International Conventions and Non-State Actors: Selection, Signaling, and Reputation Effects *

Kristian Skrede Gleditsch†
Department of Government, University of Essex and Centre for the Study of Civil War, PRIO

Simon Hug‡
Département de science politique et relations internationales, Université de Genève and Centre for the Study of Civil War, PRIO

Livia Isabella Schubiger§
Center for Comparative and International Studies (CIS), Institute of Political Science, University of Zurich

and Julian Wucherpfennig¶
Center for Comparative and International Studies (CIS), ETH Zurich

First version: August 2010, this version: February 19, 2011

*Earlier versions of this paper were presented at the CSCW workshop on “Political Institutions and Conflict Resolution” (Oslo November 4-5, 2010) and the Political Economy of International Organizations conference (Zurich, January 28-30, 2011). We gratefully acknowledge helpful comments by the participants at this event and especially Susanna Campbell and Simone Günther. Thanks are also due to Marco Sassoli, chairman of the board of Geneva Call, as well as Pascal Bongard and Chris Rush of Geneva Call, who answered our numerous questions. Gleditsch would like to acknowledge support from the Research Council of Norway (180441/V10). Schubiger is grateful for the hospitality of Yale University and acknowledges financial support by the Zurich University Alumni Association (FAN fellowship) and the Swiss National Science Foundation (fellowship PBZHP1-133450). Hug and Wucherpfennig acknowledge partial financial support by the Swiss National Science Foundation (Grant No. 105511-116795).

† Department of Government, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, United Kingdom, email: ksg@essex.ac.uk.
‡ Département de science politique et relations internationales, Faculté des sciences économiques et sociales; Université de Genève; 40 Bd du Pont d’Arve; 1211 Genève 4; Switzerland; phone +41 22 379 83 78; email: simon.hug@unige.ch
§ Center for Comparative and International Studies (CIS), Institute of Political Science, University of Zurich, Affolternstrasse 56, 8050 Zurich, Switzerland; email: schubiger@pw.uzh.ch
¶ Center for Comparative and International Studies (CIS), ETH Zurich, Haldeneggsteig 4, 8092 Zurich, Switzerland; email: wucherpfennig@icr.gess.ethz.ch
Abstract

Non-state actors (NSAs) play an important role in violent conflicts, but unlike state actors they cannot (be forced to) sign international conventions tying their hands. The non-governmental organization Geneva Call has stepped into this void and solicits NSAs to sign and allow monitoring of conventions banning particular activities, for example the use of landmines. We propose a game-theoretic model to assess the motivations for NSAs (and states) to sign such conventions and how they affect conflict behavior on the ground. We find that selection issues are of crucial importance linked to the incentive to signal resolve, both by states and NSAs. Empirical analyses of conflict behavior in countries where Geneva Call has been active support the implications of the theoretical model.
1 Introduction

In his inaugural address on August 7, 2010, the newly elected Colombian President Juan Manuel Santos implored the Fuerzas Armadas Revolucionarias de Colombia (FARC) guerillas to cease using landmines. Some years before, Geneva Call (2006), an international non-governmental organization (NGO) encouraging non-state actors to sign conventions to pledge refraining from using landmines, unsuccessfully attempted to win the FARC over to its cause, despite the fact that the Columbian government had signed the landmine treaty in 2000. Geneva Call had more success in Sudan. In October 2001 the Sudan People’s Liberation Movement/Army (SPLM/A) signed the proposed convention (Geneva Call, 2007), and only two years later the Sudanese government followed suit and signed the treaty. Overall 153 countries have by now signed the landmine treaty, and 41 non-state actors (NSAs) from 10 countries have done the same for Geneva Call’s convention. Few NSAs have signed the convention after their government signed the treaty, many more have signed before the government has pledged its support.

This raises two questions relevant to the current debate on human rights in international relations in general and civil wars more specifically. First, why would a non-state actor sign a constraining convention? And second, what effects do such conventions have? Both of these questions are intimately related to the current debate on the screening and constraining effects of international agreements (see for instance Simmons, 1998; von Stein, 2005; Simmons and Hopkins, 2005).

In what follows we first discuss the literature on human rights as it relates to our research question. We also discuss the context of Geneva Call’s intervention. In section three we propose a game-theoretic model focusing on the interaction between governments and NSAs when it comes to signing and complying with conventions related to human rights. Section four presents empirical tests of the implications derived from the theoretical model, while section five concludes.

1 “Santos assumes Colombia’s presidency amid conciliation with Venezuela, Ecuador” LA Times August 10, 2010 and “Santos Präsident Kolumbiens” NZZ August 9, 2010.
2 Geneva Call also wishes to cover the areas of child soldiers and sexual violence.
4 See http://www.icbl.org/index.php/icbl/Universal/MBT/States-Parties
2 Human rights and non-state actors

There has been a surge of academic interest in the study of human rights over the last decades (e.g., Finnemore and Sikkink, 1998; Risse, Ropp and Sikkink, 1999; Hathaway, 2002; Hafner-Burton, 2008; Vreeland, 2008; Simmons, 2009; Carey, Gibney and Poe, 2010; Hollyer and Rosendorff, 2010). Below we first review the recent literature on human rights relevant for our research questions, before offering a short overview over Geneva Call’s actions.

2.1 Human rights

Authors like Finnemore and Sikkink (1998) and Risse, Ropp and Sikkink (1999) see the growing importance of human rights norms as clear evidence for sociological institutionalist arguments (see, e.g., March and Olsen, 1984; Dimaggio and Powell, 1991). Recent work focusing on the tangible effects of human rights conventions highlights the critical issue of enforcement. Several studies note how authoritarian regimes have happily signed human rights conventions without enforcing them (e.g., Hathaway, 2002; Hafner-Burton, 2008; Vreeland, 2008; Simmons, 2009; Hollyer and Rosendorff, 2010). This raises the question of whether the norm diffusion effects highlighted in earlier studies merely entail states paying lip-service when signing treaties and whether signing treaties by itself has any tangible consequences.

The debates over the effects of human rights treaty ratification and subsequent behavior are related to a more general debate on the effects of international treaties on behavior (see for instance Simmons, 1998; von Stein, 2005; Simmons and Hopkins, 2005). This literature highlights the problem of assessing the constraining effects of international treaties (including treaties related to human rights) arising from the fact that signing a treaty often is influenced by the expected compliance and compliance costs. Consequently, observing that signatories of particular treaties behave differently may simply be due to particular types of countries choosing to sign treaties rather than the effects of treaties for behavior per se (see for instance von Stein, 2005).\footnote{Simmons and Hopkins (2005) contends that there are constraining effects of treaties even after taking this selection process into account. Similar debates have emerged in studies of whether the World Trade Organization leads to trade liberalization or not (see Rose, 2002). In our context, the Sudanese SPLA had already started to refrain from using landmines when it}
work by Hafner-Burton and Tsutsui (2005, 2007), Vreeland (2008), Simmons (2009), Hill (2010), and Hollyer and Rosendorff (2010) deals with these issues more specifically.

NSAs differ from state actors in that their human rights obligations are much less clear (e.g., Clapham, 2006), as NSAs by definition are not signatories to standard human rights conventions. Scholars have only recently become interested in the conditions under which NSAs obey human rights norms (see for instance Jo and Thomson, 2008). The most extensive effort in this area is certainly Geneva Call’s initiative to propose human rights conventions to NSAs. The first convention offered by Geneva Call for NSAs to sign concerns banning landmines, and is intended to be a parallel to the Ottawa convention (see for instance Goose, 1998; Moser-Puangsuwan, 2008). As with the early work on human rights, many studies emphasized the importance of NGOs and civil society to bring about this convention from a sociological institutionalist perspective (e.g., Price, 1998; Short, 1999; Anderson, 2000; Rutherford, 2000a; Rutherford, 2000b; Wexler, 2003; Lins de Albuquerque, 2007). More recently, however, scholars have questioned the importance of civil society in this context, as most of the signatories to the Ottawa convention did not stock landmines at the time of ratification and the enforcement mechanisms remain particularly weak (see for instance Drezner, 2005).

This makes it all the more interesting to understand why NSAs would sign a convention imitating the Ottawa convention and how this affects their subsequent signed Geneva Call’s convention (personal communication by Pascal Bongard, program officer Geneva Call, January 5, 2011).

6See also Hafner-Burton (2008).

7By “non-state actors,” we refer to armed opposition organizations previously or currently engaged in violent intra-state conflict. As outlined above, other types of social actors figure prominently in the study of human rights, primarily in arguments stressing mechanisms of transnational and domestic mobilization for human rights protection (e.g., Keck and Sikkink, 1998; Simmons, 2009). In general, however, the literature on compliance with international law suffers from a state-centric focus (see Simmons, 2010). An important exception is Morrow (2007), who in his study of state compliance with the laws of war discusses the agency problem introduced by non-compliance by individual soldiers.

8See http://www.genevacall.org/ for more details.

9In a recent contribution on global norm creation with regards to specific weapons types, Carpenter (2011) argues that it is not the existence of advocacy networks around an issue per se that explains variation in the emergence and success of campaigns on particular weapons norms. Instead, she argues that processes of issue selection within nongovernmental and international organizations that are most central to advocacy networks (“network hubs”) are crucial in bringing particular issues to global prominence.
human rights record. Few studies have examined these issues, in particular the interaction between governments and NSAs.\textsuperscript{10} Jo and Thomson (2008), for instance, propose a theoretical model assessing how compliance with human rights norms relates to reputation and international organizations\textsuperscript{11}

2.2 Geneva Call

Geneva Call is an NGO that aims at engaging armed NSAs to respect international humanitarian law and human rights law. It was founded in 1998, the year after the Ottawa convention was adopted, in response to the concern that this convention was only binding on states, and did not prevent armed NSAs to continue to use these weapons. Geneva Call effectively began in 2000 to engage NSAs on the subject of landmines. To this end, Geneva Call offers the “Deed of Commitment for Adherence to a Total Ban on Anti-Personnel Mines and for Cooperation in Mine Action.” The convention engages NSAs to ban the production, use, and transfer of landmines, as well as to participate in mine clearance and mine risk education. Importantly, the convention entails verification missions by Geneva Call. Geneva Call is currently engaged in 6 areas, namely Africa (since 2000), Asia (since 2000), the Caucasus (since 2006), Europe (since 2001), the Middle East (since 2000), and Latin America (since 2003)\textsuperscript{12}

Table\textsuperscript{1} gives an overview of the numbers of countries and NSAs which have signed the Ottawa treaty and the Geneva Call convention to date.

\textsuperscript{10}Variations in treaty compliance during wartime have been studied with regards to the conduct of states and their adherence to the laws of war (Valentino, Huth and Croco, 2006; Morrow, 2007). Another strain of literature deals with the determinants of violence against civilians by states and/or NSAs during wartime more generally (e.g., Azam and Hoeffler, 2002; Azam, 2002; Valentino, Huth and Balch-Lindsay, 2004; Azam, 2006; Downes, 2006; Humphreys and Weinstein, 2006; Kalyvas, 2006; Eck and Hultman, 2007; Ballell, 2010; Stanton, 2010).

\textsuperscript{11}Related is Beber and Blattman’s (2010) work dealing with child-soldiers, an area into which Geneva Call is also in the process of venturing (see http://www.genevacall.org/Themes/Children/children.htm). Another recent contribution is the study of Bussmann and Schneider (2011) analyzing the impact of the ratification of international humanitarian law and the presence of the ICRC in conflict zones on violence against civilians in intra-state armed conflicts.

\textsuperscript{12}See http://www.genevacall.org/home.htm (accessed September 7, 2010)


<table>
<thead>
<tr>
<th>Country signed first, NSA after</th>
<th>Burundi (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Phillipines (3)</td>
</tr>
<tr>
<td></td>
<td>Turkey (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NSA signed first, country after</th>
<th>Iraq (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sudan (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NSA signed first, country not yet</th>
<th>Burma (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>India (3)</td>
</tr>
<tr>
<td></td>
<td>Iran (6)</td>
</tr>
<tr>
<td></td>
<td>Morocco (1)</td>
</tr>
<tr>
<td></td>
<td>Somalia (17)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country signed, no NSA signed</th>
<th>148 countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither country nor NSA signed</td>
<td>34 countries</td>
</tr>
</tbody>
</table>

Sources:
Geneva Call (2007)

3 A model

We propose a game-theoretic model to better understand how Geneva Call’s activity on landmines, understood as an equivalent to the Ottawa convention, shapes the interaction between the government and NSAs. The model is based on the interaction between two actors, namely a government $G$ and a rebel organization $R$. The sequence of play is as follows:

1. The government $G$ can sign or not sign treaty;\[13\]
2. The rebel organization $R$ can sign or not sign treaty;
3. If only the rebel organization has signed, the government gets another chance to sign or not sign the treaty.

\[13\]In principle one can envision a case where a state for practical purposes does not exist as an actor, either because an NSA operates in a failed state, or a secession is fought for a state to be created. As NSAs can still be the first actor to sign in our model, we believe this assumption will not affect unduly our results.
The payoffs are assumed to be composed of the following elements:

- The costs of the civil war $cw_i$, with $i \in \{G, R\}$\footnote{As we will focus on states and NSAs engaged in civil wars, this term will be constant and could be dropped. We nevertheless keep it in what follows to allow for extensions beyond civil war cases.}
- The increased costs of warfare if a treaty is adhered to $w_i$, with $i \in \{G, R\}$ (by assumed symmetry, these increased costs generate benefits for the adversary);
- The reputation benefits $r_G$ (if $G$ signs first) or costs (if $R$ signs and $G$ does not)\footnote{More precisely, the costs of not signing the treaty after $R$’s signing of the convention is assumed to be twice as large as the benefits of signing first. It is easy to see that if costs and benefits were of the same magnitude, $G$ will always sign at the first decision node if it were also to sign at its second node. We assume that rebels do not face reputation costs or benefits related to to human rights conventions. It is likely that NSAs do face such costs, but this will depend strongly on the position of the NSA. NSAs close to winning a war might be concerned much more about civilian victims than other NSAs. We thank Susanna Campbell for raising this point. Moreover, empirically the cost of civil war will also vary across time depending on the level of intensity.}

Figure 1 displays the extensive form of this model, including payoffs. This simple structure already generates some insights about under what conditions the rebel organization $R$ and the government $G$ will chose to sign the agreement. However, this version of the model does not tell us anything about compliance, and whether these agreements have any tangible effects. We therefore extend the model by assuming that the costs of warfare under a treaty $w_i$ depend on compliance (which may be monitored but not directly observed)\footnote{Both the Ottawa convention on baning landmines and Geneva Call’s convention include monitoring provisions (e.g, Geneva Call, 2007).} In particular, we assume that $G$ and $R$ can be of two different types: following Jo and Thomson (2008), they can be either “nice” or “mean.” Thus, we assume that complying with the agreement results in the payoffs depicted in figure 1, but that non-compliance by actor $i$ withdraws from both actors’ respective payoffs the $w_i$ term while the “offending” actor $i$ pays a cost of $c_i$ related to the lack of compliance detected (possibly stochastically) by monitoring. Thus, we add:

- The increased costs related to non-compliance $c_i$, with $i \in \{G, R\}$.
This results in a signaling game with two-sided incomplete information where the effects of the agreements will become endogenous. The decisions to comply by $G$ and $R$ are then reached simultaneously, leading to the game form depicted in figure \ref{fig:game_form}. For simplicity we omit the initial move by Nature to select the two types of $G$ and $R$. 

Figure 1: Signing treaty without compliance decision (complete and perfect information)
Using this simple modification leads to four combinations of possible compliance decisions:

1. Both $G$ and $R$ comply

$$EU_G = -cw_G - w_G + w_R + r_G$$
$$EU_R = -cw_R - w_R + w_G$$  \hfill (1)

2. Only $G$ complies

$$EU_G = -cw_G - w_G + r_G$$
$$EU_R = -cw_R + w_G - c_R$$  \hfill (2)

3. Only $R$ complies

$$EU_G = -cw_G + w_R + r_G - c_G$$
$$EU_R = -cw_R - w_R$$  \hfill (3)

4. Neither $G$ nor $R$ comply

$$EU_G = -cw_G + r_G - c_G$$
$$EU_R = -cw_R - c_R$$  \hfill (4)

From this setup it easily follows that compliance for both actors $i$ depends on the condition $-w_i > -c_i$ (i.e., the costs of warfare under the treaty must exceed the increased costs of non-compliance). Consequently, we use this condition to define the “mean” and “nice” types of actors. For a “nice” $G$ $-w_G > -c_G$, while for a “mean” $G$ $-c_G > -w_G$. Similarly, for a “nice” $R$ $-w_R > -c_R$ holds, while $-c_R > -w_R$ holds for a “mean” $R$[^1]

[^1]: More precisely, we assume that all payoff elements are common knowledge except the $c_i$s, which are private information to both $i$s, respectively.
Figure 2: Signing treaty with compliance decision (complete but imperfect information, move by Nature determining types omitted)
Consequently, if both $G$ and $R$ are uncertain about the type of their adversary, compliance will depend on the updated beliefs of these two actors. We denote the prior beliefs as $p (\text{prob} (\text{c}_G > w_G))$ and $q (\text{prob} (\text{c}_R > w_R))$. We will use this more general formulation when analyzing the complete and imperfect information version of this model, but replace it with a simplified version for the incomplete information version, where $c_i$ may take two values, namely $2 \times w_i$ for a “nice” type and $\frac{w_i}{2}$ for a “mean” type.\footnote{If the more general formulation were to be used, some equilibria would depend on the exact distribution of the two $c_i$s.}

**Proposition 1 (Complete and imperfect information)** In any subgame-perfect equilibrium, either $G$ fails to sign at its first decision node but signs after $R$’s signing (if $p = 1$, $q = 1$ and $2 \times r_G > w_G$) or $G$ signs at its first decision node, while $R$ refrains from doing so (in all other cases).

Proposition 1 suggests that in the complete and imperfect information version of the game $R$ may induce $G$ to sign (or vice versa $G$ by not signing first forces $R$ to sign).

**Proposition 2 (Incomplete and imperfect information)** Each of the perfect Bayesian equilibria produce one of the following outcomes:

- Both types of $G$ refrain from signing at each of their decision node, leading both types of $R$ not to sign.
- Both types of $G$ sign at their first decision node, leading both types of $R$ not to sign.
- Both types of $G$ refrain from signing at their first decision, leading both types of $R$ to sign, followed by both types of $G$ signing as well.
- A “mean” $G$ signs at first decision node and a “nice” $G$ does not, leading both types of $R$ not to sign.
- A “mean” $G$ signs at first decision node and a “nice” $G$ does not, leading the “mean” type of $R$ to sign, followed by a signing by both types of $G$ as well.
A “nice” G does not sign first, while the “mean” R does not sign probabilistically, leading the “nice” R to sign probabilistically, while the “mean” R always signs, which are followed by both types of G signing.

For the empirical purposes of this paper the proof of proposition 2 offers especially the following interesting implications:

- If $w_G$ is sufficiently high compared to $r_G$ neither G nor R will ever sign.
- If the prior belief $q$ is high, then both types of G will first refrain from signing, but after R’s signing will sign as well.
- If the prior belief $q$ is low, then both types of G will sign immediately.
- For moderate values of $w_G$ the “nice” G may not sign at first, inducing the “mean” R to sign on its turn, followed by G signing.

The first three implications basically focus on the decision to sign a convention, while the last one also has some implications regarding the compliance to be observed in equilibrium. The first implication draws on a comparison of two costs for government namely its reputation costs and the cost of refraining from using landmines. Below we will presume that reputation costs for democracies are higher than for non-democratic countries. The costs of refraining from using landmines may be proxied by previous use or stockpiles of landmines. Unfortunately, for the countries covered in our analysis (see table 6 in the appendix) there is almost no variation, as most have used or still have landmines (see http://www.the-monitor.org/) at the beginning of our period of observation. For the second and third implication one-sided violence committed by an NSA may provide a proxy for the government’s prior belief of facing a “nice” or “mean” NSA. Finally, for the last implication the costs of refraining from using landmines might again be proxied by previous landmine use (with the same caveat as above), while the cost of treaty adherence for R can be proxied by the degree of territorial control that an NSA is able to exert.
4  Implications and empirical tests

4.1  Scope of Data

We begin by describing our data. Since we are interested in evaluating the consequences of Geneva Call’s engagement, our analyses are temporally and spatially restricted to countries in which Geneva Call played an active role. Moreover, given the setup of our theoretical model, we require data that allow us to model the (strategic) interaction between NSAs and their governments. Thus, the format of our data is dyad-year.

The next step is to define the sample. Within the regions (and the respective time periods) of Geneva Call’s engagement, the dataset covers all dyads for which the NSA has been involved in intra-state armed conflict (as defined by UCDP\textsuperscript{19}) at least once since 1989. More precisely, dyads are included if the NSA has been actively involved in armed hostilities with the government, i.e., in intra-state conflict as defined by UCDP\textsuperscript{20} during at least one year during the period from 1989 through 2009.\textsuperscript{21} Armed organizations do not enter the dataset prior to their active involvement in an intra-state armed conflict. Once NSAs have qualified for inclusion, they enter the dataset on a yearly basis during Geneva Call’s period of engagement in the respective region, regardless of whether they were actively engaged in armed conflict during a given year.\textsuperscript{22} However, we only include NSAs as long as they qualify as politically active organizations that maintain their own armed wing (our coding effort). To ensure robustness, we run our estimations on

\textsuperscript{19} An armed conflict is a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year.\textsuperscript{http://www.pcr.uu.se/database/definitions_all.htm} (accessed September 14, 2010).

\textsuperscript{20} UCDP Dyadic Dataset v.1-2010 (Harbom, Melander and Wallensteen, 2008; Harbom, 2010).

\textsuperscript{21} Intra-state conflict dyads are composed of the government of a state and an armed opposition organization. UCDP defines armed opposition organizations as “[a]ny non-governmental group of people having announced a name for their group and using armed force to influence the outcome of the stated incompatibility” (Harbom, 2010). The criterion for inclusion of NSAs into the UCDP dyadic dataset is at least 25 battle-related deaths during the given year in the dyad of the warring party.\textsuperscript{http://www.pcr.uu.se/database/definitions_all.htm} (accessed September 14, 2010).

\textsuperscript{22} To illustrate, the conflict between the Mouvement des forces démocratiques de Casamance (MFDC) and the government of Senegal was coded active first in 1990 in the UCDP dyadic dataset (v. 1-2010). This dyad is therefore included in the dataset during all years since Geneva Call became active in the respective region (2000 onwards), although this dyad did not reach the 25 battle-related threshold every year since 2000.
both a strict and a more lenient coding of activity (the latter includes dyad-years for which the pattern of activity is unclear; see table 6 in the appendix).

Naturally, we restrict this sample to regions and periods of Geneva Call’s engagement. These are listed below. The countries where Geneva Call has already ended its programs are listed in parentheses.\textsuperscript{23}

**Regions and time periods of Geneva Call’s engagement\textsuperscript{24}**

- Africa (2000 onwards): (Burundi), Niger, Senegal, Somalia, (Sudan), Western Sahara/Morocco.
- Europe (2001 onwards): Turkey.
- Middle East (2000 onwards): Iran, Iraq, Lebanon\textsuperscript{26} Yemen.

### 4.2 Variables

Our main variable captures whether (or not) the NSA has signed Geneva Call’s deed of commitment banning anti-personnel (AP) mines during a given year \((\textit{mbtreaty}_{nsa})\).\textsuperscript{27} For the government, the corresponding variable denotes ratification of the international mine-ban treaty \((\textit{mbtreaty}_{gov})\).

\textsuperscript{23}Note that Geneva Call provides more accurate start and end dates of engagement for a subset of countries. For this version, the start year as indicated for Geneva Call’s regions of engagement was taken.

\textsuperscript{24}Source: Geneva Call. [http://www.genevacall.org/home.htm](http://www.genevacall.org/home.htm) (accessed September 11, 2010).

\textsuperscript{25}Armenia does not qualify as a primary conflict party during the period of investigation. Rather than having been directly challenged by a non-state actor itself, Armenia supported the pro-independence movement in Nagorno-Karabakh against Azerbaijan (UCDP Database, Uppsala Conflict Data Program, accessed October 24, 2010: [http://www.ucdp.uu.se/gd/database/gpcountry.php?id=6&regionSelect=9-Eastern_Europe](http://www.ucdp.uu.se/gd/database/gpcountry.php?id=6&regionSelect=9-Eastern_Europe), Uppsala University.)

\textsuperscript{26}In Lebanon, Geneva Call is mainly in contact with organizations affiliated with Hezbollah. Therefore, the Israel-Hezbollah dyad is included in the dataset.

\textsuperscript{27}Source: Geneva Call [http://www.genevacall.org/resources/list-of-signatories/list-of-signatories.htm](http://www.genevacall.org/resources/list-of-signatories/list-of-signatories.htm) (accessed September 16, 2010).
We employ several additional variables in our tentative analyses:

Territorial control is a dummy variable denoting whether the NSA exerts at least a moderate level of control over its main territory. As outlined above, we argue that this variable is related to $w_R$, the costs induced by treaty adherence. The logic is simple. Landmines are an effective way of securing territory from governmental intrusion, hence relinquishing their usage is likely to make the NSA more vulnerable since it removes an effective military strategy from her portfolio.

Use of mines by government indicates whether landmines and improvised explosive devices were among the weapons used by the state actor of this dyad during any year between 1997 and the start year of Geneva Call’s engagement in the respective region.

OSV denotes the extent to which rebels or governments were responsible for one-sided violence according to UCDP. The variables indicate the best estimate of the aggregated estimated fatalities for all incidents of one-sided violence for a given actor and year. Consistent with our sample definition, fatality estimates have been assigned to dyad-years if the perpetrator has been actively involved in a given dyadic conflict in any year since 1989. Instances of one-sided violence were not assigned to a conflict-year if the perpetrating actor did not constitute one of the primary conflict parties in the respective countries according to UCDP/PRIO-criteria. Accordingly, the fatality estimates attributable to one particular actor

\footnote{Information on territorial control is largely adopted from Cunningham, Gleditsch and Sahlman (2009).}

\footnote{Source: IISS Armed Conflict Database, \url{http://acd.iiss.org/armedconflict/report/dsp_MainForm.asp} (accessed February 11, 2011).}

\footnote{To construct these variables, the UCDP One-sided Violence Dataset (Eck and Hultman, 2007) was used, an actor-year dataset on deadly attacks on civilians by governments and armed groups. It is based on media reports and provides information on the unilateral use of armed force by governments and formally organized groups against unarmed persons resulting in at least 25 deaths per calendar year (Kreutz, 2004; Kreutz, Eck, Wallensteen, Harbom, Hagbladh and Sollenberg, 2005). The most recent version, 1.3-2010 (as updated on August 30, 2010), covers the period 1989-2008. Information on one-sided violence during 2009 was adopted from the UCDP database (accessed October 30, 2010).}

\footnote{Exceptions are militias that allegedly acted on behalf of - or supported by - the state (Janjaweed in Sudan, Autodefensas Unidas in Colombia) and were therefore attributed to the state actor of a given dyad-year. The following perpetrators of osv active in Geneva Call’s countries of engagement do not enter our sample as primary conflict parties: Colombia: Autodefensas Campesinas de Córdoiba y Urabá, Medellin Cartel; India: Bodo Liberation Tiger Force, Dima Halam Daogah, Hmar People’s Convention, Indian Mujahideen, Kuki Revolutionary Army, Lashkar-e-Taiba, Ranvir Sena, Students’ Islamic Movement, United People’s Democratic Solidarity, Vishwa Hindu Parishad; Indonesia: Jamaah Islamiya; Iraq: Gov of USA, Asa’ib Ahl al-Haqq, Jamaat Jund al-Sahaba; Lebanon: Gov. of USA; Morocco: Salafia Jihadia; Niger:}
and year appear multiple times in the dataset where the respective actor has been involved in more than one dyad since 1989.\textsuperscript{32} We employ $OSV$ as a proxy for $p/q$ (section 4.3) and as a measure of compliance (section 4.4.).\textsuperscript{33}

*Democracy* is Cheibub, Gandhi and Vreeland’s (2010) democracy indicator and is meant to proxy reputation effects.\textsuperscript{34}

To capture size-related effects, such as military capacity, we also use an estimate of the *troop size* of the NSA.\textsuperscript{35}

### 4.3 Ratifying Mine-Ban Treaties

For the time being we consider the decision by Geneva Call to propose conventions in particular areas as exogenous. Our first set of analyses addresses some of the formal model’s empirical implications for the ratification of mine-ban treaties by both governments and NSAs.

We begin with some descriptive statistics given in table.\textsuperscript{2} The table contains information on the ratification sequence of both governments and NSAs of the convention on landmines. It indicates the numbers of dyad-years that correspond to the respective signatory status of governments or NSAs (dyad-years following signature are dropped). Depicted in parentheses are the respective numbers of cases where the “other” actor has previously ratified. Substantially, the table suggests that an NSA’s probability of signing the Geneva Call convention is larger if the government has failed to sign than if the government has signed the Ottawa convention. The differences are, however, rather small. Conversely, if an NSA

---

\textsuperscript{32}To give an example, the government of Burundi was involved in several dyadic conflicts during the period 1989-2009. Therefore, the $OSV$ fatality estimates attributed to the government of Burundi in a given year have been assigned to all dyads that qualify for inclusion in our sample during this year (see sample definition, section 4.1.). Similarly, the actor “Hutu rebels” encompasses more than one NSA involved in intra-state conflict (e.g., Palipehutu and Palipehutu-FNL) (see Harbom and Sundberg, 2009); $OSV$ fatality estimates attributable to this actor are therefore assigned to several dyads. One exception to this general coding rule is Israel, which as a special case was coded only with respect to the conflict with Hezbollah (see section 4.1.).

\textsuperscript{33}Geneva Call also assesses compliance and deploys monitoring missions. So far these have, however, not been carried out in a systematic and recurrent fashion (personal communication by Pascal Bongard, program officer Geneva Call, January 5, 2011).

\textsuperscript{34}As this data series ends in 2008, we extrapolated for 2009.

\textsuperscript{35}Information on troop size is adopted from Cunningham, Gleditsch and Salehyan (2009) as well as the IISS Armed Conflict Database.
Table 2: Signatories and “Follow-Suit” Signatories: number of countries, number of dyads (% of countries, % of dyads)

<table>
<thead>
<tr>
<th>NSA has not signed</th>
<th>NSA has signed</th>
<th>Government has not signed</th>
<th>Government has signed</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSA does not sign</td>
<td>6, 36 (60.0, 90.0)</td>
<td>7, 71 (53.8, 88.8)</td>
<td></td>
</tr>
<tr>
<td>NSA signs</td>
<td>4, 4 (40.0, 10.0)</td>
<td>6, 9 (46.2, 11.2)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10, 40 (100.0, 100.0)</td>
<td>13, 80 (100.0, 100.0)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Government has not signed</th>
<th>NSA has signed</th>
<th>NSA has not signed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government does not sign</td>
<td>4 (50.0)</td>
<td>14 (70.0)</td>
</tr>
<tr>
<td>Government signs</td>
<td>4 (50.0)</td>
<td>6 (30.0)</td>
</tr>
<tr>
<td>Total</td>
<td>8 (100.0)</td>
<td>20 (100.0)</td>
</tr>
</tbody>
</table>

Signs first it increases the probability of a government signing from 0.5 to 0.7 in our lenient sample. Consequently, once NSAs have signed the Geneva Call convention, governments are much more likely to follow suit than in the reverse scenario (i.e., when governments sign first).

Next we assess with a series of (corresponding) logit models whether the implications concerning the signing find empirical support in our data. As many scholars have noted, the strategic nature of the decisions we wish to explain (signing of a treaty by government and NSA) creates statistical estimation problems. While estimators are rather well understood for complete information models (see for instance Signorino, 1999; Signorino, 2002; Signorino, 2003; Signorino and Yilmaz, 2003; Signorino and Tarar, 2006; Whang, 2010), for incomplete information models as ours only few models exist (see for instance Whang, 2010). For this reason we simply estimate for each relevant decision node in figure how various variables affect the decisions of a given actor.

Table reports the results for empirical models for the first and second decision nodes of the government. For the implication related to the government’s prior belief we find in both samples (models 1 and 2) the theoretically expected effect, namely that governments faced by a “mean” NSA ($q$ proxied by one-sided violence) are much more likely to sign the Ottawa convention before the NSA.

---

36 As noted above, a series of dyads used in the empirical analysis may involve the same government. Hence decisions by one NSA may affect those of others. We do not explicitly model this at the empirical level, yet, but present in the tables that follow clustered standard errors to take into account some of these dependencies.

37 As this reduces the number of observations some multicollinearity issues appear.
If we estimate the same model for the government’s second decision node, we face the problem that in all cases where an NSA signs first, the NSAs do not commit one-sided violence. Hence, we cannot estimate this effect.

For the government’s one-sided violence we find no effect at all decision nodes. Similarly, the effect of the country’s democracy is statistically not significant though positive as expected. When trying to estimate the same effect for the government’s second decision node we find in both samples that in all dyads with a democratic government the latter refrains from signing after an NSA.

As expected we also find a negative effect for the previous use of landmines by governments. This proxy for the costs of refraining to use landmines reduces a government’s willingness to sign the Ottawa convention, more so when no NSA has signed (models 1 and 2) than if an NSA has already signed (models 3 and 4).

Table 4 presents the results for the NSAs’ decision to sign before the government. We find a rather strong effect for an NSA’s territorial control, which increases the costs of getting rid of landmines and thus also decreases its willingness to sign the convention. A positive and rather strong effect also appears for the rebel group’s size which proxies again costs related to giving up landmines. The positive effect suggests that larger NSAs are more willing (and capable) of giving up landmines and thus sign more frequently Geneva Call’s convention.

---

**Table 3: Logit Estimates of Signatory Status of Government**

<table>
<thead>
<tr>
<th></th>
<th>government signs before NSA</th>
<th></th>
<th>government signs after NSA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>restricted sample lenient sample</td>
<td>restricted sample lenient sample</td>
<td>restricted sample lenient sample</td>
<td>restricted sample lenient sample</td>
</tr>
<tr>
<td>osv_nsa (log)</td>
<td>0.034** (0.015)</td>
<td>0.010 (0.012)</td>
<td>NA (NA)</td>
<td>NA (NA)</td>
</tr>
<tr>
<td>osv_gov (log)</td>
<td>0.034 (0.040)</td>
<td>0.040 (0.035)</td>
<td>0.072 (0.062)</td>
<td>0.076 (0.057)</td>
</tr>
<tr>
<td>use of mines by government</td>
<td>-1.861 (1.228)</td>
<td>-1.822* (1.031)</td>
<td>-0.935 (1.604)</td>
<td>-1.057 (1.415)</td>
</tr>
<tr>
<td>democracy</td>
<td>0.200 (1.193)</td>
<td>0.051 (1.010)</td>
<td>NA (NA)</td>
<td>NA (NA)</td>
</tr>
<tr>
<td>constant</td>
<td>-1.688** (0.742)</td>
<td>-1.663** (0.689)</td>
<td>-0.934 (1.022)</td>
<td>-1.297 (0.912)</td>
</tr>
<tr>
<td>llk</td>
<td>-46.310 (303)</td>
<td>-82.633 (420)</td>
<td>-9.672 (24)</td>
<td>-11.073 (36)</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

---

38Estimating a model for the decision to sign after the government, some values of all independent variables perfectly predict the dependent variable, making it impossible to provide estimates.
4.4 Evaluating the Effectiveness

Having established these patterns, we now turn to evaluating the effect of such conventions. For the time being we will neglect the fact that signatories are potentially endogenous to their effect.

One way of evaluating the effectiveness of international conventions banning the usage of landmines is to assess civilian casualties. Since the main problem with landmines is that they tend to produce victims among innocent civilians, we argue that all else being equal, renouncing landmines will lead to lower numbers in one-sided violence. More precisely, we view one-sided violence as a proxy variable for the extent to which states and NSAs are willing to spare the life of civilians, which in turn should be directly linked to the willingness to employ or ban the use of landmines.\(^{39}\)

We therefore estimate negative binomial regressions with one-sided violence perpetrated by states or rebels as the dependent variable (table 5). To account for the panel structure of the dataset, we allow for an AR(1) serial correlation in the error term. The models are estimated using generalized estimating equations (GEE).

As before, we begin with the government (models 1 and 2). Surprisingly, we find that signatories are associated with higher numbers of one-sided violence,

\(^{39}\)While Geneva Call also monitors compliance with the convention, the information is not sufficiently detailed to allow for a direct test of the theoretical implications related to compliance.
Table 5: GEE Negative Binomial Estimates (AR(1) errors) of One-Sided Violence

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>osv_gov</td>
<td>1.200</td>
<td>1.005</td>
<td>1.179</td>
<td>0.998</td>
<td>-0.395</td>
<td>-0.629</td>
</tr>
<tr>
<td></td>
<td>(0.81)</td>
<td>(0.62)</td>
<td>(0.96)</td>
<td>(0.77)</td>
<td>(0.38)</td>
<td>(0.50)</td>
</tr>
<tr>
<td>osv_nsa</td>
<td>-0.220</td>
<td>-0.242</td>
<td>-1.621***</td>
<td>-1.513***</td>
<td>-0.372</td>
<td>-1.054</td>
</tr>
<tr>
<td></td>
<td>(0.37)</td>
<td>(0.35)</td>
<td>(0.38)</td>
<td>(0.41)</td>
<td>(0.33)</td>
<td>(0.69)</td>
</tr>
<tr>
<td>territorial control ≥ moderate</td>
<td>0.222</td>
<td>-0.223</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.63)</td>
<td>(0.81)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mineban × territorial control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1.149*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.66)</td>
<td></td>
</tr>
<tr>
<td>rebel size (log)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.598***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.26)</td>
</tr>
<tr>
<td>Constant</td>
<td>3.749***</td>
<td>3.711***</td>
<td>2.834***</td>
<td>2.542***</td>
<td>3.222***</td>
<td>-1.337</td>
</tr>
<tr>
<td></td>
<td>(0.19)</td>
<td>(0.19)</td>
<td>(0.35)</td>
<td>(0.36)</td>
<td>(0.54)</td>
<td>(1.78)</td>
</tr>
<tr>
<td>Observations</td>
<td>434</td>
<td>645</td>
<td>442</td>
<td>645</td>
<td>254</td>
<td>206</td>
</tr>
<tr>
<td>Number of dyadid</td>
<td>64</td>
<td>85</td>
<td>65</td>
<td>85</td>
<td>32</td>
<td>27</td>
</tr>
<tr>
<td>deviance</td>
<td>2701</td>
<td>4236</td>
<td>2805</td>
<td>4064</td>
<td>1490</td>
<td>1115</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

although this finding is only marginally significant under the lenient sample definition. Whether NSAs sign the convention does not seem to condition the governments’ behavior. For NSAs, however, we find a strong negative and statistically significant effect of convention ratification (models 3 and 4). However, this effect disappears once we control for territorial control (model 5), but comes to light again when including the multiplicative interaction term between territorial control and convention ratification; it is strongest in the (rare) event that NSAs exert control over their core territory, yet ratify the convention.
5 Discussion and Conclusion

This paper offers a first look and assessment of how NSAs decide whether to sign Geneva Call’s convention on the ban of landmines and its effectiveness. We propose a simple game-theoretical model on the interactions between governments and NSAs. The equilibrium analysis of this model allows for a rich set of implications, some of which we provide preliminary empirical tests of in the present paper.

We have found clear evidence suggesting that the decisions by governments and NSAs to sign a landmine ban convention are not independent. Especially governments’ decisions to sign appear to be notably affected by whether NSAs have already signed. Similarly, for the governments’ decision to sign first its assessment of possible compliance by NSAs also appears to be an important factor. For NSAs not surprisingly territorial control is an important factor influencing the costs of implementation and thus also the signing decision.

Regarding the consequences of signing such conventions our results are less rich. We find that NSAs having signed Geneva Call’s convention are less likely to resort to one-sided violence (our proxy for compliance), but given the possible selection biases this estimate has to be taken with a grain of salt.

Both the theoretical model and first empirical results suggest, however, that our research endeavor is a fruitful avenue. We plan on linking more closely our empirical analysis to the theoretical implications, first by deriving additional insights and second by addressing the strategic nature in the empirical testing (see for instance Signorino, 1999; Signorino, 2002; Signorino, 2003; Signorino and Yilmaz, 2003; Signorino and Tarar, 2006; Whang, 2010).
Appendix

In this appendix we provide proofs of the propositions presented in the main text and some information on the data used in our empirical analysis.

Proofs

We first present a few observations helpful in proving the main propositions presented in the main text. We then prove the two propositions characterizing equilibrium behavior under complete and imperfect and incomplete and imperfect information.

1. Observation

If \( G \) signs at its first decision node, \( R \) will never sign, since it obtains the benefit of compliance by \( G \) for free, or cannot improve on its own its situation if \( G \) should sign but not comply.

Proof: Simply comparing expected utilities with \( p' \), the possibly updated prior belief yields:

\[
EU_R(\text{sign}) = p' \times (-cw_R - q \times w_R + w_G - (1 - q) \times c_R) \\
= + (1 - p') \times (-cw_R - qw_R + (1 - q) \times c_R) \\
= -cw_R - q \times w_R - (1 - q)c_R + p' \times w_G \\
EU_R(\text{not sign}) = p' \times (-cw_R + w_G) + (1 - p) \times (-cw_R) \\
= -cw_R + p' \times w_G
\]

As \( w_R \) and \( c_R \) are both positive, independent of \( q \) \( R \) will never sign. QED.

2. Observation

If \( R \) signs the agreement (when \( G \) has not in the first round), \( G \)'s decision to sign after \( R \) is independent of its possibly updated belief of \( R \)'s type \( q' \).

Proof: To see this assume first that \( G \) is “nice” (i.e., \( p = 1 \).

\footnote{For simplicity's sake we consider situations where actors are indifferent between two actions only when assessing whether semi-pooling equilibria may exist.}
\[ EU_G(\text{sign}) = q' \times (-cw_G - w_R + w_G) + (1 - q') \times (-cw_G - w_G) = -cw_G - w_G + q' \times w_R \] (7)

\[ EU_G(\text{not sign}) = q' \times (-cw_G - 2 \times r_G + w_R) + (1 - q') \times (-cw_G - 2 \times r_G) = -cw_G - 2 \times r_G + q' \times w_R \] (8)

Consequently, \( G \) signs if \(-cw_G - w_G + q' \times w_R > -cw_G - 2 \times r_G + q' \times w_R\), hence only if \( 2 \times r_G > w_G \).

If \( G \) is “mean” (i.e., \( p = 0 \))

\[ EU_G(\text{sign}) = q' \times (-cw_G + w_R - c_G) + (1 - q') \times (-cw_G - c_G) = -cw_G - c_G + q' \times w_R \] (9)

\[ EU_G(\text{not sign}) = q' \times (-cw_G - 2 \times r_G + w_R) + (1 - q') \times (-cw_G - 2 \times r_G) = -cw_G - 2 \times r_G + q' \times w_R \] (10)

In that case \( G \) will sign if \(-c_G > -2 \times r_G \) or \( 2 \times r_G > c_G \).

In both cases, i.e. independent of \( p \), the decision of \( G \) to sign or not is independent of \( q' \).

\( QED. \)

3. Observation

From observation 2 follows that if \( 2 \times r_G > w_G \) then independent of its type \( G \) will always sign at its second decision node.\(^{41}\) If, however, \( w_G > 2 \times r_G \) then the “nice” type does not sign, but the “mean” type signs as long as \( 2 \times r_G > c_G \), but will not comply or does not sign if \( c_G > 2 \times r_G \). As in this case the payoff for \( R \) is identical, it can anticipate its payoff, namely if \( 2 \times r_G > w_G \) and \( q = 1 \)

\[ EU_R(\text{sign}) = p' \times (-cw_R + w_G - w_R) + (1 - p') \times (-cw_R - w_R) = -cw_R - w_R + p' \times w_G \] (11)

\[ EU_R(\text{not sign}) = -cw_R \] (12)

\(^{41}\)This follows from the fact that \( p = 0 \) implies \( w_G > c_G \).
Consequently a “nice” $R$ signs in that case if $p' > \frac{w_R}{w_G}$. For a “mean” $R$ the payoffs are as follows:

$$EU_R(\text{sign}) = p' \times (-cw_R + w_G - c_R) + (1 - p') \times (-cw_R - c_R)$$
$$= -cw_R - c_R + p \times w_G$$
$$EU_R(\text{not sign}) = -cw_R$$  \hspace{1cm} (13)$$

Consequently a “mean” $R$ signs in that case if $p' > \frac{c_R}{w_G}$.

If on the other hand $w_G > 2 \times r_G$ then $R$ knows that $G$ either won’t sign or won’t comply. Consequently, its payoffs for a “nice” ($q = 0$) type are

$$EU_R(\text{sign}) = -cw_R - w_R$$  \hspace{1cm} (15)$$
$$EU_R(\text{not sign}) = -cw_R$$  \hspace{1cm} (16)$$

As $w_R > 0$ $R$ will never sign. For a “mean” type

$$EU_R(\text{sign}) = -cw_R - c_R$$  \hspace{1cm} (17)$$
$$EU_R(\text{not sign}) = -cw_R$$  \hspace{1cm} (18)$$

is relevant and as $c_R > 0$ $R$ will never sign.

Complete and imperfect information

*Proof of Proposition 1*

Based on the observations above the following subgame-perfect equilibrium can be established:

1. If $p = 1$, $q = 1$ and $2 \times r_G > w_G$ $G$ : \{not sign, sign, comply\}, $R$ : \{not sign, sign, comply\}\textsuperscript{42}

2. If $p = 1$, $q = 1$ and $w_G > 2 \times r_G$ $G$ : \{sign, .., comply\}, $R$ : \{not sign, not sign, ..\}

\textsuperscript{42}For simplicity’s sake we shorten the strategies for both actors by only stating their actions at their first two decision nodes and indicating with the third element the action taken at their remaining decision nodes, as these do not vary.
3. If \( p = 0, q = 1 \) and \( 2r_G > c_G \): \{sign, .., not comply\}, \( R : \{not sign, not sign, ..\} \)

4. If \( p = 0, q = 1 \) and \( c_G > 2r_G \): \{not sign, ..\}, \( R : \{not sign, not sign, ..\} \)

5. If \( p = 1, q = 0 \) and \( r_G > w_G \): \{sign, .., comply\}, \( R : \{not sign, not sign, ..\} \)

6. If \( p = 1, q = 0 \) and \( w_G > r_G \): \{not sign, ..\}, \( R : \{not sign, not sign, ..\} \)

7. If \( p = 0, q = 0 \) and \( r_G > c_G \): \{sign, .., not comply\}, \( R : \{not sign, not sign, ..\} \)

8. If \( p = 0, q = 0 \) and \( c_G > r_G \): \{not sign, ..\}, \( R : \{not sign, not sign, ..\} \)

As these equilibria exhaust all possible conditions, proposition 3 simply summarizes the insights from these equilibrium characterizations. QED.

Incomplete information

As mentioned in the main text we simplify the model for the incomplete information version by letting \( c_i \in \{2 \times w_i, \frac{w_i}{2}\} \). \( c_i \) takes the higher value if \( i \) is a “nice” type, and the lower one when \( i \) is a “mean” type. This allows us as an extension of the discussion above already to establish the following observations:

1. Observation

If \( G \) does not sign at the first decision node a \( R \) does at its second decision node, then if \( w_G > 4 \times r_G \) then neither type of \( G \) will sign at its second decision node, while if \( 4 \times r_G > w_G > 2 \times r_G \) then only the “mean” type of \( G \) will sign, while if \( 2 \times r_G > w_G \) both types will sign.

Using this observation we start by deriving the conditions under which completely pooling and separating equilibria may occur before moving to semi-pooling equilibria

**Pooling equilibria**

We start by looking at a candidate equilibrium where both types of \( G \) refrain from signing at the first decision node. We first assume that \( 4 \times r_G > w_G \) implying that no type of \( G \) would sign at its second decision. Consequently \( R \) must evaluate the following expected utilities:
\[ EU_R(\text{sign}|q = 1) = -cw_R - w_R \]  
(19)

\[ EU_R(\text{sign}|q = 0) = -cw_R - \frac{w_R}{2} \]  
(20)

\[ EU_R(\text{not sign}|q = .) = -cw_R \]  
(21)

Consequently, both types of \( R \) will never sign in this case. For this to be part of a pooling equilibrium the following has to be evaluated:

\[ EU_G(\text{sign}|p = 1) = -cw_G - w_G + r_G \]  
(22)

\[ EU_G(\text{sign}|p = 0) = -cw_G - \frac{w_G}{2} + r_G \]  
(23)

\[ EU_G(\text{not sign}|p = .) = -cw_G \]  
(24)

For both types not to sign at the first decision node is optimal provided \( r_g < w_G \) and \( 2 \times r_g < w_G \) hold, which is the case given our assumption from above. This establishes a first pooling equilibrium with the following conditions to hold:

- \( w_G > 4 \times r_G \)

Assuming now that \( 4 \times r_G > w_G > 2 \times r_G \) we know that a “mean” \( G \) will sign after \( R \)’s decision to sign, while a “nice” type will not. As not signing by \( G \) has the same consequences for \( R \) as not complying, the expected utility calculations both for \( R \) and \( G \) are as above, establishing a second pooling equilibrium under the following conditions:

- \( 4 \times r_G > w_G > 2 \times r_G \)

Finally if \( 2 \times r_G > w_G \) both types of \( G \) will sign after \( R \)’s decision to sign. Consequently \( R \) evaluates the following expected utilities where the updated belief \( p' \) is identical to the prior belief, giving the assumption of a pooling equilibrium:

\[ EU_R(\text{sign}|q = 1) = p'(-cw_R - w_R + w_G) + (1 - p')( -cw_R - w_R) \]
\[ = -cw_R - w_R + p' \times w_G \]  
(25)

\[ EU_R(\text{sign}|q = 0) = p'(-cw_R - c_R + w_G) + (1 - p')( -cw_R - \frac{w_R}{2}) \]
\[ = -cw_R - \frac{w_R}{2} + p' \times w_G \]  
(26)

\[ EU_R(\text{not sign}|q = .) = -cw_R \]  
(27)
This implies that a “nice” $R$ will sign if $p' > \frac{w_R}{w_G}$, while a “mean” $R$ will do so if $p > \frac{w_R}{2 \times w_G}$. From this it follows that we need to evaluate a series of possible configurations.

First consider $w_R > 2 \times w_G$ implying that both $R$s will refrain from signing. For $G$ the following expected utilities are relevant:

\[
EU_G(\text{sign} | p = 1) = -cw_G - w_G + r_G
\]
\[
EU_G(\text{not sign} | p = .) = -cw_G
\]
\[
EU_G(\text{sign} | p = 0) = -cw_G - \frac{w_G}{2} + r_G
\]

For both types of $G$ not to sign requires that $w_G > r_G$ and $w_G > 2 \times r_G$. As the latter is in contradiction with the initial assumption no pooling equilibrium exists.

Second, assume that $2 \times w_G > w_R > w_G$ and $p > \frac{w_R}{2 \times w_G}$. As in this case again both $R$s refrain from signing the above expected utilities for $G$ apply, establishing that no pooling equilibrium exists.

Third, assume that $2 \times w_G > w_R > w_G$ and $p > \frac{w_R}{2 \times w_G}$ which implies that $p < \frac{w_R}{w_G}$. Consequently a “nice” $G$ will not sign while a “mean” one will. Consequently, for $G$ the following expected utilities become relevant:

\[
EU_G(\text{sign} | p = 1) = -cw_G - w_G + r_G
\]
\[
EU_G(\text{not sign} | p = .) = -cw_G
\]
\[
EU_G(\text{sign} | p = 0) = -cw_G - \frac{w_G}{2} + r_G
\]

from which it follows that both types of $G$ would not sign if $w_G > r_G$ and $w_G > 2 \times r_G$ hold. As the latter conditions is in contradiction with the assumption that $2 \times r_G > w_G$ no pooling equilibrium exists.

Fourth, if $w_G > w_R$ and $p < \frac{w_R}{2 \times w_G}$ then neither of the two types of $R$ will sign. Hence we are in the same situation as above and no pooling equilibrium exists.

Fifth, if $w_G > w_R$ and \( \frac{w_R}{2 \times w_G} < p < \frac{w_R}{w_G} \) then only the “mean” $R$ signs which is equivalent to the third situation implying again the absence of a pooling equilibrium.

Finally, if $w_G > w_R$ and $\frac{w_R}{w_G} < p$ then both $R$s will sign. Consequently, for $G$ the following is relevant:
\[ EU_G(\text{sign}|p = 1) = -cw_G - w_G + r_G \]  
\[ EU_G(\text{not sign}|p = 1) = q(-cw_G - w_G + w_R) + (1 - q)(-cw_G - w_G) \]
\[ = -cw_G - w_G + q \times (w_R) \]  
\[ (35) \]

Thus a “nice” \( G \) will not sign if \(-cw_G - w_G + q \times w_R > -cw_G - w_G + r_G\) which is equivalent to \( q > \frac{r_G}{w_R} \). For the “mean” \( G \) the following expected utilities are relevant:

\[ EU_G(\text{sign}|p = 0) = -cw_G - \frac{w_G}{2} + r_G \]  
\[ EU_G(\text{not sign}|p = 0) = q(-cw_G - \frac{w_G}{2} + w_R) + (1 - q)(-cw_G - \frac{w_G}{2}) \]
\[ = -cw_G - \frac{w_G}{2} + q \times (w_R) \]  
\[ (37) \]

Thus a “mean” \( G \) will not sign if \(-cw_G - \frac{w_G}{2} + q \times w_R > -cw_G - \frac{w_G}{2} + r_G\) which is equivalent to \( q > \frac{r_G}{w_R} \). Consequently, a pooling equilibrium exists if

- \( w_G > w_R \)
- \( p > \frac{w_R}{w_G} \)
- \( q > \frac{r_G}{w_R} \)
- \( 2 \times r_G > w_G \)

As this exhausts all possible conditions for the first type of pooling equilibrium, we now consider a pooling equilibrium where both types of \( G \) sign at the first decision node. Given the derivations of the first set of pooling equilibria, this can only occur if \( 2 \times r_G > w_G \).

Assume first that \( w_G > w_R \) and that the out-of equilibrium belief is \( p' = 1 \), which leads both types of \( R \) to sign. The relevant expected utilities for \( G \) are as follows:

\[ EU_G(\text{sign}|p = 1) = -cw_G - w_G + r_G \]  
\[ EU_G(\text{not sign}|p = 1) = q(-cw_G - w_G + w_R) + (1 - q)(-cw_G - w_G) \]
\[ = -cw_G - w_G + qw_R \]  
\[ (39) \]
Consequently, a “nice” $G$ will prefer signing if $r_G > qw$ or if $q < \frac{r_G}{w_R}$. For a “mean” $G$ the following is relevant:

\begin{align*}
EU_G(\text{sign}|p = 0) &= -cw_G - \frac{w_G}{2} + r_G \quad (40) \\
EU_G(\text{not sign}|p = 1) &= q(-cw_G - \frac{w_G}{2} + w_R) + (1 - q)(-cw_G - \frac{w_G}{2}) \\
&= -cw_G - \frac{w_G}{2} + qw_R \quad (41)
\end{align*}

which again requires $q < \frac{r_G}{w_R}$ for a “mean” $G$ to sign at the first decision node, establishing thus a pooling equilibrium under the following conditions:

- $2 \times r_G > w_G$
- $q < \frac{r_G}{w_R}$
- $w_G > w_R$
- $p' = 1$

Let’s next assume that $2 \times w_G > w_R > w_G$ and $p' = 1$, implying that only the “mean” $R$ will sign, which implies the following:

\begin{align*}
EU_G(\text{sign}|p = 1) &= -cw_G - w_G + r_G \quad (42) \\
EU_G(\text{not sign}|p = 1) &= q(-cw_G) + (1 - q)(-cw_G - w_G) \\
&= -cw_G - w_G + qw_G \quad (43)
\end{align*}

Consequently, a “nice” $G$ will prefer signing if $r_G > qw_G$ or if $q < \frac{r_G}{w_G}$. For a “mean” $G$ the following is relevant:

\begin{align*}
EU_G(\text{sign}|p = 0) &= -cw_G - \frac{w_G}{2} + r_G \quad (44) \\
EU_G(\text{not sign}|p = 1) &= q(-cw_G) + (1 - q)(-cw_G - \frac{w_G}{2}) \\
&= -cw_G - \frac{w_G}{2} + q\frac{w_G}{2} \quad (45)
\end{align*}

which implies that a “mean” $G$ will only sign if $r_G > q\frac{w_G}{2}$ or $q < \frac{2 \times r_G}{w_G}$. Hence a pooling equilibrium exists if
• $2 \times r_G > w_G$

• $2 \times w_G > w_R > w_G$

• $q < \frac{r_G}{w_G}$

• $p' = 1$

Next, let’s assume that $w_R > 2 \times w_G$ which with $p' = 1$ will lead both types of $R$ not to sign. Consequently, the relevant expected utilities for $G$ are the following:

\[
EU_G(sign|p = 1) = -cw_G - w_G + r_G
\]

\[
EU_G(not\ sign|p = .) = -cw_G
\]

\[
EU_G(sign|p = 0) = -cw_G - \frac{w_G}{2} + r_G
\]

Consequently, both types of $G$ will prefer signing if $r_G > w_G$ and $2 \times r_G > w_G$ hold, establishing a last pooling equilibrium:

• $r_G > w_G$

• $w_R > 2 \times w_G$

• $p' = 1$

Let’s next assume that the out-of-equilibrium belief is $p' = 0$. In that case neither types of $R$ will sign. Consequently, for $G$ the following expected utilities are relevant:

\[
EU_G(sign|p = 1) = -cw_G - w_G + r_G
\]

\[
EU_G(not\ sign|p = .) = -cw_G
\]

\[
EU_G(sign|p = 0) = -cw_G - \frac{w_G}{2} + r_G
\]

Consequently, a “nice” $G$ will prefer signing if $r_G > w_G$ and a “mean” one will prefer the same if $r_G > \frac{w_G}{2}$ or $2 \times r_G > w_G$. This establishes again a pooling equilibrium under the following conditions:

• $2 \times r_G > w_G$
This equilibrium is based, however, on a counter-intuitive out-of-equilibrium belief, as it is mostly the “nice” $G$ that could profit from not signing.

**Separating equilibria**

Given the complete and imperfect information equilibria, a first candidate for a separating equilibrium is that the “nice” $G$ does not sign the treaty and the “mean” $G$ signs it. Whether this can be a separating equilibrium depends, as above, on relationship between $r_G$ and $w_G$.

Assuming $w_G > 4 \times r_G$ we know from above that neither type of $G$ will sign if $R$ signs. But then $R$ will neither sign. Hence, for this condition to allow for a separating equilibrium to exist the following has to hold:

\[
EU_G(sign|p = 1) = -cw_G - w_G + r_G \quad (51)
\]
\[
EU_G(not\,\,sign|p = .) = -cw_G \quad (52)
\]
\[
EU_G(sign|p = 0) = -cw_G - \frac{w_G}{2} + r_G \quad (53)
\]

Consequently a “nice” $G$ will not sign if $w_G > r_G$, while for the “mean” $G$ $r_G > \frac{w_G}{2}$ has to hold. But the latter is in contradiction with the assumption that $w_G > 4 \times r_G$ so that no separating equilibrium can exist.

Assuming next that $4 \times r_G > w_G > 2 \times r_G$ we know that a “mean” $G$ will sign after $R$’s signing, while the “nice” $G$ will not. This induces $R$ not to sign either. But then the same conditions as discussed above have to hold for a separating equilibrium to exist, which are again in contradiction with the assumption that $4 \times r_G > w_G > 2 \times r_G$. Hence no separating equilibrium exists.

Next assume that $2 \times r_G > w_G$ implying that both types of $G$ will sign after $R$’s decision to sign. As shown above in this situation a “nice” $R$ will sign if $p' > \frac{w_R}{w_G}$ while a “mean” $R$ will do the same if $p' > \frac{w_R}{w_G}$ holds. Consequently, a series of configurations have to be evaluated.

First, assume that $w_R > 2 \times w_G$ which implies that the threshold values for the updated beliefs of $R$ are both higher than 1 implying that both $Rs$ will refrain from signing. Consequently, the question becomes how this situation looks from $G$’s perspective:
Consequently, a “nice” $G$ will not sign if $w_G > r_G$ while a “mean” $G$ will sign if $r_G > \frac{w_G}{2}$. This establishes a separating equilibrium under the following conditions:

- $2 \times r_G > w_G$
- $w_G > r_G$
- $w_R > 2 \times w_G$

Second, let’s assume that $2 \times w_G > w_R > w_G$. As in the proposed separating equilibrium $p' = 1$ and this value is smaller than $\frac{w_R}{w_g}$ but larger than $\frac{w_R}{2 w_g}$ the “mean” $R$ will sign, while the “nice” $R$ will refrain from doing so. Thus from $G$’s perspective the following expected utilities are relevant:

$$EU_G(\text{sign}|p = 1) = -cw_G - w_G + r_G$$

(54)

$$EU_G(\text{not sign}|p = .) = -cw_G$$

(55)

$$EU_G(\text{sign}|p = 0) = -cw_G - \frac{w_G}{2} + r_G$$

(56)

$$EU_G(\text{not sign}|p = 0) = -cw_G - \frac{w_G}{2} + q \times w_G$$

(57)

From this it follows that a “nice” $G$ will not sign if $\frac{r_G}{w_G} < q$. This can only happen if $w_G > r_G$. For the “mean” $G$ the following expected utilities apply:

$$EU_G(\text{sign}|p = 0) = -cw_G - \frac{w_G}{2} + r_G$$

(60)

$$EU_G(\text{not sign}|p = 0) = q \times (-cw_G) + (1 - q) \times (-cw_G - w_G)$$

(59)

$$= -cw_G - w_G + q \times w_G$$

$$EU_G(\text{sign}|p = 0) = -cw_G - \frac{w_G}{2} + q \times \frac{w_G}{2}$$

(61)

so that a “mean” $G$ will sign if $r_G > q \times \frac{w_G}{2}$ or that $q < \frac{2 \times r_G}{w_G}$. As we assume that $2 \times r_G > w_G$ this latter condition will always hold, establishing thus a separating equilibrium under the following conditions:
• $2 \times r_G > w_G$
• $2 \times w_G > w_R > w_G$
• $w_G > r_G$
• $q > \frac{r_G}{w_G}$

Finally, let’s assume that $w_G > w_R$ which implies that both thresholds for the updated belief $p'$ are smaller than one leading $R$ in the proposed separating equilibrium to sign under all circumstances. Hence, from $G$’s perspective the following expected utilities are of importance:

$$EU_G\text{(sign}|p = 1) = -cw_G - c_G + r_G$$
$$EU_G\text{(not sign}|p = 1) = q(-cw_G - w_G + w_R) + (1 - q)(-cw_G - w_G)$$
$$= -cw_G - w_G + q \times w_R$$

Consequently, the “nice” $G$ will not sign if $q > \frac{r_G}{w_R}$ which requires $w_R > r_G$. For the “mean” $G$ the following expected utilities are of interest:

$$EU_G\text{(sign}|p = 0) = -cw_G - \frac{w_G}{2} + r_G$$
$$EU_G\text{(not sign}|p = 0) = q(-cw_G - \frac{w_G}{2} + w_R) + (1 - q)(-cw_G - \frac{w_G}{2})$$
$$= -cw_G - \frac{w_G}{2} + q \times w_R$$

which implies that signing requires $r_G > q \times \frac{w_G}{2}$. This, however, is only possible of $q < \frac{r_G}{w_R}$, which is in contradiction with the condition for the “nice” $G$ to not sign. Consequently, no separating equilibrium can exist.

A completely separating equilibrium may also exist where the “nice” $G$ signs the treaty and the “mean” $G$ does not. From above we know that the relationship between $w_G$ and $r_G$ is relevant.

Assuming that $w_G > 4 \times r_G$ we know that no type of $G$ will sign at its second decision node so that $R$ will also refrain from signing. Thus the following expected utilities becomes relevant:
\[ EU_G(sign|p = 1) = -cw_G - w_G + r_G \]  
\[ EU_G(not\ sign|p = 1) = -cw_G \] (66)

Thus a “nice” \( G \) will sign if \( r_G > w_G \) which is in contradiction with the assumption \( w_G > 4 \times r_G \). Consequently no separating equilibrium of this type exists.

Second assuming that \( 4 \times r_G > w_G > 2 \times r_G \) we know that the “mean” type of \( G \) will sign at its second decision while the “nice” type will not. But then again both types of \( R \) will also refrain from signing, so that the same conditions should hold for a separating equilibrium, which are again in contradiction with \( 4 \times r_G > w_G > 2 \times r_G \). Consequently, no separating equilibrium can exist.

Finally, if \( 2 \times r_G > w_G \) we know that both types of \( G \) will sign after \( R \)’s signing. Given the proposed separating equilibrium we know that the updated belief \( p' \) is 0, leading both types of \( R \) to refrain from signing. Consequently, the following expected utilities become relevant:

\[ EU_G(sign|p = 1) = -cw_G - w_G + r_G \] (68)
\[ EU_G(not\ sign|p = .) = -cw_G \] (69)
\[ EU_G(sign|p = 0) = -cw_G - \frac{w_G}{2} + r_G \] (70)

Consequently, the “nice” \( G \) will sign at its first decision node if \( r_G > w_G \), while the “mean” type will not sign the treaty if \( \frac{w_G}{2} > r_G \). But the latter condition is in contradiction with \( 2 \times r_G > w_G \) so that no separating equilibrium of this type exists.

**Semi-pooling equilibria**

From above it follows that semi-pooling equilibria can only exist under the condition of \( 2 \times r_G > w_G \)

The first candidate equilibrium is based on the following (partial) strategy for the two types of \( G \) at their first decision node:

\[ p(not\ sign|p = 1) = 1 \]
\[ p(not\ sign|p = .) = s \] (71)
From this it follows that the updated belief for $R$ is the following: 

$$\frac{p}{p + s(1-p)}.$$ 

We first assume that $G$ chooses $s$ in such a way that $p' = \frac{w_R}{w_G}$ implying that the “nice” $R$ is indifferent between signing and not signing, while the “mean” $R$ will sign with certainty. Consequently, $s$ can be determined as follows:

$$\begin{align*}
\frac{p}{p + s(1-p)} &= \frac{w_R}{w_G} \\
p &= \frac{w_R}{w_G}(1-p) \\
p\left(\frac{w_G}{w_R} - 1\right) &= s(1-p) \\
s &= \frac{p(w_G - w_R)}{w_R(1-p)}.
\end{align*}$$

(72)

For $s$ to be larger than 0 $w_G > w_R$ has to hold, while $p < \frac{w_R}{w_G}$ assures that $s < 1$. As a “nice” $R$ is in this case indifferent between signing or not signing its (partial) strategy will be $p(sign|q = 1) = t$. Hence from $G$’s perspective the following expected utilities are relevant:

$$\begin{align*}
EU_G(sign|p = 1) &= -cw_G - w_G + r_G \\
EU_G(not sign|p = 1) &= q(t(-cw_G - w_G + w_R) + (1-t)(-cw_G)) \\
&\quad+ (1-q)(-cw_G - w_G) \\
&= -cw_G - w_G + qw_G + qtw_R - qt w_G.
\end{align*}$$

(74)

Consequently, the “nice” $G$ will not sign if $q > \frac{r_G}{w_G + t(w_R - w_G)}$. For the “mean” $G$ the following has to hold:

$$\begin{align*}
EU_G(sign|p = 0) &= -cw_G - \frac{w_G}{2} + r_G \\
EU_G(not sign|p = 0) &= q(t(-cw_G - \frac{w_G}{2} + w_R) + (1-t)(-cw_G)) \\
&\quad+ (1-q)(-cw_G - \frac{w_G}{2}) \\
&= -cw_G - \frac{w_G}{2} + q\frac{w_G}{2} + qtw_R - qt \frac{w_G}{2}.
\end{align*}$$

(76)

As the “mean” type has to be indifferent the following has to hold:

$$\begin{align*}
r_G &= -cw_G - \frac{w_G}{2} + q\frac{w_G}{2} + qtw_R - qt \frac{w_G}{2}.
\end{align*}$$

(77)
which implies

\[ t = \frac{r_G - q \frac{w_G}{2}}{2q(w_R - \frac{w_G}{2})} \] (78)

\( t \) will be positive if \( q < \frac{2 \times r_G}{w_G} \) which will always be the case given that we assume that \( 2 \times r_G > w_G \). And \( t \) will be smaller than 1 if \( r_G < w_R \). It can also easily be checked that the \( t \) determined here satisfies the condition for \( t \) for the “nice” \( G \) to sign. Consequently a semi-pooling equilibrium exists under the following conditions:

- \( 2 \times r_G > w_G \)
- \( p < \frac{w_R}{w_G} \)
- \( q > \frac{r_G}{w_R} \)
- \( w_R > r_G \)

Assuming next that \( G \) will choose \( s \) in such a way that the “mean” \( R \) will be indifferent between signing and not signing, implying that the “nice” \( R \) will not sign, the following has to hold:

\[
\begin{align*}
\frac{p}{p + s(1 - p)} &= \frac{w_R}{2 \times w_G} \\
2 \times w_G p &= w_R(p + s(1 - p)) \\
s &= \frac{p(2 \times w_G - w_R)}{w_R(1 - p)}
\end{align*}
\] (79)

\( s \) will be positive if \( 2 \times w_G > w_R \) and smaller than 1 if \( p < \frac{w_R}{2 \times w_G} \). As a “mean” \( R \) is in this case indifferent between signing or not signing its (partial) strategy will be \( p(sign|q = 0) = t \). Hence from \( G \)’s perspective the following expected utilities are relevant:

\[
\begin{align*}
EU_G(sign|p = 1) &= -cw_G - w_G + r_G \\
EU_G(not\ sign|p = 1) &= q(-cw_G) + (1 - q)(t(-cw_G - w_G) + (1 - t)(-cw_G)) \\
&= -cw_G - (1 - q)tw_G
\end{align*}
\] (81)
Consequently, the “nice” G will not sign if $-(1-q)tw_G > -w_G + r_G$ which implies that $t < \frac{w_G - r_G}{w_G(1-q)}$. For the “mean” G the following has to hold:

\[ EU_G(\text{sign}|p = 0) = -cw_G - \frac{w_G}{2} + r_G \quad (82) \]
\[ EU_G(\text{not sign}|p = 0) = q(-cw_G) + (1-q)(t(-cw_G - \frac{w_G}{2}) + (1-t)(-cw_G)) \]
\[ = -cw_G - \frac{w_G}{2}t(1-q) \quad (83) \]

As the “mean” type has to be indifferent the following has to hold:

\[ r_G - \frac{w_G}{2} = -\frac{w_G}{2}t(1-q) \]
\[ t = \frac{\frac{w_G}{2} - r_G}{(1-q)\frac{w_G}{2}} \quad (84) \]

For $t$ to be positive $w_G > 2 \times r_G$ has to hold which is in contradiction with the assumption that $2 \times r_G > w_G$. Hence, no semi-pooling equilibrium of this type can exist.
Empirics

Table 6 provides a list of the countries covered in our empirical analysis, the number of observations and dyads from each country, as well as the start and end date of the period covered.

Table 6: Countries and periods covered in empirical analysis (lenient sample)

<table>
<thead>
<tr>
<th>country</th>
<th>n observations</th>
<th>n dyads</th>
<th>first year</th>
<th>last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azerbaijan</td>
<td>8</td>
<td>2</td>
<td>2006</td>
<td>2009</td>
</tr>
<tr>
<td>Burundi</td>
<td>20</td>
<td>5</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Georgia</td>
<td>10</td>
<td>3</td>
<td>2006</td>
<td>2009</td>
</tr>
<tr>
<td>India</td>
<td>126</td>
<td>18</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Indonesia</td>
<td>6</td>
<td>2</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Iran</td>
<td>29</td>
<td>4</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Iraq</td>
<td>39</td>
<td>7</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Israel</td>
<td>10</td>
<td>1</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Morocco</td>
<td>10</td>
<td>1</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Myanmar</td>
<td>110</td>
<td>11</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Nepal</td>
<td>9</td>
<td>1</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Philippines</td>
<td>4</td>
<td>4</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Somalia</td>
<td>46</td>
<td>7</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Sri Lanka (Ceylon)</td>
<td>17</td>
<td>2</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Sudan</td>
<td>10</td>
<td>4</td>
<td>2000</td>
<td>2009</td>
</tr>
<tr>
<td>Turkey</td>
<td>6</td>
<td>2</td>
<td>2001</td>
<td>2009</td>
</tr>
</tbody>
</table>
References


