literature on ethnofederalism argues that such institutional arrangements can lead to secessionism in the long run by providing necessary resources to fight a civil war (Roeder, 2007; Bunce, 2003; McGarry & O'Leary, 2003) and increasing the region's bargaining position vis-à-vis the government (Treisman, 1997). Also, regional autonomy arrangements short of partitioning may not only leave identity incompatibilities in place but will also reinforce or 'harden' them (Chapman & Roeder, 2007). The administrative setting enhances a group's claims to its own state so that ethnic identities are being forged and 'politicized', and thus makes growing demands and secessionist conflict more likely (Nordlinger, 1972; Snyder, 2000; Brubaker, 1996). Also, Horowitz (1985) suggests that political control of a region determines whether a group attempts to secede. To sum up, access to resources and identity-strengthening conditions provided by regional autonomy arrangements are likely to increase the risk of secessionist conflict.

## Hypotheses about economic and political grievances

The previous sections have shown how recent quantitative studies on inequality do not find support for the general relationship between inequality and civil war. We believe that this in large part arises due to inappropriate use of individual-level measures of inequality. In our theoretical and empirical analysis, we focus on regions and regional measures of inequality in order to investigate the link between inequality and secessionist conflict more closely.

As the literature review has also shown, empirical studies on interregional inequality have failed to provide an unambiguous answer to the question whether regions above and below the national average wealth are the most likely candidates for secession in federal states. Furthermore, studies on economic inequality and conflict have tended to disregard political inequality, even though political and economic grievances are often intertwined in ethno-nationalist conflicts. Instead, we consider both economic and political inequality together with regional autonomy as explanatory factors for strong nationalism and secessionist conflict (see Gourevitch, 1979).

Finally, as we have seen, most existing studies of regional inequality and conflict tend to be limited to a few countries or a single world region. In this paper, we extend the geographic scope to federal states around the world.

***Interregional inequality.*** First, we consider economic inequality separately from political inequality. We assume that relatively wealthy regions expect to keep their wealth, or at least receive as much of the central 'cake' as they contribute. Relatively underdeveloped regions insist on intergovernmental transfers to compensate for their lack of wealth. These expectations tend to generate claims of asymmetric federalism, which is likely to be blocked by the federation's central elites (Horowitz, 1985; Kymlicka, 1998).

The resulting economic grievances that stem from perceptions of economic injustice are likely to be attributed to federal economic (e.g. redistributive) policies, which are coordinated at the central level. Secession is a way to escape an untenable situation. Hence, we hypothesize the following:

*H1: Regions with wealth levels far above or below the country average are more likely to engage in secessionist conflict*

This hypothesis assumes a symmetrical effect on conflict applying to both relatively rich and poor regions. Since the effects may not be symmetric and inequalities in one direction may hold without the other, we divide H1 into the following two sub-hypotheses:

*H1a: Regions that are relatively rich are more likely to experience secessionist conflict than those regions that are closer to the country average*

*H1b: Regions that are relatively poor are more likely to experience secessionist conflict than those regions that are closer to the country average*

**Political grievances in ethnic regions.** Viewed as a dimension of horizontal inequality, political exclusion tends to produce ethno-nationalist grievances, which may in turn spill over into political violence. We have presented arguments and evidence connecting such situations with the outbreak of internal conflict. Indeed, where ethnic groups are exposed to alien rule, fundamental norms of political legitimacy are violated (Brass, 1974; Gurr, 1993). Such violations tend to trigger emotional reactions that facilitate the organization of challenges to the political status quo (Petersen, 2002). Wherever foreign domination implies discrimination and humiliation, political entrepreneurs claiming to represent the excluded groups are prone to advance political claims to overcome the perceived injustice. Where the incumbent government resists such claims and denies the nationalist opposition the right to express dissent through regular and peaceful channels, the probability of violence becomes especially acute.

One of the rare works that combines economic and group grievances as explanations for secessionist conflict, Horowitz (1985) analyzes the relation between 'backward' and 'advanced' groups and

regions. His conceptualization of regions and groups assumes that regions often resent economic imbalances while groups tend to complain about imbalances with regard to proportionality in relation to population. We adopt a similar stance: while we hypothesize that it is the (lack of) economic welfare of *regions* that affects the risk for secessionist conflict, we assume that political grievances of *groups* make conflict more likely. Thus, ethnic groups that are barred from access to central power typically seek to improve their status by seceding:

*H2: Regions containing excluded ethnic groups are more likely to experience secessionist conflict than those regions inhabited only by included groups*

**Regional autonomy.** We contend that the risk of secessionist conflict is particularly high if an ethnic group is excluded from state power but enjoys autonomy at the regional level. We assume that regional autonomy makes secession more likely, because group identities become entrenched in regional institutions (e.g. Nordlinger, 1972). Furthermore, it can be assumed that ethnic groups that control a regional subunit will have more resources available to fight a secessionist war (e.g. Bunce 2003). Finally, an administrative unit already constitutes a latent state; it has clearly defined boundaries, decision-making institutions, and – in the case of ethnic regions – a relatively homogenous population. These conditions make administrative units readily available candidates for secessionism (Hale, 2008). Hence, we hypothesize the following:

*H3: Regions where the largest excluded group enjoys autonomy are more likely to experience secessionist conflict than in regions where the largest excluded group does not enjoy autonomy.*

## **Analysis**

### ***Data***

Our empirical analysis relies on logistic regression with secessionist conflict onset as the dependent variable. We use a panel dataset consisting of first-level administrative units from 1991 through 2005, which contains data on the lifetime and geographical extension of administrative units in 31

countries (Author). The countries included in the dataset are selected based on Bednar's (2009) list of governments that have been federal or 'quasi-federal' for at least one year between 1990 and 2000. Bednar (2009: 18f) uses the following definition of federations and quasi-federations:

A government is federal if it meets the following three structural criteria: (1) Geopolitical division: The territory is divided into mutually exclusive states (or provinces, *länder*, etc.). The existence of each state is constitutionally recognized and may not be unilaterally abolished. (2) Independence: The state and national governments have independent bases of authority. In general, this independence is established constitutionally through electoral independence, where each government is held accountable to its constituents, although nondemocratic forms of independence may be available. (3) Direct governance: Authority is shared between the state and the national governments: each governs its citizens directly, so that each citizen is governed by at least two authorities. Each level of government is sovereign in at least one policy realm. This policy sovereignty is constitutionally declared. Decentralized unions that fail to meet one of the three criteria are quasi-federations.

Based on this definition, we derive an inclusive and theoretically interesting selection of 31 countries for the empirical analysis.<sup>7</sup>

***Dependent variable.*** Our dependent variable is a dichotomous indicator of the onset of a secessionist conflict. We focus on secessionist conflict rather than other types of political violence since such conflict by definition involves a geographical referent – often a first-level administrative unit.

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<sup>7</sup> More specifically, we include Argentina, Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Cameroon, Canada, Czechoslovakia, Ethiopia, Germany, India, Italy, Malaysia, Mali, Mexico, Myanmar, Nigeria, Pakistan, South Africa, Spain, Sudan, Switzerland, Tanzania, Ukraine, United Arab Emirates, United Kingdom, United States of America, USSR/Russia, Venezuela, and Yugoslavia/Serbia and Montenegro. We omit Comoros, Micronesia, St. Kitts and Nevis, and the European Union from Bednar's list, since those federations either have very small populations or do not constitute a sovereign state. We have added Cameroon, Mali, and Myanmar, which are not part of Bednar's dataset, but which have been federal before 1990 (see Roeder, 1991).

We determined secessionist conflicts by selecting from all internal conflicts coded in the Uppsala Armed Conflict Data (Gleditsch et al., 2002). By relying on conflict narratives from the Uppsala Conflict Database<sup>8</sup> and geographical information from Wikipedia, we determined whether the secessionist region was involved in conflicts by reference to its administrative boundaries, related ethnic groups' location, or natural boundaries such as rivers and mountain ranges. If the secessionist region is an administrative unit or consists of several administrative units, we code the region(s) as experiencing secessionist conflict onset.

For the analysis, we code a unit-year as 1 if an administrative unit experienced a conflict onset, and set onset to 0 for all other years. Years of ongoing conflict were dropped from the dataset. Some conflicts consists of several spells of conflict, separated by years when the number of battle deaths fail to reach the 25 deaths in the ACD data, and hence give rise to several conflict onsets.

**Independent variables.** The main independent variables provide measures of regional inequality and the political status of ethnic groups. We measure regional inequality by relying on G-Econ, a global geographically disaggregate data set on economic activity (Nordhaus, 2006). This data is available as raster data of 1 degree grid cell resolution, unfortunately only for the year 1990. For this reason, we have to limit our analysis to the period starting in 1991 and ending in 2005. Using 1990 values as representative for subsequent years can be defended since relative inequalities do not tend to change quickly over time (Tilly, 1999; Stewart & Langer, 2009).<sup>9</sup> To arrive at regional inequality measures, we overlay the geographical administrative unit dataset with the raster data on economic activity and sum up the Nordhaus cells covered by an administrative unit. We measure regional inequality in two ways: First, if  $g$  is a region's wealth and  $G$  is the average wealth of all regions in a country, then

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<sup>8</sup> <http://www.pcr.uu.se/gpdatabase/search.php>

<sup>9</sup> The G-Econ dataset provides spatial estimates of GDP for five year periods starting with 1990, but since the subsequent data points are adjustments based on natural resource and changes in commodity prices and do not constitute new information on economic activities, we use only the original data from 1990.

$$lineq2 = [\log(g/G)]^2$$

This measure is positive if the region's wealth deviates from the country's average wealth level in either direction, and 0 for regions with average wealth. Figures 1 and 2 illustrate inequality measured by the  $g/G$  ratio for regions in Yugoslavia and the United Kingdom in 1990. In Yugoslavia, Slovenia, Croatia, and Macedonia are relatively wealthy, while Bosnia and Herzegovina, Montenegro and Serbia are relatively poor. In the United Kingdom, only England is above the country average, while Scotland, Wales and Northern Ireland – the poorest region – are below the country average.

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While  $lineq2$  assumes a symmetric effect of poor and rich regions on secessionist conflict risk and is appropriate for testing H1, we also need indicators allowing for the asymmetrical effect indicated by H1a and H1b. Hence, we split up  $lineq2$  into two variables measuring the wealth of poor and rich regions separately:

$$low = \begin{cases} G/g & \text{if } g < G, \\ 0 & \text{otherwise} \end{cases}$$

$$high = \begin{cases} g/G & \text{if } g > G, \\ 0 & \text{otherwise} \end{cases}$$

$low$  and  $high$  provide independent measures of the deviation of a region in terms of wealth compared to the country's average. E.g. if a region is three times poorer than the country's average, its  $low$  value is 3, while its  $high$  value is 0. Conversely, if a region is twice as rich as the country's average its  $low$  value is 0 while its  $high$  value is 2.

To measure the degree of political inequality (see H2 and H3), we use data on ethnic groups in the EPR dataset (Min, Cederman & Wimmer, 2008) and its extension GeoEPR (Wucherpfennig et al.,

2010). EPR identifies politically relevant ethnic groups in 155 sovereign states between 1946 and 2005, and their degree of access to central state power. GeoEPR adds geographical information on the location of ethnic group settlements. We first determine which ethnic groups reside in a given administrative unit by overlapping group settlement areas and the territory of administrative units. We then consider whether or not any of the groups within a region are politically excluded (cf. H2).<sup>10</sup>

In our evaluation of H3, we focus on the largest of all excluded groups in a given administrative unit. The population figures per group section contained by this unit were computed by aggregating raster cells containing population data at a resolution of 2.5 arc minutes (Center for International Earth Science Information Network (CIESIN) & Centro Internacional de Agricultura Tropical, 2005). For the largest group in an administrative unit we then determined whether or not it enjoys ‘regional autonomy’ or is a ‘separatist autonomy’, two subcategories of the power-access variable in the EPR dataset. Both regional autonomy and separatist autonomy indicate that, while being excluded from national executive power, group leaders control their own regional authorities, through central authorization or through group-led, unilateral measures respectively.

**Control variables.** We consider a dummy variable for *War history* to indicate whether an administrative unit has experienced prior secessionist conflict. At the country level, we include logged *GDP per capita* lagged by one year, since poorer states have been found to be more likely to see civil war (Hegre & Sambanis, 2006) as well as logged *Population density*, which is likely to increase collective dissent (Lichbach, 1995); a higher population density might increase social tensions arising from a scarcity of land, housing and employment, and in turn may lower the threshold for both decentralization as well as pressures for some regions to ‘opt out’.<sup>11</sup> Finally, we control for temporal dependence as proposed by Beck, Katz and Tucker (1998).

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<sup>10</sup> The criterion for a group to be considered living inside a particular administrative unit is if the group’s population residing of the group inside the unit exceeds a threshold of 5,000. We vary this threshold in sensitivity analyses provided below.

<sup>11</sup> We also included absolute population (logged) instead but found that the model had a better fit with population density.

## **Results**

Our final dataset consists of 10,786 region-years with as few as 40 conflict onsets for the time period from 1991 through 2005. We therefore use a rare-events logit regression estimator, and cluster the standard errors by country to compensate for possible unequal variances across countries. The results of the statistical regression are given in Table I.

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Table I in here

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Together, the symmetric models (1-3) and the asymmetric model (4) provide robust support for all of our three hypotheses. First, *lineq2* as well as the *high* and *low* indicators are positive as expected and statistically significant at the 0.001 level for all four models. This suggests that regional inequality is indeed robustly related to secessionist conflict onset.

With regard to H2, the results suggest that the presence of an excluded group in a region considerably increases its risk of getting involved in a secessionist conflict (see models 2-4). The coefficient is both positive and statistically significant. H3 also receives empirical support, as revealed by the reported results for models 3 and 4. The results indicate that if the largest excluded group controls of the region through an autonomy arrangement, the likelihood for secessionist conflict increases.

All the control variables behave as expected. We find that the richer the whole country and the higher population density, the higher the likelihood for secessionist conflict. Administrative units that have experienced conflict previously are at greater risk of renewed conflict.

Figure 3 displays the predicted effects given differences in  $g/G$  for a region with and without an excluded group, all other variables kept at their median. This figure shows that both relatively poor and relatively wealthier units are more likely to see secessionist conflicts, and that conflict becomes more likely the further we move away from relative economic equality. Likewise, the difference for

an administrative unit with an excluded group (solid line) and a group without excluded groups (dashed lines) indicate that political inequality also plays an important role.

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Figure 3 in here

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***Sensitivity analysis***

In order to ensure confidence in our findings, we consider a series of robustness checks based on model 4 in Table I. First, we consider a static cross-sectional analysis with a federal units dataset restricted to 1991 (see model 5 in Table II). The results show a significant and positive effect of both relative wealth and poverty on conflict onset (24 onsets). In this case, the *Excluded* and *Regional Autonomy* variables have to be dropped from the analysis due to collinearity problems.

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Table II in here

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In an extension of the dataset to administrative units in both federal and non-federal states in the whole world, we find that our findings are not limited to federations.<sup>12</sup> The results in model 6 show the main coefficients remain statistically significant, revealing a stable effect of relatively poor and relatively rich regions on secessionist conflict. Moreover, the federation dummy in model 6 is statistically significant and positive, suggesting that inequality affects regions independently of the institutional form of a government. Only the *Excluded* variable just misses statistical significance at the 5% level (p=0.054).

We then extend of the original analysis to the entire post-World War II period in Model 7, assuming that regional inequality in 1991 remains stable throughout the prior period from 1946. As can be

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<sup>12</sup> In this dataset, we count 25 onsets in federal units compared to 20 onsets in non-federal units.

seen in model 7, the level of statistical significance of the variables does not change although the coefficients for *high* and *low* decrease slightly.

Model 8 considers robustness with regards to the definition of our measures of wealth. Nordhaus' spatial GDP data measure includes all economic activity including revenues generated by natural resources. However, it is possible that a region may be rich in oil, and hence coded as being relatively wealthy by our measure, while revenue is distributed elsewhere and without the regional population benefiting from oil revenues. The conflict in the oil-rich Niger delta in 2004 illustrates how such situations are likely to be conflict-inducing as well, although this entails a different causal path than the primary one stated by our theory. In an attempt to measure regional wealth as experienced by the population more adequately, we use the specific components provided for the G-Econ data to subtract the share of revenues generated by oil in a region from the original GDP data. Model 8 includes the asymmetrical inequality indicators using this wealth measure, and the robustness of the inequality indicators suggests that revenues generated our hypothesized mechanism is independent of oil although the presence of such resource does seem to play a role in the outbreak of secessionist conflict as well, as indicated by the positive *Oil Revenue* coefficient.

We have also conducted additional robustness checks, beyond those reported in the tables. Given the small number of onsets, it is important to make sure that the results are not driven by specific observations with extreme values. Our additional analyses confirm that our main findings are not affected by removing the poorest region that experienced conflict (Chechnya in Russia) or the richest conflict regions (Bayelsa, Delta, Rivers, Ondo in the Niger Delta, which are listed as wealthy due to the presence of oil fields in this region). Nor do the results change in any major way if one chooses other population thresholds such as 0, 10,000, or 20,000 rather than 5000 to determine the ethnic group within in a given administrative region. Moreover, replacing the control variable measuring population density by logged absolute population values does not alter the main results significantly except reducing the statistical significance of the *Excluded*, and *Regional Autonomy* variables.

Additional robustness tests indicate that geographical variables, such as minimal distance to an international border and minimal capital distance, fail to reach statistical significance and do not seem to notably influence the effect of the main independent variables.<sup>13</sup> The same applies to control variables such as the number of administrative units in a country or a country-level dummy variable indicating whether or not the country has experienced previous conflict.<sup>14</sup>

Finally, we consider the problem of reverse causation. It is plausible that not only poor regions have a higher likelihood for secessionist conflict but also that conflict destroys infrastructure, e.g. necessary for trade, and hence may substantively diminish a region's wealth. In order to minimize such endogeneity bias, we exclude all regions experiencing conflict in 1990, the year of wealth measurement, but this does not affect the main findings.<sup>15</sup>

## Conclusion

This study provides clear evidence that both relatively affluent and underdeveloped regions in federations have an increased risk of secessionist conflict compared to regions that are closer to the country's wealth average. In parallel to the effect of economic inequality, we show that regions affected by ethno-nationalist exclusion are also more conflict prone. Moreover, our findings indicate that ethnic autonomy at the regional level has a positive effect on the outbreak of secessionist conflict. Despite the hope that regional autonomy may appease ethnic groups in their demands for

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<sup>13</sup> Data source: PRIO-GRID ([http://folk.ntnu.no/andretol/PRIO\\_GRID/](http://folk.ntnu.no/andretol/PRIO_GRID/))

<sup>14</sup> When introducing the country-level variable for previous conflict, the coefficients of the main independent variables as well as the regional *Previous conflict* dummy remain statistically significant and do not change in size, except *Regional autonomy*. This roughly doubles in size, which suggests that governments are more likely to grant autonomy to groups that have launched violent secessionist bids in the past. Also, the statistically significant, negative coefficient of *Previous conflict (country)* shows that if a country has experienced secessionist conflict before, another onset in any region of the country becomes less likely. This is in line with Walter's (2006) reputation argument, which states that central governments have an incentive to prevent separatists from seceding because otherwise they might face similar challenges by other regions. As our analysis shows, if the government demonstrates resolve by decisively countering a previous secession attempt, the likelihood decreases that another region will try the same.

<sup>15</sup> These regions are Northern Ireland in the United Kingdom, Eritrea in Ethiopia, and Kachin State and Kayin in Myanmar.

self-determination, it seems that autonomous institutions can fuel secessionism and hence increase the probability of secessionist conflict.

Our analysis improves on existing approaches by using first-level administrative units as the units of observations and relying on a comprehensive dataset of 31 federations around the globe between 1991 and 2005 as well as systematic measures of regional inequality. While case heterogeneity across different parts of the world cannot be excluded, any analysis of a general effect of regional inequality on secessionist conflict requires a global, comprehensive, and non-biased sample of countries and regions. Based on such a systematic comparison, we conclude that regional inequality appears to be detrimental to peace *both* if regions are much poorer or much wealthier than the country average.

Focusing exclusively on violent secessionist conflict, we make no attempt to explore the causes of non-violent separatism and peaceful state break-ups, such as the dissolution of Czechoslovakia. Furthermore, although some secessions may have seen limited violence, such as the Baltic and Caucasus regions that seceded from the Soviet Union, these did not involve enough violent conflict or non-state organization to be listed as civil wars in the Uppsala-PRIO Armed Conflicts Dataset. Another limitation concerns potential endogeneity bias. As reported in the previous section, we address this partly by excluding administrative units that experienced conflict in 1990, the point in time when wealth is measured, but a more thorough approach would involve modeling selection effects explicitly, perhaps using alternative instruments or indicators of economic inequality. Finally, theorizing about the effect of economic factors on conflict onset, we implicitly assume that secessionist conflicts are fought as attempts to improve regions' economic situation. However, it is well known that some secessionists fight despite expected deterioration of the economic situation in case of success, especially where the benefits of self-determination outweigh material considerations (e.g. Horowitz, 1985).

Further research will be necessary to disentangle the effect of political and economic horizontal inequality in federations, but for now we conclude that separatist conflict appears to be driven by asymmetries along both dimensions. Given the general skepticism as regards the role of grievances in the contemporary civil-war literature, this in itself is an important finding.

## **Replication data**

All results in this article were generated using STATA 11. The dataset used in the empirical analysis can be found at <http://www.prio.no/jpr/datasets>.

## **Acknowledgements**

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## Tables and Figures

Table I. Rare-events logit regression results with secessionist conflict onset as dependent variable

	(1) TSCS: Symmetrical model	(2) TSCS: Symmetrical model + Excluded	(3) TSCS: Symmetrical model + Excl., Reg. Autonomy	(4) TSCS: Asymmetrical model
Inequality	1.786*** (0.227)	1.673*** (0.212)	1.787*** (0.223)	
Inequality ( <i>high</i> )				1.206*** (0.198)
Inequality ( <i>low</i> )				1.134*** (0.168)
Excluded		2.230** (0.805)	1.867* (0.725)	1.824* (0.827)
Reg. Autonomy			0.942** (0.329)	1.059** (0.331)
Previous conflict	3.445*** (0.488)	2.622*** (0.464)	2.320*** (0.401)	2.337*** (0.431)
GDP per capita (country, logged)	-0.776*** (0.233)	-0.642** (0.217)	-0.723*** (0.194)	-0.741*** (0.213)
Population density (country, logged)	1.266*** (0.176)	1.337*** (0.152)	1.408*** (0.148)	1.366*** (0.158)
Peace years	0.154 (0.108)	0.165 (0.116)	0.204 (0.139)	0.201 (0.144)
Spline 1	0.00153** (0.000571)	0.00174** (0.000548)	0.00175* (0.000695)	0.00170* (0.000763)
Spline 2	-0.00151** (0.000477)	-0.00186*** (0.000384)	-0.00173*** (0.000415)	-0.00167** (0.000510)
Spline 3	0.000847** (0.000265)	0.00112*** (0.000243)	0.000977*** (0.000156)	0.000936*** (0.000230)
Constant	-2.464*** (0.449)	-3.840*** (0.918)	-3.890*** (1.002)	-5.302*** (0.987)
N	8,041	8,041	8,041	8,041

Country-clustered standard errors in parenthesis

\*\*\* significant at 0.1%; \*\* significant at 1%; \* significant at 5%

Table II. Sensitivity analysis

	(5) CS: 1991, federations	(6) CS: 1991, global	(7) TSCS: 1946-2005, federations	(8) TSCS: Using a GDP measure excluding oil
Inequality ( <i>high</i> )	1.390* (0.623)	0.365** (0.139)	0.790*** (0.161)	
Inequality ( <i>low</i> )	1.237*** (0.693)	0.105*** (0.0218)	0.658*** (0.0718)	
Inequality excl. oil ( <i>high</i> )				1.616*** (0.434)
Inequality excl. oil ( <i>low</i> )				1.279*** (0.213)
Oil revenue				0.000285* (0.000134)
Excluded		1.890 (0.982)	1.908** (0.631)	2.122** (0.744)
Reg. Autonomy		1.050* (0.466)	0.703** (0.260)	0.949** (0.317)
Federation (country)		2.261*** (0.638)		
Previous conflict			1.666*** (0.357)	
GDP per capita (country, logged)	-.723* (0.282)	-0.565** (0.179)	-0.529*** (0.160)	-0.822*** (0.229)
Population density (country, logged)	1.07*** (0.314)	0.705* (0.288)	0.726*** (0.138)	1.526*** (0.254)
Post-Cold War			0.764* (0.314)	2.261*** (0.417)
Peace years			-0.0584 (0.103)	0.214 (0.151)
Spline 1			0.000346 (0.000677)	0.00182* (0.000801)
Spline 2			-0.000733 (0.000579)	-0.00174** (0.000536)
Spline 3			0.000619* (0.000281)	0.000944*** (0.000245)
Constant	-.974 (.522)	-4.222*** (.925)	-5.473*** (0.665)	-5.303*** (1.087)
N	544	2,275	26,525	8,041

Country-clustered standard errors in parenthesis: \*\*\* significant at 0.1%; \*\* significant at 1%; \* significant at 5%. Dependent variable in models (5) and (6) is secessionist conflict onset in the period 1991-2005; dependent variable in models (7) and (8) is as in models 1-4 (Table I).

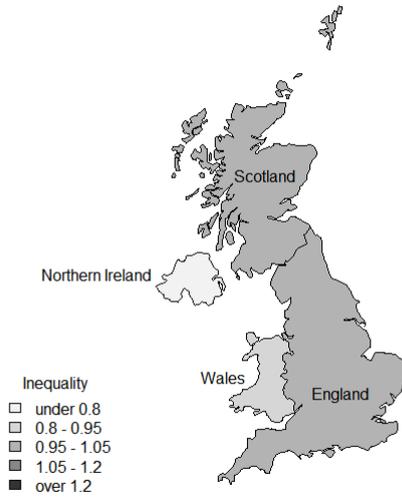


Figure 1. Inequality measures for regions in the UK in 1990. An inequality ratio below 1 denotes comparably poor regions, while values above 1 denote comparably rich regions

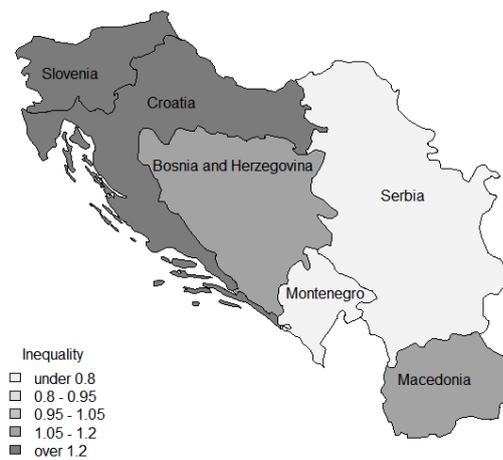


Figure 2. Inequality measures for regions in Yugoslavia in 1990. An inequality ratio below 1 denotes comparably poor regions, while values above 1 denote comparably rich regions

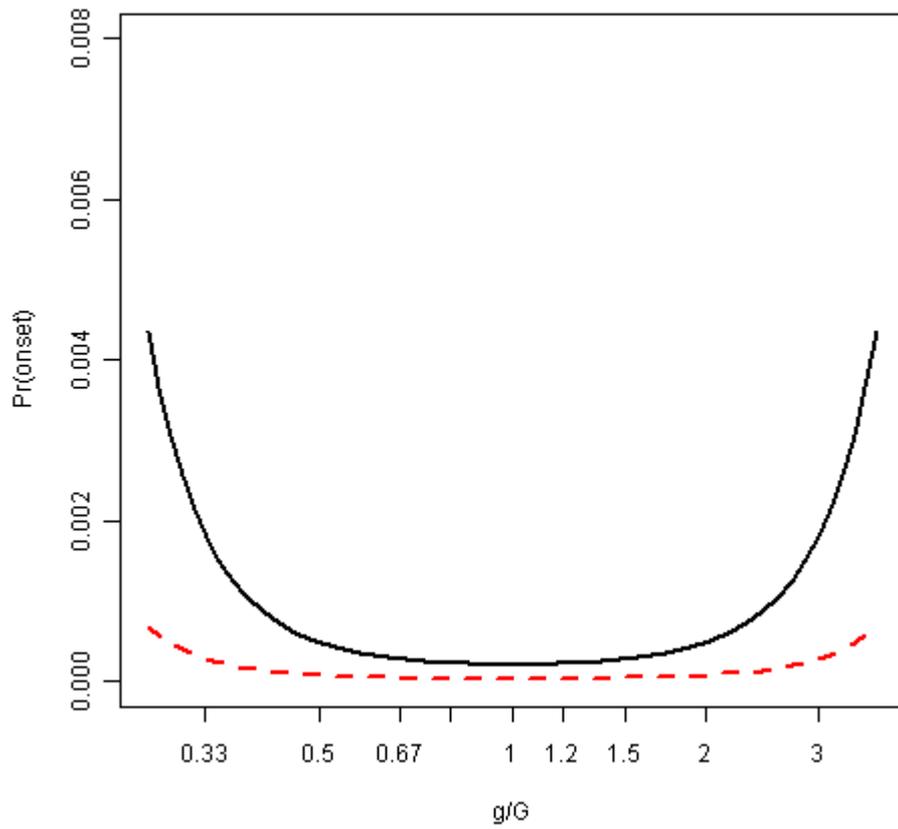


Figure 3. Predicted probabilities for conflict given  $g/G$ , based on model 3. The solid line curve shows the predicted probability of conflict probability for administrative units with an excluded group while the dashed line indicates the predicted effects for a region without excluded groups, with all other variables held at their median values.