Why concessions should not be made to terrorist kidnappers

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A R T I C L E   I N F O

A B S T R A C T

This paper examines the dynamic implications of making concessions to terrorist kidnappers. We apply a Bayesian Poisson changepoint model to kidnapping incidents associated with three cohorts of countries that differ in their frequency of granting concessions. Depending on the cohort of countries during 2001–2013, terrorist negotiation successes encouraged 64% to 87% more kidnappings. Our findings also hold for 1978–2013, during which these negotiation successes encouraged 26% to 57% more kidnappings. Deterrent aspects of terrorist casualties are also quantified; the dominance of religious fundamentalist terrorists meant that such casualties generally did not curb kidnappings.

"…we know that hostage takers looking for ransoms distinguish between those governments that pay ransoms and those that do not, and make a point of not taking hostages from those countries that do not pay." David S. Cohen, US Under Secretary for Terrorism and Financial Intelligence, 2012 speech to ChathamHouse

[Callimachi (2014a)]

1. Introduction

A three-minute video, released by Islamic State of Iraq and Syria (ISIS) on September 14, 2014 entitled "Lend me your ears, messages from the British detainee John Cantlie," accurately characterized the differences in the negotiation policies that set the United States and the United Kingdom apart from their European counterparts in recent years. In the video, Cantlie stated that "every other European country negotiated with Islamic State and got their people home while the British and Americans were left behind" (Cantlie, 2014).[1] Cantlie's claim is supported by *New York Times* reporter Rukimimi Callimachi (2014a, 2014b), who indicated that ransoms had been paid to ISIS for the release of Javier Espinosa (Spain); Edouard Elias, Didier François, Nicolas Hénin, and Pierre Torres (France); Jejoen Bontinck (Belgium); Federico Motka (Italy); and others (also see Mickolus, forthcoming). Ransoms had been paid by the hostages' home country, his family or employer, or by a third country.[2] In fact,

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[1] As of May 2016, the fate of John Cantlie was not known. He has made a number of propaganda videos for ISIS that criticized US and UK actions against ISIS.

[2] Generally, media accounts, upon which our data is based, do not identify who really paid the ransom; but any payment by private citizens was facilitated by government officials.

Callimachi (2014b) reported that ISIS received ransoms for 15 of 23 hostages held during 2013–2014; the exceptions were four Americans, three British, and one Russian held hostage. Three of the American hostages – James Foley, Steven Sotloff, and Peter Kassig – were beheaded; two of the British hostages – David Haines and Alan Hennings – met the same fate. Kayla Mueller, the only female American hostage, was allegedly killed by a US drone strike on an ISIS-occupied facility. Sergey Gorbunov, a Russian hostage, was shot to death by his ISIS captors (Callimachi, 2014b). A similar scenario of beheadings of American (e.g., Nicholas Berg and Eugene Armstrong) and British hostages (e.g., John Bigley) and release of European hostages (e.g., Italian Guiliana Sgrena) after ransom payment took place in 2004–2005 in association with kidnappings by Abu Musab al-Zarqawi, the then leader of al-Qaida in Iraq (Mickolus, 2008).[3]

The *New York Times* also reported that nearly $130 million was paid in ransoms to al-Qaida and affiliates between 2008 and 2013, prior to the rise of ISIS. This total included $94.5 million to al-Qaida in the Islamic Maghreb (AQIM), $5.1 million to al-Shabaab, and $29.9 million to al-Qaida in the Arabian Peninsula (AQAP). Countries involved with the payment of these ransoms to terrorist kidnappers included Austria, Canada, France, Italy, Spain, and Switzerland (Callimachi, 2014a). Other countries alleged to have paid or facilitated the payment of ransoms to hostage-taking terrorists include Belgium, Germany, the Netherlands, and Sweden (Mickolus, 1993, 2008, 2014, forthcoming; Mickolus and Simmons, 2002, 2006). Despite news reports and corroborating evidence, countries deny paying ransoms and sometimes disguise the payment as a foreign aid contribution to the venue country where the hostage is held (Callimachi, 2014b). This denial is not surprising since major Western countries signed a G-8 agreement in 2013 not to pay ransoms or grant concessions to terrorists who kidnap. The *New York Times* quoted a high-ranking al-Qaida official as indicating that currently ransoms fund half of the organization's operating budget (Callimachi, 2014a). These ransoms allow terrorist organizations to circumvent enhanced post-9/11 efforts to freeze terrorist groups' assets (Enders and Sandler, 2012).

US–UK no-concession policy presents the families of hostages with a terrible reality. Unless their loved ones escape or are freed in a high-risk rescue mission by special forces, both of which are highly unlikely, the hostages will meet a terrible fate after a horrible incarceration, combined with mental and physical torture (Callimachi, 2014b, 2014c). Prior to 9/11, US families had been aided, at times, by the Federal Bureau of Investigation (FBI) to pay ransoms to terrorists to bring their loved ones home (Callimachi, 2014c). An example is the ransom paid to Fuerzas Armadas Revolucionarias de Colombia (FARC) for the release of US journalist Thomas Hargrove on August 20, 1995; Hargrove had been kidnapped in Colombia on September 23, 1994 (Mickolus and Simmons, 1997). On June 24, 2015, the Obama administration announced that it would no longer prosecute families that paid ransoms to terrorists[4]; however, the administration reiterated that the US government would not pay ransoms or grant other concessions to terrorist kidnappers. Since most families do not have the large sums that ISIS and other current terrorist groups demand, this policy change should have little or no effect on our findings in the future. Moreover, our analysis includes data prior to this recently announced policy change.

Our primary purpose is to apply economic analysis to quantify the verity of the statement by David S. Cohen, given at the start of the paper. In particular, we want to ascertain how, if at all, the recent no-concession policy of the United States and the United Kingdom has changed the abductions of Americans and British people by concession-seeking terrorists. Is it true that these terrorists have increasingly abducted hostages from known concession-granting countries – i.e., Austria, Belgium, Canada, France, Germany, Italy, Netherlands, Spain, Sweden, and Switzerland – which we call the "Concessionaires." With the help of game theory and time-series analysis, we offer answers to these questions and indicate why countries are better off not conceding to ransom or other requests (e.g., a prisoner exchange) despite the terrible costs visited on captured citizens. If adherence to the no-concession policy really discourages kidnappings, then past sacrifices of a few US–UK hostages serve a country's interests by protecting a greater number of potential hostages. Thus, countries confront a dilemma where the lives of some unfortunate victims must be weighed against the future well-being of many if the policy is effective. This effectiveness is quantified in our ensuing analysis. Since the start of 2001, countries that granted concessions encouraged up to 87% additional abductions (above the median number of kidnappings) of their citizens. In contrast, the median rate of abduction of American and British citizens has remained essentially unchanged after 2001, given these countries' general adherence to their no-concession policy — i.e., there is no changepoint after 2001. The past actions of concession-granting countries not only placed more of their citizens in greater peril, but also put all targeted countries in harm's way by either funding or supporting (from prisoners release) the operations of terrorist groups. Generally, we find that terrorist casualties in kidnappings do not deter future EU and concession-granting countries' kidnappings during 2001–2013 or the reign of religious fundamentalist terrorists. There is, however, some evidence that terrorist casualties in kidnappings reduce median abductions for the US–UK.

After some necessary preliminaries in Section 2, we sketch a conceptual game-theoretic model of kidnapping in Section 3 that informs our empirical analysis on past kidnappings. This conceptual analysis indicates that terrorists abduct more hostages from countries that grant concessions to get their citizens home. Moreover, the conceptual model indicates that enhanced deterrent measures (i.e., greater protection for potential hostages or rescue missions) that result in terrorist casualties generally discourage kidnappings *unless* the terrorists are out for *martyrdom* or *publicity*. In Section 4, we describe our unique data set of transnational terrorist kidnappings for 1978–2013. Section 5 presents the time-series methodology along with the study's key covariates. A Bayesian Poisson changepoint model is applied to kidnapping time series from three cohorts of countries – the United States and the United Kingdom, the Concessionaires, and the EU (without the UK) – during 2001–2013. In Section 6, the results show

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[3] Abu Musab al-Zarqawi was killed in a US bombing of one of his safe houses on June 7, 2006.
[4] See http://foreignpolicy.com/2015/06/22/hostage-review-will-make-it-easier-for-families-to-pay-ransoms/.

how the covariates' influences differ among the three cohorts. Section 7 addresses additional robustness checks using data from 1978 to 2013 and 1978 to 2000. Concluding remarks follow in Section 8.

2. Preliminaries

Terrorism is the premeditated use or threat to use violence by individuals or subnational groups against noncombatants to obtain political or social goals through the intimidation of an audience, beyond that of the immediate victims (Enders and Sandler, 2012; Ezcurra and Palacios, 2016; Hoffman, 2006). Essential ingredients of the definitions concern the violence, objectives, and audience. Audience cost results when citizens pressure their government to settle with the terrorists to restore safety (Weeks, 2008). Governments must weigh the costs of holding firm (e.g., the political fallout from hostages' desperate appeals) against the costs from caving in to terrorist demands (Sandler and Enders, 2004). The latter may reduce popular support for the government, which may lose its subsequent election or encourage additional attacks (Scott, 1991). Since terrorism involves substate actors, our definition rules out state terrorism, but does not rule out state-sponsored terrorism.

An important dichotomy distinguishes between domestic and transnational terrorism. The former is homegrown and home-directed for which the victims and perpetrators are from the venue country, where the attack occurs (Enders et al., 2011; Kis-Katos et al., 2011). In contrast, transnational terrorism involves victims, perpetrators, or venue from two or more countries. The kidnappings of US and UK journalists and aid workers by ISIS in Syria represent transnational terrorist incidents. The same is true of the kidnapping of *Wall Street Journal* reporter Daniel Pearl by Harkat ul-Majaheddin on January 23, 2002 in Karachi; he was later beheaded (Mickolus and Simmons, 2006).

Terrorists employ alternative modes of attacks – e.g., assassinations, bombings, armed attacks, and hostage taking – to pressure a government to concede to the group's political or social demands. Hostage taking missions – kidnappings, skyjackings, nonaerial hijackings, and barricade and hostage missions (henceforth barricade missions) – are complex and expensive operations that attract significant press coverage when the negotiations drag on and the terrorists are able to release videos or written appeals by the hostages. Hostage-taking operations are among the most risky and complex terrorist attacks that may, on occasion, yield huge media and recruitment payoffs as the four 9/11 hijackings demonstrated. Despite the large logistical costs of hostage taking, terrorists engage in such acts if their perceived expected gain warrants it. Wilson (2000) showed that terrorist hostage takers expend lots of effort in structuring their skyjacking and barricade operations, which were the focus of her study.

Kidnappings differ greatly from the other three types of hostage events, because the terrorists' and their victims' locations are generally unknown to the authorities. This, in turn, provides the terrorists with a greater sense of security from which to conduct their negotiations. As such, kidnappings have been found to last longer than other hostage incidents (Atkinson et al., 1987; Sandler and Scott, 1987). Kidnappings are more prevalent than other terrorist hostage incidents, constituting 73% and 67.6% of all transnational hostage events during 1978–2013 and 1978–2000, respectively. Previous panel data analyses of transnational hostage-taking terrorism drew other important distinctions between kidnapping and nonkidnapping hostage actions. In particular, kidnappings displayed greater logistical success than other kinds of hostage taking (Gaibulloev and Sandler, 2009). Kidnappings, where fewer lives are at stake, decreased the likelihood of a negotiation success compared to other hostage incidents (Santifort and Sandler, 2013).

In a time-series study, Brandt and Sandler (2009) investigated the dynamic behavior of kidnappings, skyjackings, and other hostage incidents for 1968–2005, prior to the rise of AQIM, ISIS, AQAP, and al-Shabaab. They found that past concessions had the strongest impact on generating new kidnappings and skyjackings — namely, 2.62 and 0.59 additional attacks, respectively, following successful negotiations. Unlike Brandt and Sandler (2009), the current study is primarily concerned with the contrasting dynamics of kidnappings since the start of 2001 for alternative cohorts of targeted countries; namely, those that usually do not grant concessions (the United States and the United Kingdom) and those that often grant concessions (the Concessionaires and EU without the UK). In particular, we want to quantify how making concessions puts the latter two cohorts in greater jeopardy of future abductions. We focus on 2001–2013 because the United States and the United Kingdom, especially the former, have been consistent with their no-concession pledge during this period, so that results with respect to the benefits from not conceding should be more clear-cut. Moreover, some kidnappers have raised the stakes to the government by resorting to beheadings. To characterize this recent period better, we also contrast its findings with respect to negotiation success to those for the 1978–2013 and 1978–2000 periods.

In the current study, we focus on kidnappings rather than other types of hostage taking for a number of reasons. First, by being more associated with money ransom (Santifort and Sandler, 2013), kidnappings are a better source of funding than other hostage attacks. Major terrorist groups increasingly rely today on this mode of attack to finance and publicize their terrorist campaign. Thus, understanding how to curb the success of such attacks informs governments on how to limit funding for a wide range of terrorist attacks. Second, kidnappings typically involve a single nationality in terms of victim(s), thereby facilitating conclusions to be drawn on how concessions affect future abductions of the hostage country's citizens. During 1978–2013, 60% of kidnappings were associated with a single victim nationality, while only 42% of skyjackings involved a single victim nationality. Third, with the added security at airports and buildings, kidnappings were now the major component of hostage incidents, constituting 88.9% of such incidents during 2001–2013. Fourth, kidnappings better allow terrorists than other kinds of hostage-taking incidents to plan *whom* to abduct. Mickolus' (1993, 2008, 2014) chronologies provide a rich source of kidnapping descriptions about how terrorists watch and target specific victims. In skyjackings and building takeovers, the victims are more random. Fifth, gruesome beheadings since 2002 underscore the trade-off that some countries must make by staying true to a no-concession pledge. We are particularly interested in the influences of two covariates – number of negotiation successes by terrorists and count of kidnappings with

terrorist casualties – on the dynamics of our three cohorts of countries for the post-2001 era, for 1978–2013, and for the pre-2001 era.

3. A game theory of terrorist kidnappings

We first consider a one-shot kidnapping game conceptually.[5] The government goes first and determines a level of defensive measures against kidnapping, which fixes the terrorists' perceived likelihood of logistical success or failure.[6] Logistical success involves the terrorists securing one or more of their kidnapping victims. When one or more hostages are kidnapped and secured, the government must then decide whether or not to capitulate to the kidnappers' demands. Partial concessions are possible. The abduction likelihood depends on the level of defensive measures, the terrorists' perceived probability of logistical success or failure, their belief about gaining concessions from a government, and their expected payoffs. These payoffs depend on the gains or losses associated with no abduction, abduction and logistical failure, abduction success and no concessions, and abduction success and some concessions met. For kidnappings, governments may try to gain a strategic advantage by pledging never to concede or never to allow private parties to concede, so that terrorists are dissuaded from taking hostages (Lapan and Sandler, 1988).

The no-concession pledge may not deter terrorist kidnappers if they believe that the abduction of a sufficiently valuable hostage (e.g., an Israeli soldier or a diplomat) will cause the government to *renege* on its pledge. Thus, a no-concession pledge may still result in a positive payoff for terrorists on some occasions. Even if the government's pledge never to capitulate to hostage-taking terrorists' demands is believed, hostages may still be abducted if the terrorists' net gain from logistical failure or negotiation failure is positive. Martyrdom may provide a positive gain for logistical failure, while kidnap-generated publicity or societal fear may offer a positive payoff for negotiation failure. Since 2002, societal fear may stem from Internet-posted beheadings of hostages that make the public acutely aware of the terrorist group's cause and its ruthlessness. Such horrific acts may also result in recruitment of fanatics to the terrorist group (e.g., ISIS). A government's no-concession pledge only stops all kidnappings when the pledge is credible, the terrorists only gains from granted concessions, and the government's payoff from not conceding is known (Lapan and Sandler, 1988). The latter means that the value of the hostage(s) is known when the government makes its no-concession pledge, but this cannot be true so that the government's payoff from holding firm is uncertain. When, however, the government's no-concession pledge is not credible owing to frequent past concessions, hostages are abducted if the terrorists' anticipated gains from concessions (i.e., paid ransoms or released prisoners) are greater than their expected losses from a logistical failure.

A formal model has some comparative statics that lead to some testable hypotheses. First, abductions decrease as a government's defensive measures increase. These enhanced defensive measures result in terrorist casualties at the abduction stage or during the incident. Unless terrorists are out for martyrdom, these casualties reduce future kidnappings as operatives are lost and terrorists' losses from failure are greater. If, however, terrorists value martyrdom, then such casualties may encourage more hostage taking. Thus, the influence of terrorist casualties may inhibit or encourage future kidnappings depending on how terrorists value martyrdom. The same is true of the effect of violent ends (i.e., a shootout with authorities) on future kidnappings. The next comparative statics results are more clear-cut. Negotiation success on the part of the terrorists results in more future kidnappings as the expected payoff to terrorists from kidnappings increases. In particular, larger or more frequent ransoms are anticipated to encourage more kidnappings.

In a multiperiod game, terrorists update their beliefs of future negotiation successes based on the government's past actions regarding the making of concessions. Each time the government makes concessions or allows others to make concessions, the terrorists raise their anticipated probability of future concessions (Sandler et al., 1983). As this perceived probability of concessions increases, the terrorists anticipate a greater expected payoff from kidnapping and so there will be more abductions. If, however, the government does not concede for a given kidnapping, then the terrorists reduce their perceived probability of future concessions, thereby reducing their anticipated gain from future kidnappings. This, in turn, results in fewer additional kidnappings. These hypotheses can be tested by ascertaining whether granted concessions raise the median level of kidnappings. Since media sources for the kidnapping data (see below) typically do not report ransom amounts, we have no choice but to use a dummy variable for negotiation success and/or ransoms paid.

4. Data

Our event data source is International Terrorism: Attributes of Terrorist Events (ITERATE) (Mickolus et al., 2014), which records only transnational terrorist incidents for 1978–2013. ITERATE draws its data from a host of print, digitalized, and televised media sources. An overlap of coders, since its inception, ensures coding consistency. For the current study, daily data of terrorist kidnappings are aggregated into monthly counts. Other terrorist event data sets – Global Terrorism Database (GTD) and RAND – do not lend themselves to the study of kidnapping dynamics because they do not have negotiation covariates, such as the number of negotiation successes and the number of ransom payments.

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[5] The interested reader can obtain an earlier version of the paper that contains the full analytical model.

[6] The first game-theoretic model of kidnapping was by Selten (1977). Our theoretical discussion modifies the model of Lapan and Sandler (1988) by changing the focus from the time inconsistency of the no-concession pledge to an analysis of the comparative statics (also see Sandler and Enders, 2004). Fink and Pingle (2014) examined the implications of buying insurance from the potential victim's viewpoint.

ITERATE's COMMON file records general observations for each terrorist event, including incident date, incident type, venue country, casualties, victims' nationalities, and logistical success. Casualties (i.e., killed or injured) are broken down between terrorists and others (e.g., victims and officials). Logistical success for a kidnapping occurs when the terrorists secure one or more hostages. ITERATE records up to three nationalities for the victims of each attack. We are able to identify the nationalities of 85% of kidnapping victims. During 1978–2013, kidnappings constitute 12.7% of all transnational terrorist incidents. This relatively small percentage is indicative of the costliness and riskiness of such attacks. Terrorists most often engage in relatively low-risk and low-return bombings. ITERATE HOSTAGE file contains additional information (e.g., negotiation success) on hostage events, including kidnappings. We merge the COMMON and HOSTAGE files and extract monthly information on 1334 kidnappings during 1978–2013.[7]

Our dependent variable is the number of kidnappings directed at each nationality per month. If a kidnapping includes hostages with more than one nationality, then the dependent variable assigns the other identified nationalities to the respective countries. This dependent variable is then aggregated for three cohorts: (i) the US and UK kidnapping victim count, (ii) the Concessionaires' kidnapping victim count, and (iii) the EU less UK (henceforth, EU) kidnapping victim count.[8] The ten Concessionaire countries are previously identified. Given Europe's reputation for conceding, the EU cohort is used as an additional control group, wherein Concessionaires include only eight EU countries so that the overlap between the two cohorts is not great. We must aggregate over these three cohorts in order to keep the time series sufficiently thick to conduct our statistical tests. Even though the underlying game model is for a single country, the theory applies to groups of countries that follow similar negotiation strategies. As such, these countries share similar concession reputations in the mind of the terrorists.

We code two covariates. Negotiation success counts the country-specific monthly number of kidnappings for which the terrorists gained some or all of their initial demands, which may include prisoner exchange or other concessions. Receipt of partial demands is deemed a negotiation success because kidnappers often ask for more than they need to release the hostage. This overstating of demands is true of all bargaining situations. Negotiations would not have concluded were the kidnappers unhappy with the granted concession. ITERATE codes a negotiation success when the media reports that a concession was granted and the hostage released. Who pays the concessions is seldom known or reported in the media. Moreover, the amount of a ransom is not typically indicated since governments do not want potential terrorist kidnappers to know this amount; hence, we must stay with the number of negotiated successes. A second covariate is the country-specific monthly count of incidents where the abductors sustained casualties. Terrorists sustained casualties in 3.4%, 2.6%, and 6.1% of kidnappings for 1978–2013, 2001–2013, and 1978–2000, respectively. These casualties' percentages were much less than those for which casualties were sustained by anyone — victims, bystanders, the authorities, or the terrorists. The percentages for any casualties in transnational terrorist kidnappings were 19.5%, 23.0%, and 18.8% for 1978–2013, 2001–2013, and 1978–2000, respectively. The higher percentage in recent time accounts for increased beheadings.

Negotiation successes influence the terrorists' perceived probability of concession, so that the theory predicts that an additional negotiation success is expected to lead to more abductions. Additional kidnappings with terrorist casualties serve as a deterrent proxy for which greater casualties should decrease future kidnappings, *except when martyrdom is greatly valued*, which should apply to 2001–2013.

Given the greater adherence by the United States and the United Kingdom to their no-concession pledge since the start of 2001, we are particularly interested in the dynamics of kidnappings for 2001–2013. Marginal increases and decreases in kidnappings are our focus because US–UK citizens will still be kidnapped despite a no-concession policy owing to the high propaganda and publicity value of such abductions.

5. Methods and variables

Table 1 presents the counts of the main dependent variable, the number of kidnappings for each country for 1978–2013 and its two sub-periods. Clearly, the United States and the United Kingdom are the greater kidnapping targets over 1978–2013 owing to terrorists' grievances and their seeking of publicity. Summing over our dependent variable, we find a total of 445 US and UK kidnappings and 489 Concessionaires kidnappings in the top row of Table 1. There were 424 EU (without UK) kidnap victims for whom 83 concessions were granted. For 1978–2013, the United States and the United Kingdom gave concessions in 19.6% and 10.7% of their citizens' abductions, respectively, while the EU granted concessions in 19.6% of their citizens' abductions. The Concessionaires gave concessions for approximately 20.4% of their hostages. For the *entire* period, the Concessionaires granted concessions in the greatest percentage of cases, followed by the EU and the United States. The United Kingdom offered the smallest percentage of concessions.

Theoretically, the implications of our conceptual model regarding the influence of a negotiation success on kidnappings should be most compelling for Islamic-based terrorists, who dominate the post-2001 landscape. Given their willingness to become martyrs, terrorist casualties may have little influence on deterring kidnappings in the post-2001 period by today's terrorists. Earlier kidnappings were driven by leftist or state-sponsored interests (Hoffman, 2006). The third and fourth rows of Table 1 show kidnap victim and concession counts for the post-2001 (2001–2013) period. After the start of 2001, concession percentages fell to 10.7% for the United States and stayed rather unchanged at 10.4% for the United Kingdom, while these percentages rose to 21%

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[7] Quarterly counts lose important dynamic information, while daily counts are too thin.

[8] A kidnapping is considered an EU case based on whether the listed nationality of the hostage corresponds to an EU member, according to the accession of the country to the EU. There are no kidnapping attacks in ITERATE for Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Latvia, Luxembourg, or Slovakia.

Table 1
Number of kidnappings and negotiation successes by nationality, 1978–2013.

| Country	US	UK	France	Spain	Italy	Germany	Canada	Belgium	Netherlands	Austria	Sweden	Switzerland	EU
Number of victims (1978–2013)	296	149	112	32	111	80	37	19	23	21	20	34	424
Number of negotiation successes (1978–2013)	58	16	26	8	13	20	9	3	6	5	4	6	83
Number of victims (post-2001)	84	48	36	6	36	27	18	4	8	1	6	9	142
Number of negotiation successes (post-2001)	9	5	5	3	8	7	2	1	2	1	1	2	30
Number of victims (pre-2001)	212	101	76	26	75	53	19	15	15	20	12	25	282
Number of negotiation successes (pre-2001)	49	11	21	5	5	13	7	2	4	4	3	4	53

Source: ITERATE (Mickolus et al., 2014).

for the EU and 23.8% for the Concessionaires compared to the entire period. These percentages suggest that the United States and the United Kingdom better adhered to their stated no-concession policy after the start of 2001. Moreover, their adherence was much better than that of the EU or the Concessionaires. As such, US–UK hostages became relatively less desirable compared to those from the EU or the Concessionaires for kidnappers driven by concessions to support their organization's operation.

The fifth and sixth rows of Table 1 indicate kidnap victim and concession counts for the pre-2001 (1978–2000) period. During this period, there were 313 US–UK kidnappings, 302 Concessionaires kidnappings, and 282 EU kidnappings. Clearly, US–UK citizens were favored despite their countries' no-concession stance. During 1978–2000, the United States and the United Kingdom gave concessions for 23.1% and 10.9% of these kidnappings, respectively, while the EU handed over concessions in 18.8% of their citizens' abductions. The Concessionaires granted concessions 20.2% of the time. These raw data show that the United States did not consistently stay with its no-concession pledge before 2001. This was especially true during the 1980s and a spate of US kidnappings in Lebanon. The United States stayed truer to its pledge after 2001. The raw data, however, do not capture the underlying dynamics in terms of how a concession can result in a marginal increase above the median level of kidnappings, while accounting for median changepoints. Table 1 is merely an interval-based overview that indicates, among other things, that Americans were favored kidnap victims, but it does not show how much more favored they were after a concession had been granted. This will be captured by our dynamic empirical method.

To model empirically the three dependent variable time series – US and UK, EU, and Concessionaires – of monthly kidnappings, we employ a count model. The key predictors are the previously defined counts of the number of negotiation successes by terrorist kidnappers and the number of kidnappings with abductor casualties. There are multiple possible choices for the count model specification: e.g., Poisson, negative binomial, Poisson autoregressive (PAR(p)), or Poisson changepoint regressions. Brandt and Sandler (2009, 2010) showed that transnational kidnappings, skyjackings, and other hostage-taking events are often subject to changes in regime, where the effects of parameters are driven by a changepoint process that alters the effects of covariates on the type of hostage-taking events (e.g., shifting over time from skyjackings to kidnappings) or the type of target (e.g., shifting from government officials to private parties). Since both types of substitutions can affect the logistical success of kidnappings and, thus, the marginal effects of the covariates on the dependent variable over time, it is prudent to not consider a fixed parameter count regression model (i.e., Poisson, negative binomial, or PAR(p)) and instead employ a changepoint count model. Regime change can also derive from a change in the nature of the terrorist groups that do the kidnappings — i.e., the growing dominance of religious fundamental terrorists after the start of 2001.

The Bayesian Poisson changepoint model of Park (2010) is employed. This model fits a Poisson regression that identifies the number of changepoints in the count time series and estimates different regression parameters via the filtering method of Chib (1998). For each changepoint segment, a different set of Poisson regression parameters is estimated. The selection of the number of changepoints is done using a Bayes factor, computed from each changepoint model's marginal likelihood. The Bayes factor gives
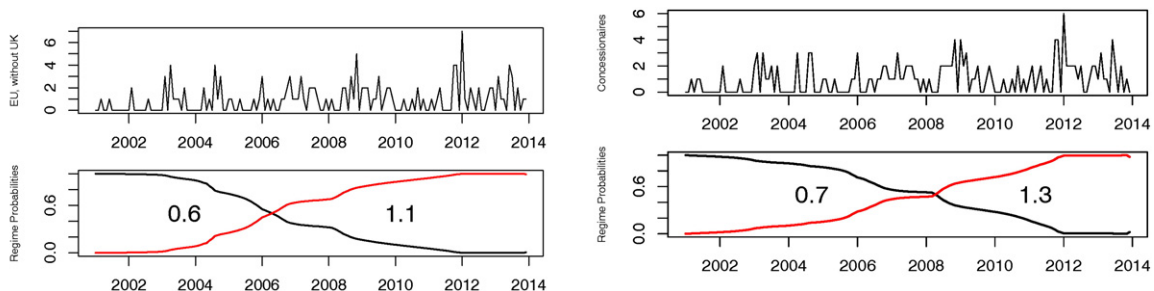
a) EU changepoint and predicted means   b) Concessionaries changepoint and predicted means

Fig. 1. Changepoints for the EU (without UK) and Concessionaires series, 2001–2013.

the posterior odds of a model with k changepoints compared to one with $k − 1$ or $k + 1$ changepoints. Positive log odds or log Bayes factors indicate a preference for a model with k changepoints versus a model with $k − 1$ or $k + 1$ changepoints.

A priori, the number of changepoints is not known, so models with zero to five changepoints are fitted for each of the three dependent variables and the two covariates. The Bayesian changepoint Poisson regressions are sampled with 100,000 burn-in sweeps, and a final posterior of 100,000 draws. The posterior samples pass standard checks for convergence and mixing. Based on these models' log marginal likelihoods and log Bayes factor comparisons, the best-fitting models are zero changepoints for the US–UK data, and one changepoint for the EU and Concessionaries series (see online Appendix A). The top portion of Fig. 1 displays the kidnapping time series plots for the EU and the Concessionaires. Fig. 1 also gives the changepoint dates and the predicted means before and after the changepoint for the latter two series. For the EU series, the predicted changepoint is April 2006, denoted by 2006(4), and for the Concessionaries, it is April 2008. The EU countries experienced 0.6 kidnappings per month before 2006(4) and 1.1 per month after the changepoint. The Concessionaires were subject to an average of 0.7 kidnappings per month from 2001 to 2008(4), which then increased to a mean of 1.3 per month. The EU changepoint corresponds to the height of the terror campaign of al-Zarqawi's al-Qaida in Iraq, while the Concessionaires' changepoint corresponds to the kidnapping campaigns of AQIM and other religious fundamentalist groups. These groups inspired other terrorist groups to kidnap Europeans and Americans. In contrast, the mean number of kidnappings per month for the US–UK data was 0.85 per month throughout 2001–2013.

These results indicate that the conditional predictions for the number of kidnappings for the EU and the Concessionaries share a higher baseline level of kidnappings after their respective changepoints. The Bayesian changepoint model controls for this via different intercepts and regression slopes, which means that marginal effects or prediction calculations are sensitive to being before or after the changepoint for the EU and the Concessionaires.

## 6. Substantive results and interpretations

The posterior coefficient densities for Bayesian Poisson changepoint models are presented in Fig. 2. The first column of Fig. 2 gives the estimated posterior densities for the EU model. The black densities are for the first EU regime for 2001(1)–2006(3), while the red densities are for the second EU regime for 2006(4)–2013(12). For comparison purposes, the green densities are for the US–UK during 2001(1)–2013(12). For the EU model, kidnappings with negotiation success have positive posterior densities in the first and second regimes. The same is true for the US–UK densities displayed in green. These densities indicate that additional terrorist negotiation successes are positive predictors of kidnappings for the US–UK and the EU, which supports the contention and prediction of the theoretical discussion that the no-concessions policy lowers the number of kidnappings for both the US–UK and the EU. Thus, the US–UK will experience fewer kidnappings if they adhere to their no-concession pledge, while the EU will experience more kidnappings if members do not consistently adhere to their no-concession policy. In the last row of Fig. 2 for EU Regime 2, terrorist casualties shift the densities in the direction of more kidnappings, consistent with terrorists valuing martyrdom. In contrast, such casualties reduce US–UK kidnappings.

For the Concessionaries, the second column of Fig. 2 shows the estimated densities of the posterior coefficients across the two regimes as compared to the corresponding coefficients for the US–UK estimates. The Concessionaires' first and second regimes display positive posterior estimates for negotiation success, thereby indicating that such concessions lead to more kidnappings for the Concessionaires. The posterior coefficient densities for terrorist casualties' covariates in the Concessionaires model cover zero for Regime 1, indicating no real deterrent effects for these covariates on the number of Concessionaires' kidnappings. This absence of an effect will be better seen later in Table 2. For Regime 2, terrorist casualties appear to result in more kidnappings of Concessionaires' citizens, indicating a negative deterrent, consistent with martyrdom. Kidnapper casualties' posterior densities are shifted in the negative direction for the US–UK model, indicating that such casualties depress the number of US–UK kidnappings. As such, some deterrence is detected.

To better convey the substantive effects of changes in the covariates on the number of kidnappings, we conduct a posterior prediction exercise. Employing our posterior sample of 100,000 values of the coefficients, we construct the conditional expectations of the number of predicted kidnappings over the full US and UK sample, and over the two subsamples for the EU and Concessionaries, defined by their changepoints. For these conditional expectations, we estimate the net change in the number of kidnappings for a change in a single covariate. For, say, negotiation success, no negotiation is coded with a 0 and its predicted count densities are then compared to those of a negotiation success, coded with a 1. When we conduct this exercise for each covariate, other covariates are held at their in-sample and in-segment values to isolate the effect of the additional number of negotiation successes and incidents with terrorist casualties. The full posterior sample of 100,000 draws is used to compute the conditional posterior predictive density for these one-unit changes in the covariates. We present these predictions in a series of box-plots for each regime of each dependent variable data series.

Fig. 3 shows box-plots of the predictions for no negotiation success compared to one negotiation success (holding the other covariates constant at their in-sample and in-segment values). As seen in the left panel, when there is no negotiation success, the median number of US–UK kidnappings is predicted to be 0.80. Median kidnappings increase to 1.48 or by 87% when there is an incident with negotiation success [see online Appendix A, Tables A4, for the details of the median estimates and their credible intervals (CIs)]. For EU Regime 1, there is a discernible positive effect of granting a negotiation success, since the medians are 0.62 and 1.01 kidnappings before and after an additional negotiation success. This five-year regime is before the rise of AQIM, AQAP, al-Shabaab, and other significant kidnapping threats. From 2006(4) onward in Regime 2, the effects of negotiation success are larger on EU kidnappings. If there is no negotiation success, the median predicted number of kidnappings is 0.62; with a

negotiation success, the median prediction is then 1.42 kidnappings. Similar results are seen in Fig. 3 for the Concessionaries across both regimes. In the Regime 1 for 2001(1)–2008(3), the predicted median number of Concessionaires kidnappings is 0.67 when there is no negotiation success, but the median increases to 1.22 kidnappings following a terrorist negotiation success.
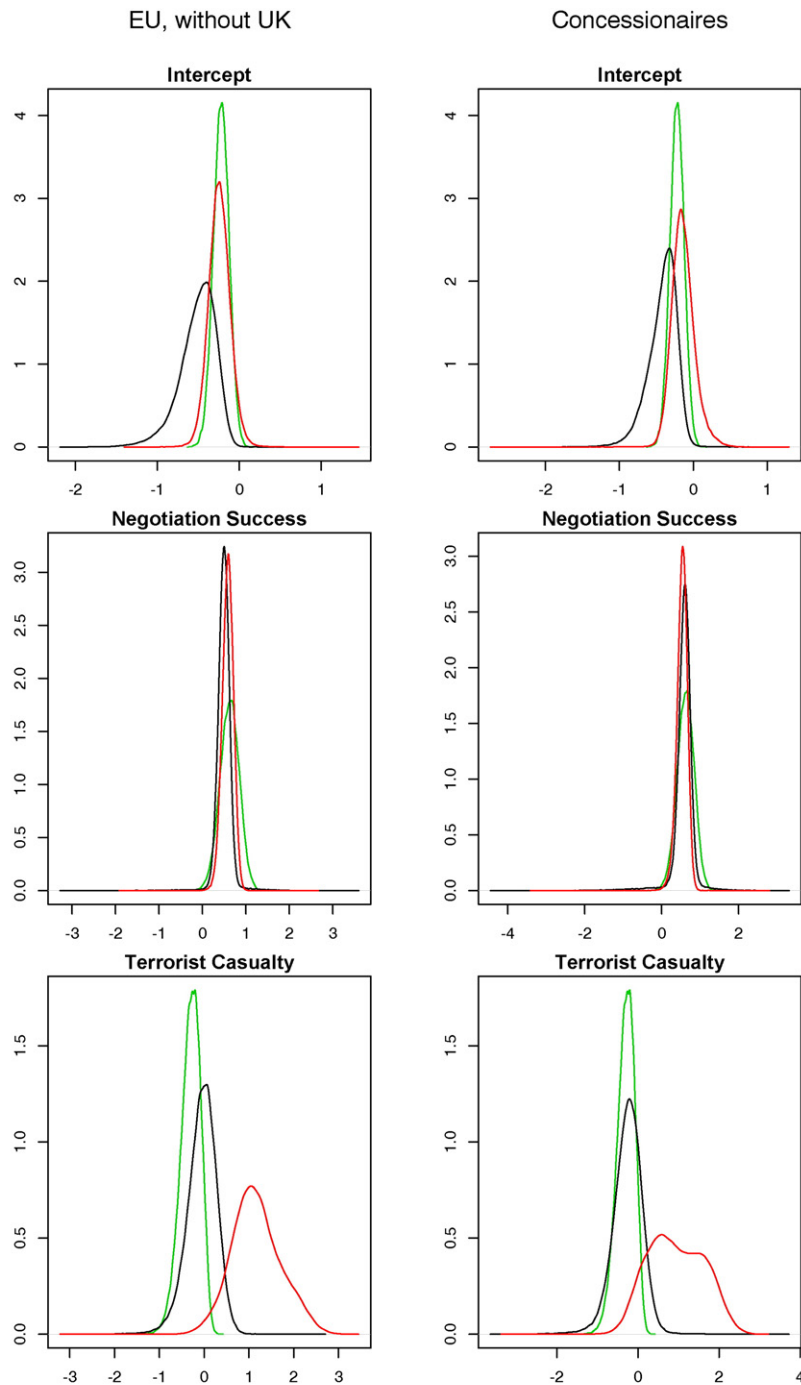
Note: Black = EU Regime 1: 2001(1)–2006(3); Red = EU Regime 2: 2006(4)–2013(12); Black = Concessionaires Regime 1: 2001(1)–2008(3); Red = Concessionaires Regime 2: 2008(4)–2013(12); Green = US-UK estimates.

Fig. 2. Posterior estimated coefficients densities for the US–UK, EU, and Concessionaires.

Table 2
Percentage change in kidnapping predictions, negotiations and terrorist casualties, 2001–2013.

	Negotiation success			Terrorist casualties		
	Median % Δ	5%	95%	Median % Δ	5%	95%
US–UK	87	22	157	−25	−51	2
EU, Regime 1	64	30	100	−3	−50	50
EU, Regime 2	80	43	119	209	−16	604
Concessionaires, Regime 1	82	34	136	−21	−62	26
Concessionaires, Regime 2	72	33	109	146	−43	556

Notes: EU Regime 1: 2001(1)–2006(3); EU Regime 2: 2006(4)–2013(12); Concessionaires Regime 1: 2001(1)–2008(3); Concessionaires Regime 2: 2008(4)–2013(12).

In Regime 2 from 2008(4) on, the median number of Concessionaires kidnappings jumps from 0.87 to 1.49 following a negotiation success by the terrorists.

Table 2 uses these posterior predictions from the changes in the negotiation success to compute the percentage changes in the number of expected kidnappings for each of the three time series. The median predicted percentage change and its 90% CI is reported in Table 2. For the US–UK data, one additional negotiation success yields 87% more kidnappings with a 90% CI between 22% and 157%. For the EU before 2006(4), the median increase in kidnappings following a negotiation success is 64% with a 90% CI between 30% and 100%. After 2006(4), the EU median increase following a negotiation success is 80% with a 90% CI between 43% and 119%. For the Concessionaires, an additional negotiation success is associated with 82% and 72% more kidnappings for Regimes 1 and 2, respectively. These results strongly support the theoretical prediction that negotiation success induces more kidnappings of capitulating countries' citizens. For all five cases, the CI does not include zero, making the estimates statistically significant.

Finally, Fig. 4 shows the median number of predicted kidnappings when there are incidents without or with terrorist casualties, holding everything else constant across the regimes. An additional kidnapping with terrorist casualties has the anticipated deterrent for the US–UK by reducing the median prediction from 0.81 to 0.61 kidnappings (see online Appendix A, Table A5, for details of these predictions and their CIs). In Fig. 4, there is virtually no deterrent effect for EU Regime 1 and Concessionaires Regime 1 following an incident with terrorist casualties. The largest changes are increases from 0.80 to 2.63 incidents and from 0.89 to 2.46 incidents for EU Regime 2 and Concessionaires Regime 2, respectively, following abduction with terrorist casualties. These results suggest the draw of martyrdom in the most recent regimes. Returning to Table 2, these findings are put in better perspective. Only the median fall of 25% for US–UK is very close to being significant with the 90% CI running from −51% to 2%, thereby just barely containing zero. The other four cases are not significant, given the inclusion of zero in their CIs. We must conclude that harm inflicted on the abductors of EU and Concessionaires hostages is not a deterrent since 9/11. This is also true for our analysis involving violent ends − i.e., shoot-outs with the authorities (results available upon request). These violent-end results display an insignificant increase in the median following a shoot-out.

7. Robustness checks

ITERATE records the HOSTAGE covariate information on negotiation success and terrorist casualties for 1978–2013. As a check on the robustness of our results and any sensitivity to the 2001–2013 timeframe, we extended the data and conducted similar
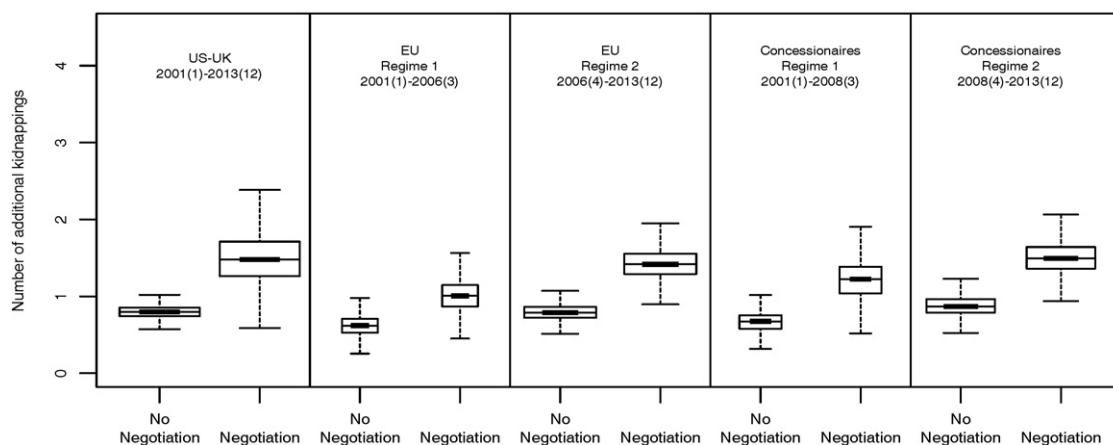

Fig. 3. Marginal effects of one additional negotiation success on the number of kidnappings.
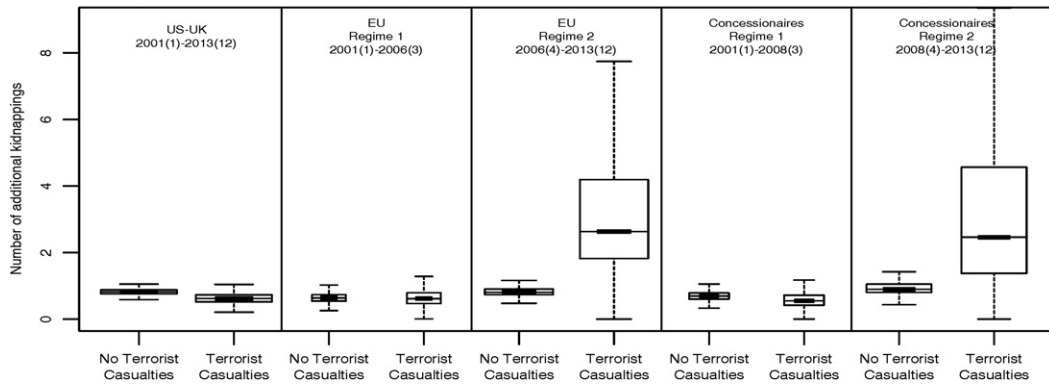
Fig. 4. Marginal effects of one additional incident with terrorist casualties on the number of kidnappings.

analysis to those reported above for this longer sample period and for the pre-2001 period. Online Appendix B shows an analogous set of results for 1978–2013 to those presented here for the post-2000 era.

Given the larger 1978–2013 sample, different changepoints are estimated. Using the same procedure described earlier, we find that there are no changepoints in the extended US–UK series, one changepoint for the EU without UK series and one changepoint for the Concessionaires. The EU changepoint comes in 1983(3), which corresponds to a monthly mean increase from 0.3 to 1.1 abductions prior to the kidnapping campaign in Lebanon. The Concessionaires' changepoint occurs about the same time in 1983(2) when the monthly mean rose from 0.4 to 1.2 abductions.

Qualitatively similar results to those seen above for terrorist negotiation success hold for 1978–2013. For the US–UK, granting concessions increased the median number of incidents by 26% with a 90% CI between 9% and 45% — see Table 3. The smaller effect is due to these countries not maintaining their pledge as rigorously as since 2001. In Table 3, there is no overlap of the 90% CIs with zero for the effects of terrorist negotiation success for EU Regime 2 and Concessionaires Regime 2, where 55% (CI between 39% and 71%) and 57% (CI between 42% and 72%) more kidnappings, respectively, are predicted when concessions are granted. The insignificance of the findings for negotiation success for Regime 1 for the EU and the Concessionaires is not surprising given the brevity of these first regimes and countries not making clear their concession policy in kidnappings.

In Table 3, terrorist casualties have no deterrent effect throughout 1978–2013 for the US–UK, the EU regimes, or the Concessionaires regimes. The 90% CIs include zero in all five cases.

For completeness, we also investigated the dynamics of our two-covariate model for 1978–2000. Our analysis gives one changepoint for the US–UK at 1993(5), one changepoint for the EU at 1983(4), and one changepoint for the Concessionaires also at 1983(4). For the US–UK, the mean for kidnappings goes from 0.9 to 1.5 incidents after the changepoint. For the EU, the kidnapping mean goes from 0.3 to 1.2; while, for the Concessionaires, the kidnapping mean goes from 0.5 to 1.4 (see online Appendix C for the details of the 1978–2000 runs). Table 4 summarizes our main findings. The US–UK experienced no significant change in the kidnapping median after a negotiation success, probably due to US inconsistent adherence to its no-concession pledge for the pre-2001 period. There are, however, significant consequences for the EU and the Concessionaires when concessions were granted during their longer Regime 2. In Table 4, each concession in Regime 2 augmented the mean number of kidnappings by 48% and 46% for the EU and Concessionaires, respectively. These percentage increases are markedly lower than for 2001–2013, thus indicating that concessions since 2001 generate more kidnappings. Terrorist casualties do not have a significant deterrent or inducement for future kidnappings. This is consistent with terrorists being less driven by martyrdom prior to 2001.

Table 3
Percentage change in kidnapping predictions, negotiations and terrorist casualties, 1978–2013.

	Negotiation success			Terrorist casualties		
	Median % Δ	5%	95%	Median % Δ	5%	95%
US–UK	26	9	45	1	−16	17
EU, Regime 1	54	−45	175	−7	−95	125
EU, Regime 2	55	39	71	16	−8	41
Concessionaires, Regime 1	56	−16	134	−53	−96	15
Concessionaires, Regime 2	57	42	72	7	−14	31

Notes: EU Regime 1: 1978(1)–1983(2); EU Regime 2: 1983(3)–2013(12); Concessionaires Regime 1: 1978(1)–1983(1); Concessionaires Regime 2: 1983(2)–2013(12).

Table 4
Percentage change in kidnapping predictions, negotiations and terrorist casualties, 1978–2000.

	Negotiation success			Terrorist casualties		
	Median % Δ	5%	95%	Median % Δ	5%	95%
US–UK, Regime 1	12	−22	57	21	−23	67
US–UK, Regime 2	4	−29	32	24	−31	78
EU, Regime 1	54	−46	172	10	−94	146
EU, Regime 2	48	25	71	11	−17	42
Concessionaires, Regime 1	54	−17	134	−37	−94	38
Concessionaires, Regime 2	46	27	64	6	−21	33

Notes: US–UK Regime 1: 1978(1)–1993(4); US–UK Regime 2: 1993(5)–2000(12); EU Regime 1: 1978(1)–1983(3); EU Regime 2: 1983(4)–2000(12); Concessionaires Regime 1: 1978(1)–1983(3); Concessionaires Regime 2: 1983(4)–2000(12).

8. Concluding remarks

Even in the United States, the debate still rages over the US stated no-concession policy for terrorist kidnappers. The debate has become more poignant following the beheadings of hostages by al-Qaida in Iraq, ISIS, and other groups, and the statements by the murdered hostages' families. The no-concession policy rules out the swapping of prisoners or other concessions in lieu of ransoms. With few notable exceptions, the United States and the United Kingdom have maintained their no-concession policy since 2001.[9] In this paper, we use Bayesian time series analysis and observations on terrorist kidnappings from 2001 through 2013 to ascertain the empirical consequences of terrorist kidnappers' negotiation success. We provide strong evidence that terrorist negotiation success results in more hostages being abducted because of terrorists' anticipated future payoffs, consistent with our conceptual model's predictions. These findings are bolstered by our robustness analysis for 1978–2013 and 1978–2000, when withholding concessions deterred kidnappings. By toeing the line, the United States and the United Kingdom eliminate a marginal increase in the median rate of kidnappings of their citizens by 87% for 2001–2013. This refers to *a median increase* in hostage taking; however, it *does not imply*, as suggested by David Cohen at the outset of the paper, that US citizens will not be taken hostage. Unfortunately, US and UK citizens will still be taken hostage because of terrorists' grievances and their anticipated media attention from such abductions. Nevertheless, limiting an increase in the median rate of abductions is a huge benefit, given the marginal effects on future kidnappings identified here, and greatly supports the continuation of these countries' no-concession policy. By granting concessions, the EU and the Concessionaire countries increased median kidnappings of their citizens by 80% and 72% after 2006(4) and 2008(4), respectively. Our analysis with its unique data set on kidnappings represents the first dynamic quantitative analysis of the consequences of conceding to terrorist kidnappers' demands for 2001–2013, 1978–2013, and 1978–2000, *distinguished by those countries that generally adhere to their no-concession pledge* versus *those that do not.*

Given the religious fanaticism of many of today's terrorist kidnappers, it is not surprising that terrorist casualties had no significant deterrent effect over the 2001–2013 and 1978–2013 sample periods for the EU and Concessionaires. The primary deterrence stemmed from terrorist casualties inflicted by the authorities in kidnappings involving US–UK hostages during 2001–2013.

Our study solely analyzes terrorist kidnappings, as identified by the ITERATE data set. This data set does not record criminal kidnappings that do not have a political motive. In addition, ITERATE does not include ship hijackings for ransoms, which also do not have a political motive. Thus, our findings cannot be generalized to these other situations for which governments may be more permissive with respect to private parties paying ransoms. Moreover, as one referee pointed out, terrorist kidnappings may fall with respect to no-concession countries if their citizens avoid dangerous venues (e.g., Syria), knowing the dire consequences from being taken hostage. Nevertheless, this should be a favorable outcome of the no-concession policy by limiting future abductions.

Acknowledgments

Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.ejpoleco.2016.05.004.

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[9] A noteworthy US exception was the swap of five Taliban members for the release of "Bowe" Bergdahl in Afghanistan on May 31, 2014.

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