

Summer Holidays and Conflict Resolution: Event Timing as an Instrument for the International Mediation of Wars*

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Abstract

Is international mediation an effective means to settle wars? Causal claims in the existing quantitative literature on this question are difficult to assess, because mediator assignment is strategically complex and not random. Mediation could be conditional on diplomats' beliefs about where it is optimal to mediate (selection bias), the likelihood of an agreement could affect intervention strategies (endogeneity bias), and confidential diplomatic relations could conceal predictors of mediation initiation and war settlement (omitted variable bias). I address these issues by locating instrumental variables to answer two specific questions. First, are mediated talks more likely to lead to a settlement than non-mediated talks? I argue that we can use the timing of conflict management events to instrument for whether talks were mediated or not: During the summer months, when many legislatures are in recess, we see an increase in mediation initiation, while mediation is relatively rare at the end of the business year and in September, when the United Nations General Assembly is in session. I find that mediated talks are significantly more likely to lead to a settlement than non-mediated talks, but only if we use the instrument. Second, is single-party mediation less effective than multi-party mediation? I find suggestive evidence that mediators "pile on" as a settlement becomes likely. To correct for this problem I use mediator counts from previous years to instrument for the current number of mediators involved in a war and find that multi-party mediation does not appear more effective than single-party mediation. The analysis in this paper uses a new database of conflict management events constructed by the author, which provides detailed information on 520 events (including 151 mediation processes) in 35 wars between 1990 to 2005.

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1 Introduction

A growing body of literature addresses the question whether mediation can have an independent effect on conflict resolution, and if so, which types of mediation are more effective than others.¹ For example, Bercovitch and Gartner (2006) argue that regional mediators with a procedural strategy (e.g. setting agendas, managing media relations, and structuring communication between disputants) can help resolve low-intensity conflicts, while international mediators who take a more directive approach (e.g. by making substantive proposals and issuing ultimatums) help settle high-intensity conflicts. In a different example, Frazier and Dixon (2006) find that mediation is a relatively less effective way to settle militarized disputes (in terms of predicted settlement probabilities) than military intervention, which includes peacekeeping operations.

The trouble with much of the relevant literature is that the research typically does not identify exogenous sources of variation in mediation initiation and mediation types, even though attempts at conflict management are probably strategically selected and confounded by the anticipation of likely outcomes. In the above example, the tactics mediators employ are probably endogenous to characteristics of the conflict. Perhaps high-intensity conflicts that are “ripe” for a settlement attract mediators that take an all-in directive approach to push toward signatures on an agreement, while more intractable high-intensity conflicts end up with mediators that take a more guarded, procedural approach. Similarly the choice between mediation and military intervention is contingent on dispute attributes, not all of which may be observable, and it is possible to think that the differential in efficacy between mediation and peacekeeping stems from the fact that mediators deal with a relatively more intractable set of disputes.

In this paper, I suggest a way to get closer to an exogenous measure of mediation. In particular I use the month in which a conflict management event started as an instrument for whether talks were mediated or not. During the summer months, when many governments enjoy legislative holidays, we see a spike in mediation initiation, while mediation is rarely initiated in September, when the United Nations General Assembly is in session. Disputants’ willingness to start talks does not vary quite as much across the year, and in particular it does not spike in the summer. I show that we can use this instrument to estimate a strongly significant and positive

¹See Savun (2008) for a recent example and literature review.

effect of mediation on the likelihood of a settlement, in contrast to the confounded and insignificant estimate from a basic regression model.

This paper also asks—more briefly—what the effects of multi-party mediation are. I exploit the conflict-year panel structure of a dataset on conflict management to construct (pseudo-)instruments for the average number of mediators involved in a war, and show that once we adjust for the endogenous relationship between multi-party mediation and conflict settlement, the strongly significant positive effect of multi-party mediation relative to other types of mediation disappears.

The paper uses original data on conflict management events, which were collected from newspaper and wire reports for 1990 to 2005. A total of approximately 15,000 articles were analyzed for 520 events (including 151 mediation processes) in 35 wars.

This paper proceeds as follows: Section 2 describes the new dataset on conflict management I constructed and relates it to other available mediation datasets; section 3 briefly outlines the instrumental variable approach to identifying causal effects; section 4 presents the statistical analysis; and section 5 concludes.

2 A new dataset of conflict management events

2.1 Existing datasets

Most of the quantitative mediation literature relies on two datasets that provide information on conflict management in militarized conflict situations. First, the International Crisis Behavior dataset contains data on the incidence, type, and outcome of mediation efforts in international crises (Wilkenfeld et al., 2005). In its latest release (version 8.0, March 2008), it covers all crises during the years 1918 to 2005.² While it offers excellent temporal coverage, the dataset has two disadvantages. First, it does not cover internal wars, which account for the vast majority of conflicts in the post-Cold War era. Among the 114 conflicts listed in the UCDP/PRIO Armed Conflicts Dataset (version 4-2006) for 1990 to 2005,³ only six occurred between states. Another 24 of the remaining 108 internal conflicts became internationalized, while 84 conflicts during that period only involved a single state. (Extrasystemic conflict, usually under colonialism, features in the ICB dataset, but has all but vanished in

²The dataset is available at <http://www.cidcm.umd.edu/icb/data>. Last accessed on 4 May 2008.

³This dataset is available at <http://new.prio.no/CSCW-Datasets/Data-on-Armed-Conflict/UppsalaPRIO-Armed-Conflicts-Dataset/UppsalaPRIO-Armed-Conflict-Dataset>. Last accessed on 15 April 2008.

the post-1990 world.) Second, the ICB database collapses all mediation data into a single observation per crisis, which hides important variation in how mediation is implemented across conflicts: Mediators enter and exit conflicts, join efforts with other intermediaries or initiate separate proceedings, change negotiation tactics, and so on. A single summary observation captures few of these dynamics.

The second database that contains information on international mediation is Bercovitch's International Conflict Management dataset (Bercovitch, 1996).⁴ This dataset provides detailed information on mediation events since World War II, but its available coverage ends in 1995.

2.2 Unit of observation

In order to assess the impact of mediation in the post-Cold War period and beyond 1995, I created a new dataset of conflict management events, which provides information about negotiation and international mediation in large-scale violent conflicts between 1990 and 2005. A conflict is included if it generated at least 1000 deaths in any one calendar year between 1990 and 2005, where the list of conflicts and their corresponding fatality levels were drawn from the UCDP/PRIO Armed Conflicts Dataset. More specifically, a conflict was included for all calendar years from 1990 to 2005 in which it occurred if it reached an intensity level of 2 (variable *Int*) in the UCDP/PRIO dataset for any one calendar year between 1990 and 2005.

The main dataset's unit of observation is the conflict management event. There are five types of events: (a) Negotiations without international mediation; (b) internationally mediated talks; (c) an offer of international mediation; (d) a request for international mediation; (e) none of the above in a given calendar year. There are as many observations per conflict-year as there are new events, but always at least one, namely of type (e). An event is ongoing if there is no lapse in activity of six months or longer and the event has not explicitly been concluded (e.g., by way of one side withdrawing from negotiations or declining a mediation offer). For example, if mediation was offered, but declined, and then offered again five months later, the latter is coded as a separate event. If talks are temporarily or conditionally suspended but resumed within six months, they are coded as a continuous event. "Rounds" of talks count as one event. If a mediator joins or withdraws from talks, a new event

⁴The data is available at <http://www.posc.canterbury.ac.nz/jbercovitch/mediation.html>. Notwithstanding the data file description, the publicly available file covers conflict management events up until and including 1995.

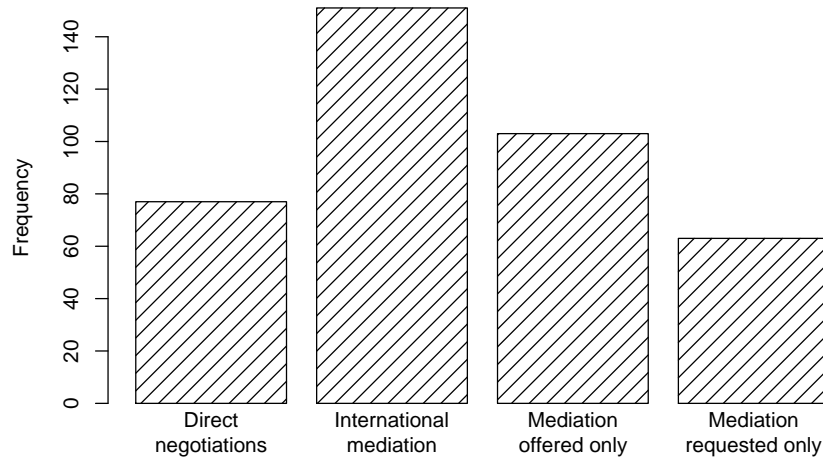


Figure 1: Conflict management events

is coded. Conflict management events that deal with a particular issue only and where the particular issue is discussed independently of the conflict in general are excluded (e.g., ransom negotiations for the release of hostages, or negotiations over the surrender of particular units).⁵ Figure 1 shows the frequency of different types of conflict management events in the dataset; there were 126 conflict-years in which none of these activities occurred.

The analysis in this paper will not feature rejected or withdrawn mediation offers or requests, but will focus on the incidence of mediation and direct negotiations, which I will refer to below as conflict resolution events. For convenience and purposes of estimation, I also created two aggregate datasets, which collapse event information by conflict and/or year: (a) A panel dataset with conflict-year observations, which contains data on whether mediation or negotiation occurred and average characteristics of these processes, among other things; (b) a cross-sectional dataset with one observation per conflict, where information on conflict resolution is similarly aggregated.

⁵For example, the following event is not included in the dataset: “Leftist guerrillas holding at least 200 hostages at the Japanese ambassador’s residence in Lima on Wednesday asked Spain to mediate to get medical supplies inside to treat wounded people, the Spanish foreign ministry said” (Reuters News, “Peru rebels ask for medicine for ‘wounded’ - Spain,” 18 December 1996).

2.3 Strategy of data collection

Data was drawn from a list of geographically diverse, English-language newspapers and newswires that provide comprehensive coverage of international events and for which coverage was available for the years 1990 to 2005. The list included the following publications: New York Times, Washington Post, Los Angeles Times, London Times, Sunday Times, Guardian, Sidney Morning Herald, Straits Times, Times of India, Agence France-Presse, Associated Press, Reuters, and BBC Monitoring.⁶

These publications were searched (using Factiva)⁷ for any news items/articles that contain in headline, abstract, or lead paragraph all of the following: (a) the name of at least one actor on side A of the conflict (as identified by the UCDP/PRIO dataset), which is usually a country name, or any commonly used synonym for that name; (b) the name of at least one actor on side B of the conflict, or any commonly used synonym for that name; (c) any one of the terms mediation or negotiation or words of the same family (e.g. mediator, mediating, mediate, etc.). Events were coded on the basis of the articles returned by this search. Coverage of conflict management events was substantial: A total of 15,101 articles were returned by the archive.

Results were checked against other qualitative information about the conflict in order to identify major inaccuracies or omissions. If an omission or inaccuracy was identified, a secondary search for news items/articles relating specifically to the event in question was performed using the list of publications given above. If an article from such a secondary search was used in coding an event, it is noted as such in the source description for that event.

A key advantage of this new dataset is its transparency regarding the source materials used in coding events. The database contains a sheet with all relevant Factiva search terms and the date range used for each conflict as well as the number of articles returned. Additionally, each observation identifies all articles that were used in coding a particular event (with article title, publication date, news source, and byline), and the database excerpts the relevant text of these articles.

⁶For the Times of India, only selected coverage is available until 22 May 1991, and there is a gap in coverage from 22 May 1991 to 2 April 1997. Coverage for Agence France-Presse begins on 9 September 1991.

⁷Factiva, Dow Jones Reuters Business Interactive LLC, New York, <http://www.factiva.com>.

2.4 Variables and descriptive statistics

For each conflict management event, the dataset provides information on its type; what kind of face-to-face talks were held, if any; whether talks and any mediation efforts were secret, unofficial, or formal; the types, names, and total number of primary and secondary mediating entities; the rank of the lead mediator; which side requested mediation; the start and end dates of the conflict management event; notes on the location of talks, participating groups, major summits held and accords signed, etc.; and the outcome of the event. The dataset permits eighteen different types of outcomes, accommodating scenarios as varied as both disputants refusing to continue work with the mediator, or the mediator declining a request to intervene, or a ceasefire being reached.

Outcome	Percent	95% C.I.
Conflict resolution events (N=228)		
No progress	58%	[52%, 65%]
Procedural agreement	8%	[4%, 12%]
Ceasefire	21%	[15%, 26%]
Full or partial settlement	13%	[8%, 17%]
Conflict-years (N=290)		
No progress	75%	[70%, 80%]
Procedural agreement	4%	[2%, 6%]
Ceasefire	12%	[8%, 16%]
Full or partial settlement	9%	[6%, 13%]
Conflicts (N=35)		
No progress	17%	[4%, 30%]
Procedural agreement	3%	[0%, 9%]
Ceasefire	31%	[15%, 48%]
Full or partial settlement	49%	[31%, 66%]

Table 1: Descriptive statistics for outcome variable

The analysis presented in this paper focuses on two outcome measures. The first is binary and captures whether a full or partial settlement was reached. The second outcome variable is multinomial, with its values corresponding to no progress, a procedural agreement (which typically involves agreement on an agenda and/or agreement on how final status negotiations should be organized), a ceasefire, and a full or partial settlement. Events and conflict-years can have several of these outcomes occur simultaneously or sequentially; the multinomial outcome variable in

Variable	Percent	95% C.I.
Conflict resolution events (N=228)		
Mediation	66%	[60%, 72%]
UN mediation	11%	[7%, 15%]
US mediation	9%	[5%, 12%]
Regional IGO	15%	[11%, 20%]
Multi-party mediation	23%	[17%, 28%]
Mean number of mediators is 1.2 [1, 1.5]		
Conflict-years (N=290)		
Mediation	32%	[27%, 38%]
UN mediation	13%	[9%, 17%]
US mediation	9%	[6%, 13%]
Regional IGO	15%	[11%, 19%]
Multi-party mediation	19%	[14%, 23%]
Mean number of mediators is .6 [.4, .8]		
Conflicts (N=35)		
Mediation	77%	[62%, 92%]
UN mediation	57%	[40%, 74%]
US mediation	49%	[31%, 66%]
Regional IGO	54%	[37%, 72%]
Multi-party mediation	66%	[49%, 82%]
Mean number of mediators is 1.4 [.9, 2]		

Table 2: Descriptive statistics for explanatory variables

that case gives the highest applicable value. Table 1 provides summary statistics.

Explanatory variables of interest include whether mediation occurred (as opposed to direct negotiations); the United Nations, the United States, or a regional international governmental organization were involved in the mediation effort; mediation was carried out by multiple entities; and how many mediators were involved.⁸ Table 2 summarizes this set of variables.

Conflict characteristics are likely to confound any causal estimation of the relationship between mediation and conflict settlement. Using data from the PRIO Armed Conflicts Dataset, the analysis presented below therefore includes indicators for conflict intensity (has the conflict generated at least a 1000 fatalities in a given year?) as well as internal and internationalized conflict. These three variables are time-varying, although only conflict intensity varies significantly across years. Table

⁸The following regional IGOs appear as mediators in the dataset: Arab League, ASEAN, AU, COMESA, CoE, ECOWAS, EU, IGAD, Maghreb Union, OAS, and SADC.

Variable	Percent	95% C.I.
Conflict resolution events (N=228)		
Conflict intensity	66%	[60%, 72%]
Internal	71%	[65%, 77%]
Internationalized	14%	[9%, 18%]
Conflict-years (N=290)		
Conflict intensity	48%	[42%, 54%]
Internal	83%	[79%, 88%]
Internationalized	12%	[8%, 15%]
Conflicts (N=35)		
Conflict intensity	1 (by construction)	
Internal	74%	[59%, 90%]
Internationalized	43%	[26%, 60%]

Table 3: Descriptive statistics for control variables

3 presents summary statistics. Note that a conflict is either internal, internationalized, or interstate, which means interstate wars are the (small) residual category. In summarizing the variables by conflict, each indicator shows whether the relevant attribute held in *any* year. Since a number of conflicts are internal at first and internationalized later, these numbers add up to more than 100%.

3 Identification strategy

This paper tries to answer two difficult empirical questions: First, are mediated talks more likely to lead to a settlement than non-mediated talks? Second, do additional mediators help in locating an acceptable bargain? The reason why these questions are difficult to answer is because the presence or absence of different types of mediation in a conflict is generally no accident. Leaders and diplomatic staff of countries and international organizations have various beliefs about the optimality of where and how to mediate, and to reasonably assume a random assignment of mediators conditional on a set of covariates in an environment of such strategic complexity is a high hurdle to clear for a statistical model.

We could model the process by which different types of mediation (or non-mediation) are assigned to different conflicts, but this leaves us no wiser if circumstances that predict mediation also have a direct effect on the likelihood of a settlement. Even worse, the likelihood of a settlement itself may attract certain

kinds of mediation to a conflict, introducing endogeneity bias. On top of that, confidential diplomatic relations probably conceal important predictors of whether a conflict is resolved or not, which could lead to omitted variable bias.

In general we can try to overcome these challenges by recovering some random variation in our “treatment” variable, and the solution I implement here does just that. I suggest instruments that predict the “treatment”, but are otherwise arguably orthogonal to the outcome (i.e. uncorrelated to the error in the outcome equation). The remainder of the paper introduces these instruments and shows how the effects estimated using an instrumental-variables approach differ significantly from non-IV estimates.

4 Estimation results

4.1 Mediation and direct negotiation

Table 4 presents results from a probit regression comparing conflict resolution events with a mediator to those without a mediator. Mediation appears no more effective than direct negotiations. In fact, if we include indicators for regions (i.e. fixed effects for conflicts located in Europe, the Middle East, Asia, Africa, and the Americas) or conflicts (in which case the mediation result reflects within-conflict variation only), mediation appears to have a negative, but insignificant effect on the likelihood of settlement.

The multinomial probit regression reported in table 5 similarly suggests that mediation could be counterproductive: It does not appear to significantly increase the likelihood of a ceasefire or settlement being reached, but yields a .9 to .11 decrease in the probability of a procedural agreement in expectation. First differences were computed by way of simulations using Stata program `qi`, which I wrote for calculating first differences after multinomial probit estimation.⁹

The problem with this analysis is that mediators may take on particularly difficult conflicts, which is concealing the otherwise positive impact mediation could have. It could be that there is some unobserved variable that is driving both why non-mediated talks occur in some conflicts and why those conflicts make more progress toward peace (an omitted variable), or that mediators observe that direct negotiations can lead to a procedural agreement in one conflict and hence turn to-

⁹Code is available at <http://www.columbia.edu/~bhb2102/software.html>.

DV:						
Settlement	Coeff.	First diff.	Coeff.	First diff.	Coeff.	First diff.
Mediation	.17 (.21)	.03 (.04)	-.15 (.19)	-.02 (.03)	-.18 (.30)	-.01 (.03)
Region indicators			✓	✓		
Conflict indicators					✓	✓
Observations	226	226	226	226	226	226

Regression includes constant and indicators for conflict intensity, internal conflicts, and internationalized conflicts. Standard errors in parentheses adjusted for clustering on conflict, except when conflict indicators are included. For first differences, all other variables are held at their median. Significant at [†] 20%, * 10%, ** 5%, *** 1% level.

Table 4: Probit regression

DV:	Coeff.	First diff.	Coeff.	First diff.	Coeff.	First diff.
Event outcome	(S. E.)	(95% C.I.)	(S. E.)	(95% C.I.)	(S. E.)	(95% C.I.)
Mediation	-.67**	-.09	-.63**	-.11	-.55 [†]	-.09
on proc. agreem.	(.31)	[-.23, .00]	(.30)	[-.28, .01]	(.39)	[-.25, .04]
Mediation	-.29	-.04	-.28	-.01	-.25	-.03
on ceasefire	(.31)	[-.20, .09]	(.39)	[-.17, .15]	(.31)	[-.16, .10]
Mediation	.02	.04	-.35	-.01	.02	.03
on settlement	(.31)	[-.05, .12]	(.30)	[-.08, .03]	(.35)	[-.07, .12]
Region indicators			✓	✓		
Conflict indicators					✓	✓
Observations	226	226	226	226	226	226

See table 4 for notes.

Table 5: Multinomial probit regression

DV:						
Settlement	Coeff.	First diff.	Coeff.	First diff.	Coeff.	First diff.
UN mediation	.42* (.24)	.07* (.05)	.49* (.26)	.06* (.05)	.52 [†] (.40)	.04 [†] (.05)
US mediation	.80*** (.31)	.16*** (.08)	.74*** (.28)	.11*** (.08)	.80* (.42)	.07* (.07)
Regional IGO mediation	.86*** (.29)	.18*** (.08)	.67** (.29)	.09** (.07)	1.12*** (.37)	.12*** (.08)
Region indicators			✓	✓		
Conflict indicators					✓	✓
Observations	226	226	226	226	226	226
See table 4 for notes.						

Table 6: Probit regression

ward another conflict in greater need of assistance (an endogeneity problem), or that the kind of conflicts in which direct talks are less likely to lead to procedural agreements than mediation are selected out of our sample of conflict management events for other reasons (a selection problem).

The analysis so far also conceals significant variation in effectiveness among mediators. As table 6 illustrates, the United Nations, the United States, and regional intergovernmental organizations are significantly more effective at accomplishing settlements than either other mediators or direct negotiations. But without a proper strategy of causal identification, this raises more questions than it provides answers. It could mean that the UN, the US, and regional organizations bring resources and know-how to the negotiating table that other mediators lack, or it could mean that they take a more selective approach to mediation and are less risk-acceptant than other types of mediators (such as NGOs) in offering their assistance to disputants.

I leave the issue of the relative effectiveness of specific mediators for future study, but instead focus here on tackling the challenge of causally identifying the effect of mediation in general on war resolution. To that end I propose an instrumental-variable regression using an indicator for whether the conflict management event started in May, June, or July (which I will refer to as summer for convenience) as an instrument for whether talks were mediated or not. Mediation follows a sort of

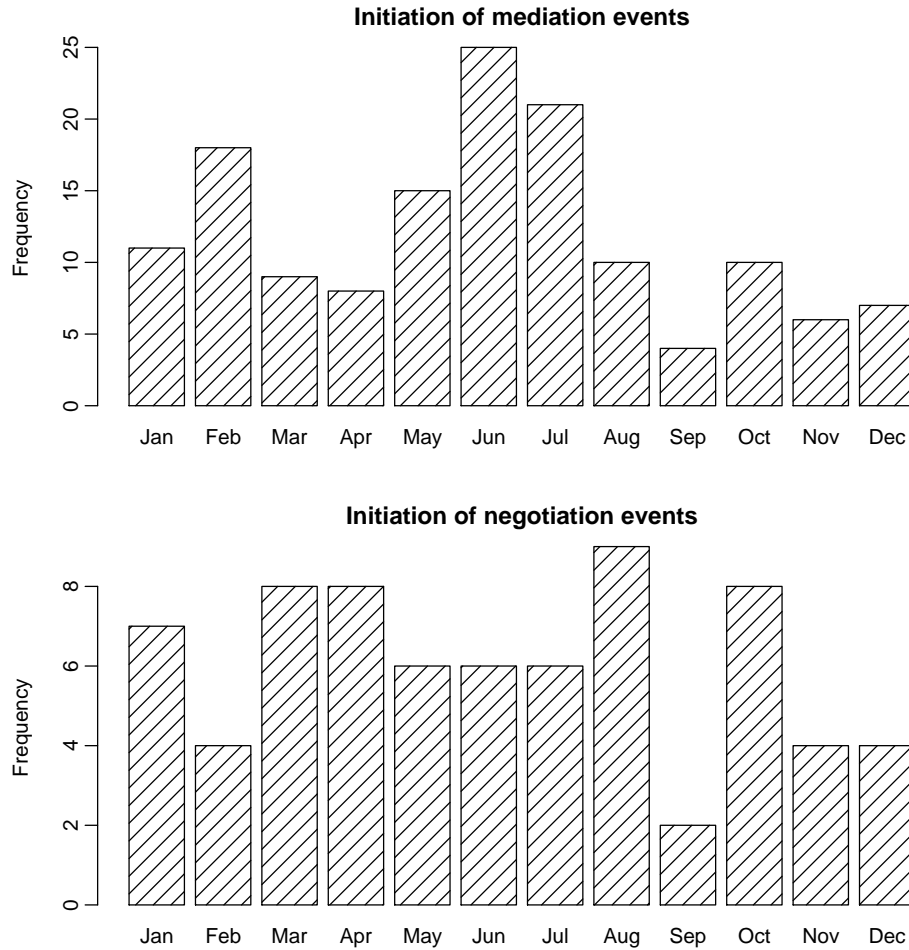


Figure 2: Seasonal initiation of mediated and non-mediated talks

seasonal pattern: Rarely are mediation events initiated in August or September, right before or during the UN General Assembly in New York, or at the end of the business year in November and December. Mediation events are much more commonly initiated a little while before the General Assembly, i.e. in the months of May and particularly June and July (summer in the Northern hemisphere), when many high-level politicians enjoy legislative holidays.

Negotiations, on the other hand, do not follow this seasonal pattern to the same extent (although negotiations are rarely initiated in September as well), and so the summer indicator correlates well with whether non-mediated or mediated talks are

	Coeff. (S. E.)	Coeff. (S. E.)	Coeff. (S. E.)
Second stage:			
Mediation on settlement	1.35*** (.44)	1.60*** (.15)	1.02** (.51)
First stage:			
Summer on mediation	.35** (.17)		.66*** (.18)
Month indicators on mediation		$\chi^2 = 48.14^{***}$	
Observations	214	214	193
<i>F</i> -statistic for instrument	4.5	4.4	13.4
See table 4 for notes.			

Table 7: Instrumental-variable probit regression

initiated, as illustrated by the histograms in figure 2. It also seems reasonable to assume that the month in which a conflict resolution event is initiated is orthogonal to the error in our outcome equation. Legislative holidays could affect the availability of mediators, but it is not obvious why they would affect the likelihood of, say, a procedural agreement in a conflict in a different country through some channel other than the availability of mediators.

Table 7 displays results from (MLE) instrumental probit regressions, where in the first model mediation is instrumented for with a summer indicator. Using an instrumental variable approach, we recover a positive and strongly significant coefficient on mediation, in contrast to the non-IV results presented above. The summer indicator is strongly significant in the first-stage regression, which gives us some confidence in the validity of this instrument.

As an alternative to the summer indicator and by the same logic, we can use indicators for the event month to instrument for mediation. Not surprisingly, the inclusion of additional indicators makes our estimate of the effect of mediation even more efficient, as shown in the second column of table 7.

One concern in using an instrumental-variable approach is that the first-stage instruments are weak, i.e. insufficiently correlated with the endogenous regressor. The *F*-statistic for the summer indicator is 4.5 and it is 4.4 for the monthly indica-

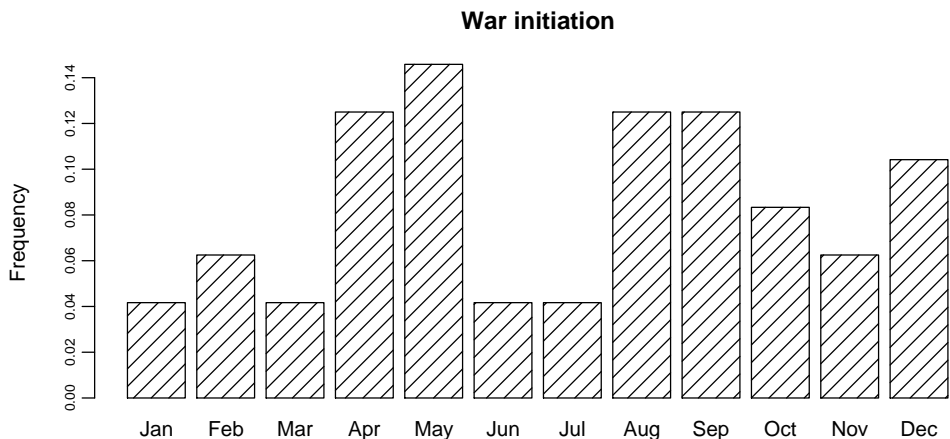


Figure 3: Timing of war initiation

tors, which is somewhat low, although no lower than the F -statistic of rainfall on income growth in Miguel, Satyanath and Sergenti’s paper on economic conditions and civil war (2004: 735).

One specification check I suggest is to analyze a subsample where the instrument is by construction strong. Specifically I include all observations where the summer indicator predicts mediation perfectly as well as a random sample of the remaining observations. The size of the random sample is calibrated so as to ensure a strong instrument with an F -statistic greater than 10. In the end I include about nine out of every ten observations. If no randomly selected observations were included in addition to those observations for which the instrument takes on the same value as the mediation indicator, the analysis on the subsample would be biased toward the “naive” analysis from table 4, in which case we need not worry about a weak instrument (since mediation and the summer indicator would be perfectly correlated) but about the selection and endogeneity issues described earlier. Since we care about addressing the latter, we construct an instrument that is unambiguously strong by conventional standards while retaining some of the exogenous variation that is fully recovered by the instrument in the unrestricted sample (given the assumption that the instrument is valid). Results are shown in the last column of table 7, and as before we find a statistically significant, positive effect of mediation on settlement.

A second concern is that the instrument is not valid, i.e. the summer indicator does not meet the exclusion restriction of only affecting the likelihood of a settle-

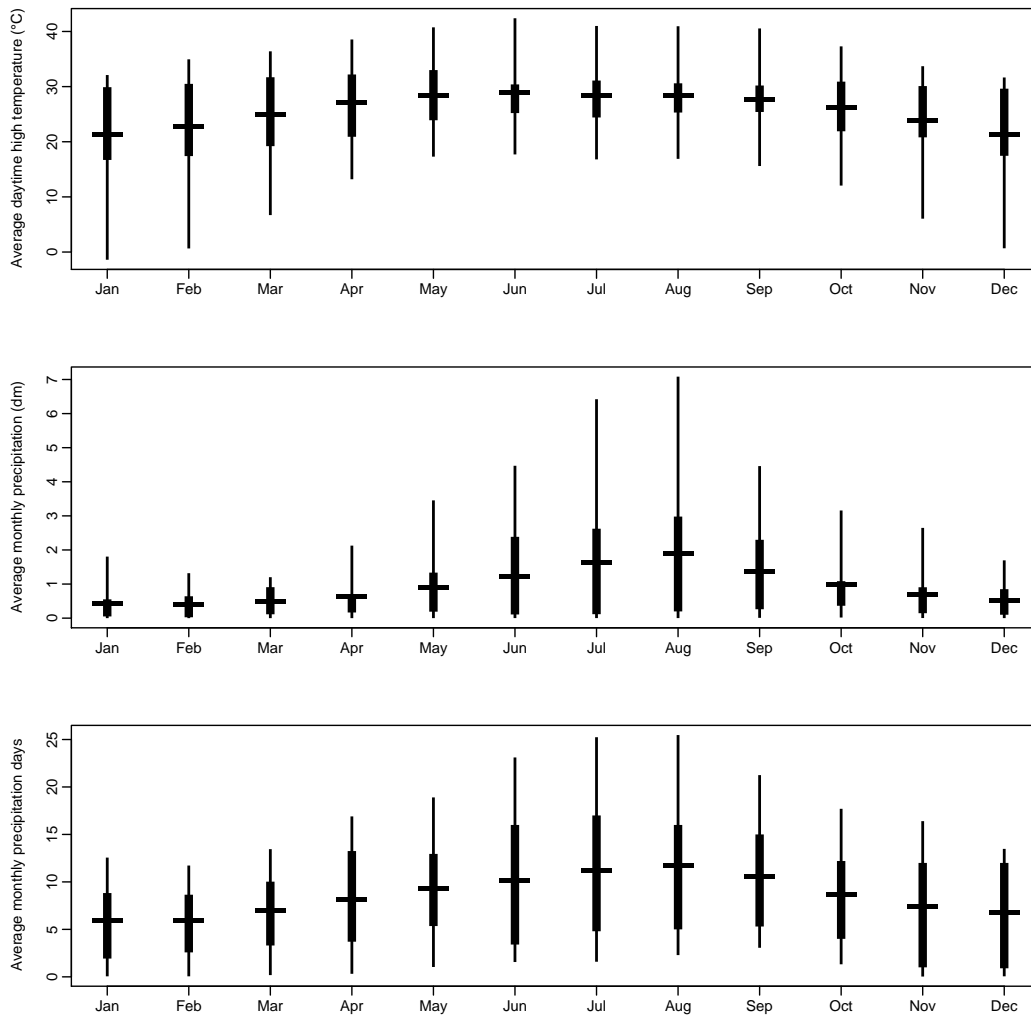


Figure 4: Weather conditions across conflict locations

ment through mediation. It is conceivable in particular that the summer indicator captures variation in temperatures or climatic conditions that could be correlated with war resolution. High rates of mediation initiation in the summer could then be the result of favorable conditions on the ground, which would undermine the claim that mediation is initiated relatively frequently in the summer for reasons (such as legislative holidays) that have nothing to do with the conflict in question.

There are at least two stories one could tell about why the summer months favor conflict resolution. First, temperatures in some parts of the world rise uncomfortably, which poses a challenge to the maintenance of equipment and troop morale, making a negotiated settlement more palatable to the warring parties. Geoffrey Blainey observed twenty years ago that wars in countries located north of the tropics were most likely to start in the spring (Blainey, 1988), when the weather gave an advantage to the offensive, and one could conjecture that by the time summer arrives disputants are ready to reach for a settlement. In the dataset analyzed here we also find that conflicts are particularly likely to start in April and May (as well as August and September), as shown in figure 3, although this hardly means that they are settled by summer: The median conflict in the dataset lasts more than ten years, unsurprisingly given the fact that most of the conflicts are intrastate wars. Even so, we need to check that the summer indicator does not affect the settlement of wars because of shifts in temperature, in particular because the monthly averages of daytime high temperatures across those conflict locations included in the dataset reach their maximum in the summer, as shown in figure 4.

The second—and similar—way in which the summer months could have a direct effect on the likelihood of a settlement is related to rainfall. As figure 4 shows, monthly averages of precipitation (rain and snow) across conflict locations rise to their highest level in August. Fighting a war in the rain is potentially strenuous and challenging in terms of moving heavy equipment, targeting, evacuation of casualties, and so on, and it is possible that this could bring some disputants to the bargaining table and to an agreement.

In order to check the validity of the summer instrument against these objections, I re-estimated models presented in table 7 but included data on the relevant average daytime high temperature (in degrees Celsius), the average amount of monthly precipitation (in decimeters), and the average number of precipitation days for the initiation month and location of each conflict resolution event. Monthly means (horizontal lines), 50th percentiles (thick vertical lines), and 95th percentiles (thin

	Coeff. (S. E.)	Coeff. (S. E.)	Coeff. (S. E.)
Second stage:			
Settlement			
Mediation	1.60*** (.19)	1.64*** (.17)	1.42*** (.30)
Temperature	-.00 (.01)		
Precipitation		.02 (.07)	
Precipitation days			-.03 (.03)
First stage:			
Mediation			
Summer	.35*** (.13)	.40*** (.12)	.46*** (.18)
Temperature	.01 (.01)		
Precipitation		.02 (.07)	
Precipitation days			-.01 (.03)
Observations	173	175	100
<i>F</i> -statistic for instrument	7.1	10.3	6.7
See table 4 for notes.			

Table 8: Instrumental-variable probit regression with climate measures

vertical lines) for the different weather-related variables are shown in figure 4. Data was retrieved from the World Meteorological Organization and typically represents an average of thirty years of measurements.¹⁰ If a war was fought over a named territory, I used measurements for the administrative center of that region (e.g. Grozny for the war in Chechnya), if available. Measurements for the capital city of the country where the fighting occurred were used otherwise.

As the results shown in table 8 suggest, we need not worry about the exclusion of climate measures in table 7. None of the weather-related variables are significant, and the strength of the summer indicator as instrument for mediation has even improved. Mediation continues to show the strongly significant, positive effect on the likelihood of a settlement which we could not identify without an instrumental variable.

Even so we may still be concerned about violations of the exclusion restriction. Perhaps the timing of conflict resolution events affects settlement chances in other, unobserved ways. While we are not able to estimate whether the exclusion restriction is met, we can subject our analysis to a sensitivity test and evaluate to which extent the exclusion restriction has to be violated in order for the positive effect of mediation to be the result of an invalid assumption.

We can write the essential features of the models we have estimated as follows (Greene, 2002: 710):

$$\begin{aligned} Y^* &= X\beta + Z\gamma + \varepsilon, & \text{with } Y &= 1 \text{ if } Y^* > 0 \text{ and } Y = 0 \text{ otherwise,} \\ X^* &= Z\delta + \nu, & \text{with } X &= 1 \text{ if } X^* > 0 \text{ and } X = 0 \text{ otherwise,} \end{aligned}$$

where ν and ε are correlated and so $E[X'\varepsilon] \neq 0$, Y captures whether a settlement was reached, X is the endogenous regressor for mediation, and Z is the “summer” indicator. We suppress other covariates (including a constant) for convenience.

Parameter γ measures the plausibility of the exclusion restriction. Instrument Z would of course not typically be included in the outcome equation, i.e. we assume that the exclusion restriction is exactly met and $\gamma = 0$. This may not be true, but neither can we estimate γ since that will leave the above system of equations underidentified.

We can, however, estimate β while setting γ equal to specific values other than 0, which is the key idea pursued by Conley, Hansen and Rossi (2008). I will focus on

¹⁰The data is available at <http://worldweather.wmo.int>. Last accessed 20 September 2008.

two of the methods they propose. First, Conley et al. suggest that we can assume some specific support for γ and estimate the union of confidence intervals for β given any γ in that support. The first procedure I implement asks, very similarly, what the maximal support for γ is such that our estimate of β is positive and significant at the 95% level.

Second, Conley et al. suggest that we may be willing to make more assumptions about γ than its support alone. In particular we may believe that γ is distributed in a particular way over its support, and in turn we can compute the union of confidence intervals for β where the critical value for each interval is endogenous to the probability of observing the corresponding value for γ . The second test I implement is similar in spirit: I start by assuming that γ is distributed normally, just as we assume that estimates of β in repeated samples are normally distributed, and that we are about as certain about the value of γ as we are about our estimate of β , i.e. I assume that γ has a standard deviation of .25. I then repeatedly draw γ from $N(0, .25)$, compute the 95% confidence interval of the estimate of β for each simulated γ , and evaluate how often these intervals are positive.

Table 9 shows results from the sensitivity analysis for different model specifications. The basic specification shown in column (1) replicates the estimates shown in table 7, but we can see here that these results are quite sensitive to violations of the exclusion restriction. We need not be particularly concerned if we suspect that the “summer” indicator has a negative direct effect on settlement, because in that case we find a positive and significant effect of mediation even if the instrument’s effect on settlement is as much as four-fifth the size of our estimated β (γ can be as low as -1.07).

More plausibly, we need to be concerned that the summer months have a direct positive effect on settlement, because fighting is relatively difficult amid substantial precipitation and high temperatures, and the sensitivity analysis shows that there is little room for such an effect if we are to retain a significant result for mediation in this basic specification (γ can be no larger than .04). Similarly only about half of the simulated draws of γ (specifically the negative draws of γ) lead to positive and significant estimates of the mediation effect.

The mediation effect’s sensitivity to the exclusion restriction diminishes very substantially once we include climate measures. In specification (4), which includes precipitation days, a significant result for mediation obtains even if the summer indicator has a direct positive effect on settlement of more than a third the size of

	(1)	(2)	(3)	(4)
Mediation	1.35***	1.60***	1.64***	1.42***
on settlement	(.44)	(.19)	(.17)	(.30)
Summer	.35**	.35***	.40***	.46***
on mediation	(.17)	(.13)	(.12)	(.18)
Temperature		✓		
Precipitation			✓	
Precip. days				✓
Max. support γ	[-1.07, .04]	[-1.03, .11]	[-1.41, .28]	[-1.30, .48]
Positive interval	56.4%	67.2%	88.8%	97.9%

All models include dispute characteristics. Significant at the *** 99% level.

Table 9: Results of sensitivity tests

the estimated mediation effect. Even more strikingly, the summer indicator’s direct effect on conflict settlement can be as sizable as its estimated effect on mediation, and still we obtain a significant coefficient for mediation in the outcome equation. We also find that the vast majority of γ s (97.9%) randomly drawn from $N(0, .25)$ generate a positive confidence interval for the corresponding estimate of β .

Although the climate measures were not statistically significant in either the first- or second-stage equation in table 8, their inclusion in the analysis is important in order to plausibly exclude the instrument from the outcome equation. In turn the key result of a positive and significant mediation effect does not appear unreasonably sensitive to the exclusion restriction once we account for climatic factors.

4.2 Multiparty mediation

We face similar identification problems in trying to find out whether multi-party mediation is more effective than single-party mediation in bringing about settlements.¹¹ Non-IV results are shown in tables 10 and 11, where it appears that single-entity mediation is relatively less effective than multi-party efforts. Again, this could be the result of an endogenous or otherwise confounded relationship. If we look at the results of the multinomial probit models, it seems suspicious that multi-party mediation appears to increase the likelihood of a settlement by between 17% and 24% in expectation, while having no impact on the likelihood of a procedural agreement

¹¹For a rich discussion of the challenges and pitfalls of multi-party mediation, see Crocker, Hampson and Aall (1999).

DV:						
Settlement	Coeff.	First diff.	Coeff.	First diff.	Coeff.	First diff.
Multi-party mediation	.92*** (.21)	.21*** (.07)	.79*** (.21)	.12*** (.07)	1.07*** (.30)	.11*** (.06)
Region indicators			✓	✓		
Conflict indicators					✓	✓
Observations	226	226	226	226	226	226

Unit of observation is conflict resolution event.
See table 4 for additional notes.

Table 10: Probit regression

or a ceasefire. Perhaps additional mediators simply pile on when the time is ripe for a settlement to be signed?

We can explore this question by looking at the data in terms of a panel, where the unit of observation is now the conflict-year and our explanatory variable of interest is the average number of third parties mediating a conflict in a given year. I use lagged levels of third-party involvement as (pseudo-)instruments of the current level of involvement. While these instruments are valid in the sense that they correlate well with the current number of mediators involved, strict exogeneity to the outcome equation is not easily justified. In effect, we assume that the impact of multi-party mediation on the likelihood of a settlement does not linger. Having a large number of mediators involved today may mean having a large number of mediators involved tomorrow, which could increase or decrease the chances of a settlement, but we assume that multi-party mediation today does not directly affect the likelihood of a settlement tomorrow. While it is not obvious that this is true, it is still less strict than assuming that today's multi-party mediation is strictly exogenous to today's likelihood of a settlement.

Table 12 displays results from a non-IV panel probit regression and a panel probit model in which the current number of mediators is instrumented for by the lagged mediator count. As before, the simple model suggests a strong, positive relationship between the number of mediators involved in conflict resolution and the likelihood of a settlement. However, this effect goes away entirely once we instrument for multi-party mediation, which lends some support to the idea that more mediators do not

DV: Event outcome	Coeff. (S. E.)	First diff. (95% C.I.)	Coeff. (S. E.)	First diff. (95% C.I.)	Coeff. (S. E.)	First diff. (95% C.I.)
Multi-party mediation on proc. agreem.	.28 (.27)	-.00 [-.06, .07]	.43 (.34)	.01 [-.00, .10]	.36 (.46)	.00 [-.01, .00]
Multi-party mediation on ceasefire	.06 (.27)	-.06 [-.16, .04]	.08 (.30)	-.04 [-.15, .09]	.22 (.35)	-.04 [-.16, .10]
Multi-party mediation on settlement	1.22*** (.28)	.23 [.11, .37]	1.07*** (.29)	.17 [.06, .32]	1.37*** (.36)	.24 [.12, .42]
Region indicators			✓	✓		
Conflict indicators					✓	✓
Observations	226	226	226	226	226	226

Unit of observation is conflict resolution event.
See table 4 for additional notes.

Table 11: Multinomial probit regression

necessarily make for a more effective mediation effort. Note in particular that the coefficient on the number of mediators does not lose statistical significance in the instrumental-variable specification because of an increase in its standard error, but because the coefficient itself is substantially attenuated.

5 Conclusion

This paper accomplished three things: It introduced a new dataset of conflict management events; provided an instrument for international mediation and showed that we can use it to recover a significant positive effect of mediation on the likelihood of conflict resolution; and argued that multi-party mediation efforts are not necessarily more effective than single-party mediation.

Two additional comments are in order. First, the reliance on data generated from news reports raises the issue of the exclusion of confidential processes, and I have worked with a non-governmental organization with access to key mediator networks to uncover if the dataset is indeed missing information on such processes. The results of this interaction have been encouraging in that only a single one of the dozen or so processes that were named to me as having been confidential was

DV: Settlement	Panel probit regression	Instrumental-variable panel regression
Second stage:		
Number of mediators, t on settlement	.38*** (.08)	.02 (.07)
First stage:		
Number of mediators, $t - 1$ on number of mediators, t		.14* (.09)
Number of mediators, $t - 2$ on number of mediators, t		.21** (.09)
Number of mediators, $t - 3$ on number of mediators, t		-.13 (.13)
Observations	285	154
Unit of observation is the conflict-year.		
Regressions include random effects.		
See table 4 for notes.		

Table 12: Panel regression

in fact missing from the dataset. News wires appear to report fairly reliably on the existence even of secret processes: 13 of the 151 mediation events in the dataset were reported to have been secret or were at some point denied by the disputants, and 24 mediation events were coded as unofficial or exploratory.

Second, another strategy to overcome the fact that the “treatment” assignment of mediation is not random is to find out more about and then model the assignment process. To this end I have designed a survey experiment for high-level mediators, which will speak to different mediators’ perceptions of how difficult it is for various types of disputes to end, which types of disputes different mediators are most (or least) interested in being involved with, and which types of mediation strategies different mediators prefer, in general and in specific dispute situations. The approach of the survey is to collect some data on respondent characteristics (e.g. age group, risk perception) as well as a substantial amount of data on respondent reactions to different mediation scenarios, where attributes of the dispute and mediation environment vary along a number of dimensions and are randomly assigned.¹² This in turn will allow us to investigate the determinants of mediation (as far as the mediator’s decision-making process is concerned) and assess whether mediators condition

¹²A copy of the survey is available at <http://www.columbia.edu/~bhb2102/survey.html>.

their intervention strategy on the likely outcome of any conflict management effort.

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