Diplomatic Relations and Conflict Management: A Dynamic Analysis

Brenton Kenkel

February 9, 2018

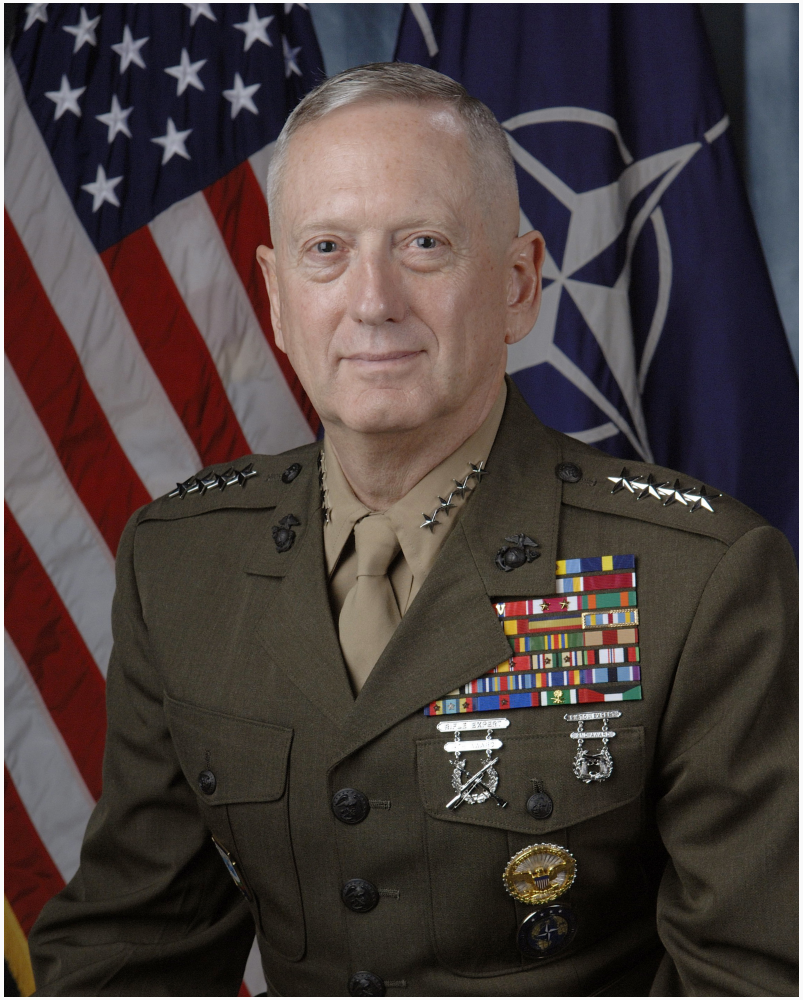
University of Rochester/Vanderbilt University

Central Question

Do diplomatic relations matter in international crisis management?

Is diplomacy a cause of peace?

Do Diplomatic Relations Matter?



"If you don't fund the State Department fully, then I'm going to need to buy more ammunition ultimately."
—Gen. James Mattis, 2013, to the Senate Armed Services Committee

Do Diplomatic Relations Matter?

Formal theories of diplomacy as "cheap talk" give reasons for skepticism.

- Diplomacy wholly ineffective due to incentives to misrepresent (Fearon 1995)
- Diplomatic communication *increases* overall chance of war (Sartori 2002, Ramsay 2011)
- Diplomacy as effective only in peculiar bargaining environments (Trager 2010, Bils and Spaniel 2017)

My Approach

My goal is to estimate the effects of diplomatic ties on the initiation and escalation of conflict.

- Main obstacle to inference — reverse causality
  - Conflict may cause cessation of diplomatic ties
  - Even *expected* conflict may have this effect
- I take a structural approach
  - Embed the reciprocal relationship between diplomacy and hostility in a dynamic behavioral model
  - Estimate the model with observational time series data
  - Not the “clever” way, but well suited to the problem

Main Findings

From data on American diplomatic relations and crisis/war involvement, 1816–2007:

- Diplomacy does matter
  - Discernible effects on conflict management
  - Substantively important effect on chance of de-escalating an ongoing crisis (6–7% increase in any given month)
  - But: no discernible effect on war initiation
- Reverse causality is real
  - Ongoing hostility reduces chance of making or keeping diplomatic ties by 1–2%

Contributions

- **Theory:** New dynamic choice model of diplomacy
- **Methodology:** Structural estimator linked to model
- **Data:** Collection of fine-grained data on American diplomatic representation abroad
- **Empirics:** Substantively important, policy-relevant findings on effects of diplomatic relations

Related Literature

- Determinants of diplomatic ties
  - Russett and Lamb 1969, Neumayer 2008, Kinne 2014
  - Do not consider effects on conflict management
- Effects of diplomatic actions
  - Goldsmith and Horiuchi 2009, Trager and Vavreck 2011, Hall and Yarhi-Milo 2012, McManus 2014, Lebovic and Saunders 2016
  - Focus mainly on political actors, not professionals
- Structural models of conflict
  - Signorino 1999, Lewis and Schultz 2003, Signorino and Tarar 2006, McLean and Whang 2010, Kurizaki and Whang 2015, Crisman-Cox and Gibilisco 2017
  - Do not analyze diplomatic ties or (usually) dynamics

Roadmap

From here:

1. Develop a sparse formal model of diplomatic relations and crisis management
2. Identify empirically relevant parameters of the model
3. Derive corresponding statistical model
4. Gather data on diplomacy and hostility to estimate, among other things, effects of diplomacy on conflict

Formal Model

Basic ingredients:

- Interaction between US and another country
- Infinite horizon $t = 0, 1, \ldots, \infty$
- Constant discount factor $\delta \in (0, 1)$

Only modeling the US's decision-making.

Key tradeoff is between present and future payoffs.

Formal Model: State

Each period characterized by *state* of diplomatic relations and military hostility.

- Relations $R_t \in \{0, 1\}$ (no, yes)
- Hostility $H_t \in \{0, 1, 2\}$ (peace, crisis, war)
- Collected in $S_t = (R_t, H_t)$

Initial state $S_0 = (R_0, H_0)$ exogenous.

Future states S_t depend on US actions at $t - 1$.

Formal Model: Actions

In each period, the US takes *actions* on diplomatic relations and military hostility.

- Relations $r_t \in \{0, 1\}$
- Hostility $h_t \in \{0, 1, 2\}$
- Collected in $a_t = (r_t, h_t)$

Formal Model: Transitions

Distribution over next state S_{t+1} is a function of (S_t, a_t).

- $R_{t+1} = r_t$ with probability one
- $H_{t+1} = h_t$ with probability close to one
    - possibility other country initiates crisis or backs down from ongoing hostilities

Markov property: S_{t+1} depends on states/actions before t only through S_t.

Formal Model: Static Utilities

US's immediate payoff each period depends on the current state and its actions.

$$u(S_t, a_t) = \underbrace{\sigma_R(R_t) + \sigma_H(H_t)}_{\text{state payoffs}} + \underbrace{\alpha_r(r_t \mid S_t) + \alpha_h(h_t \mid S_t)}_{\text{state-dependent action payoffs}}$$

Goal of statistical analysis is to estimate the components of this *static utility* function.

Formal Model: Decision Problem

In each period, the US chooses a_t to solve:

$$\max_a \left[\underbrace{u(S_t, a)}_{\text{static utility}} + \underbrace{\epsilon_t(a)}_{\text{random shock}} + \underbrace{\delta EV(S_t, a)}_{\text{continuation value}} \right]$$

Random shocks ensure all actions are chosen with positive probability in all states.

Continuation values found by solving fixed-point problem. Unique optimal decision plan. ▸ Details

Statistical Model: Overview

General approach to estimation:

1. Identify parameters of the model to estimate, possibly as functions of covariates
2. Assume data is generated according to the model
3. Find the parameters that maximize the likelihood of observed actions

Pros: Explicit adjustment for dynamic temporal dependence. Can use model to simulate counterfactuals.

Cons: As with any MLE, results are only as good as the model.

Statistical Model: Observations

- Interactions between US and other countries, $m = 1, \ldots, M$
- Observed from $t = 0, 1, \ldots, T_m$
    - Time horizon for decision-making still assumed infinite
- Vector of covariates x^m that differ across countries
- Same discount factor δ in each time series
    - I fix $\delta = 0.95$ throughout the analysis

Statistical Model: State Payoffs

Identification requires normalizations:

- No-relations payoff: $\sigma_R(0) = 0$
- Peacetime payoff: $\sigma_H(0) = 0$

Other state payoffs interpreted relative to these. Each is a linear function of covariates, including intercept.

$$\sigma_R(1) = x^m \cdot \beta_{R1},$$
$$\sigma_H(1) = x^m \cdot \beta_{H1},$$
$$\sigma_H(2) = x^m \cdot \beta_{H2}.$$

Statistical Model: Relations Action Payoffs

R_t	r_t	Utility from r_t
0	0	0
0	1	$\theta_{01} + \theta_{01 \times disp} \mathbb{I}(H_t > 0)$
1	0	$\theta_{10} + \theta_{10 \times disp} \mathbb{I}(H_t > 0)$
1	1	0

The interactions represent the “reverse” causal relationship — effects of ongoing hostility on incentives for diplomacy.

Statistical Model: Hostility Action Payoffs

H_t	h_t	Utility from h_t
0	0	0
0	1	$\omega_{01} + \omega_{01 \times rel} R_t$
1	0	$\omega_{10} + \omega_{10 \times rel} R_t$
1	1	0
1	2	$\omega_{12} + \omega_{12 \times rel} R_t$
2	0	ω_{20}
2	1	ω_{21}
2	2	0

The interactions here are the key causal parameters — how, if at all, do diplomatic relations affect the payoff to initiating, backing down from, or escalating a crisis?

Statistical Model: Distributional Assumptions

Assume each $\epsilon_t(a)$ is i.i.d. (across countries, time, and actions) type 1 extreme value.

Choice probabilities are then multinomial logit (Rust 1987):

$$\Pr(a_t = a \mid S_t) = \frac{\exp(u(S_t, a) + \delta EV(S_t, a))}{\sum_{a'} \exp(u(S_t, a') + \delta EV(S_t, a'))}.$$

Once we know $EV(\cdot, \cdot)$, this gives us our likelihood function.

Statistical Model: Estimation

I use Rust's (1987) *nested fixed-point algorithm*.

1. For each candidate estimate (β, θ, ω):
   - 1.1 For each country time series $m = 1, \ldots, M$:
     - 1.1.1 Calculate static utilities $u(S, a)$
     - 1.1.2 Solve for continuation values $EV(S, a)$ using fixed point method
     - 1.1.3 Calculate log-likelihood of observed actions $a_0^m, a_1^m, \ldots, a_{T_m}^m$
   - 1.2 Calculate overall log-likelihood of candidate estimate
2. Stop at convergence, else consider next candidate

For standard errors, I use a cluster jackknife (Lipsitz and Par Zen 1996).

Data

- Unit of observation: country–month
- US actions toward $M = 240$ other countries
- Time frame 1816–2007
- 166,316 country–month observations

Data: Diplomatic Relations

Collected new data on exact timing of changes in US diplomatic representation abroad, 1776–2016.

$R_t = 1$ if and only if US had legation, embassy, or equivalent level of permanent representation throughout month t.

Actions coded correspondingly: $r_t = R_{t+1}$.

Data: Diplomatic Relations

Establishment of the British Legation in the U.S., 1791.

The first British envoy to the United States was George Hammond who became Minister to the United States of America on July 5, 1791.

Interruption of Relations, 1812.

The United States broke relations with the United Kingdom of Great Britain and Ireland when it declared war against its former colonial ruler on June 18, 1812, although Chargé d'Affaires Jonathan Russell did not close the legation until July 29, 1812.

Re-establishment of Relations, 1815.

Future President John Quincy Adams, son of John Adams, was appointed Envoy Extraordinary and Minister Plenipotentiary, to the United Kingdom on February 28, 1815, and presented his credentials in London on August 8, 1815.

Elevation of Legation to Embassy, 1893.

The U.S. legation in London became the U.S. Embassy in London when Ambassador Thomas Bayard presented his credentials to the Court of St. James on June 22, 1893.

Coded from narratives at `https://history.state.gov/`.

Data: Hostility

States:

- $H_t = 1$ for Militarized Interstate Disputes
  - New codings and dates by Gibler, Miller, and Little (2016)
- $H_t = 2$ for Correlates of War Interstate Wars
- Highest value in case of overlap

Actions:

- $h_t < H_t$ at conclusion of crisis/war if US is non-victorious
- $h_t > H_t$ if US is initiator of new crisis/war

Data: Covariates

Include characteristics of other country that may influence both diplomatic ties and military hostility.

- Distance from US
- Major power status
- Military capabilities relative to US
- S-score with US (alliance portfolio similarity)
- Polity score

For time-varying characteristics, use the average across the sample period.

Recap

1. Wrote down a dynamic model of diplomatic relations and crisis management
2. Identified substantively relevant parameters of the model
3. Using historical data on diplomatic relations and international disputes to estimate those parameters for the US

Descriptive Analysis: Hostility Actions

R_t	H_t	$h_t = 0$	$h_t = 1$	$h_t = 2$
0	0	99.7%	0.3%	0.0%
1	0	99.9%	0.1%	0.0%
0	1	8.7%	90.8%	0.5%
1	1	17.9%	81.9%	0.2%
0	2	0.6%	0.4%	99.0%
1	2	0.0%	0.0%	100.0%

Apparent effect of diplomacy greatest on crisis de-escalation.

Descriptive Analysis: Diplomatic Actions

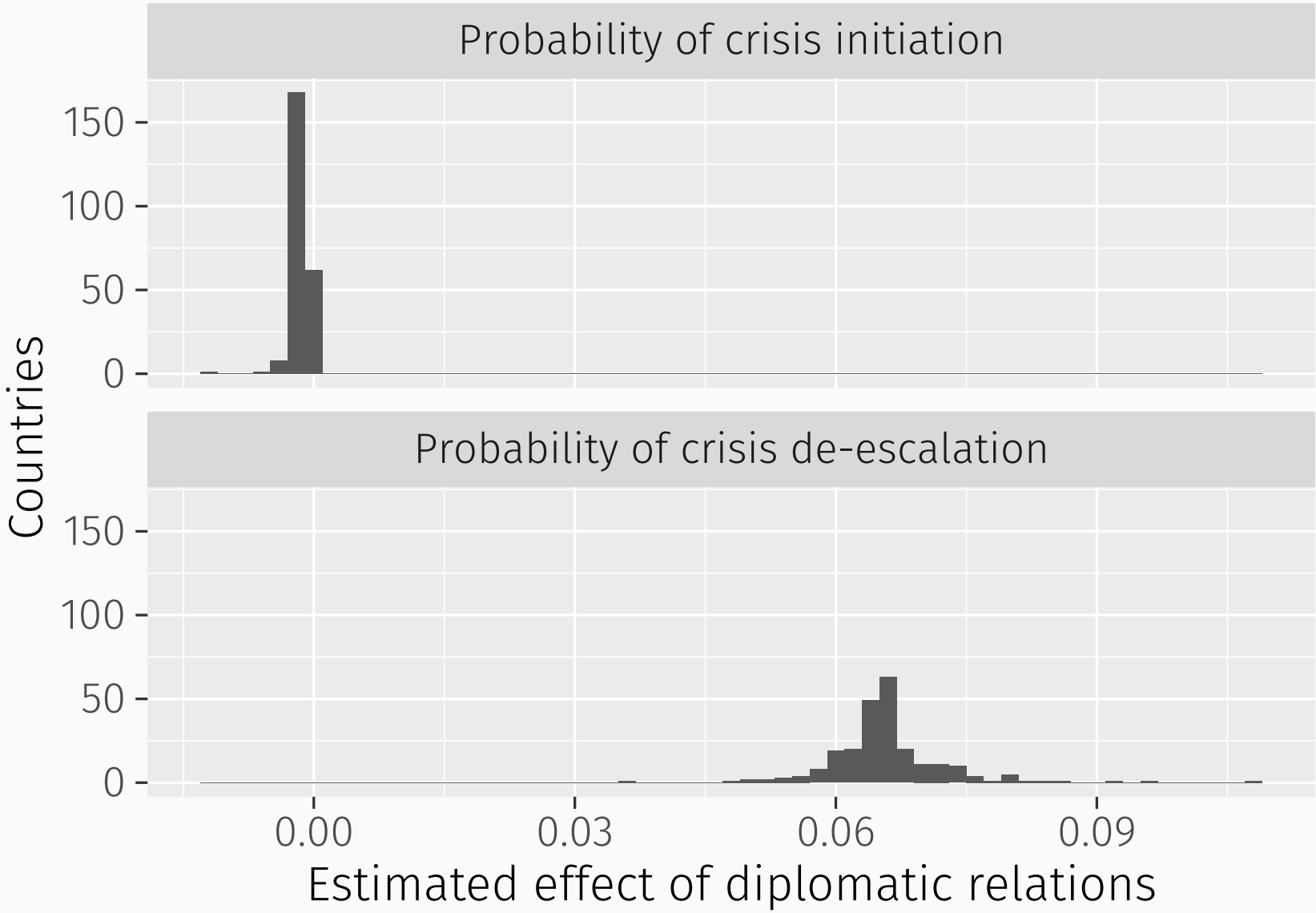
R_t	H_t	$r_t = 0$	$r_t = 1$
0	0	99.20%	0.80%
0	1	99.79%	0.21%
0	2	100.00%	0.00%
1	0	0.03%	99.97%
1	1	1.32%	98.68%
1	2	5.13%	94.87%

Chance of cutting off relations increases dramatically with hostility.

Full Analysis: Hostility Action Payoffs

Parameter	Estimate	Std. Error	$p < 0.05$?
Crisis initiation			
ω_{01}	−6.3	0.3	✓
$\omega_{01 \times rel}$	−2.4	0.4	✓
Crisis de-escalation			
ω_{10}	−1.6	0.2	✓
$\omega_{10 \times rel}$	1.6	0.6	✓
Crisis escalation			
ω_{12}	−6.6	0.5	✓
$\omega_{12 \times rel}$	−1.1	1.6	

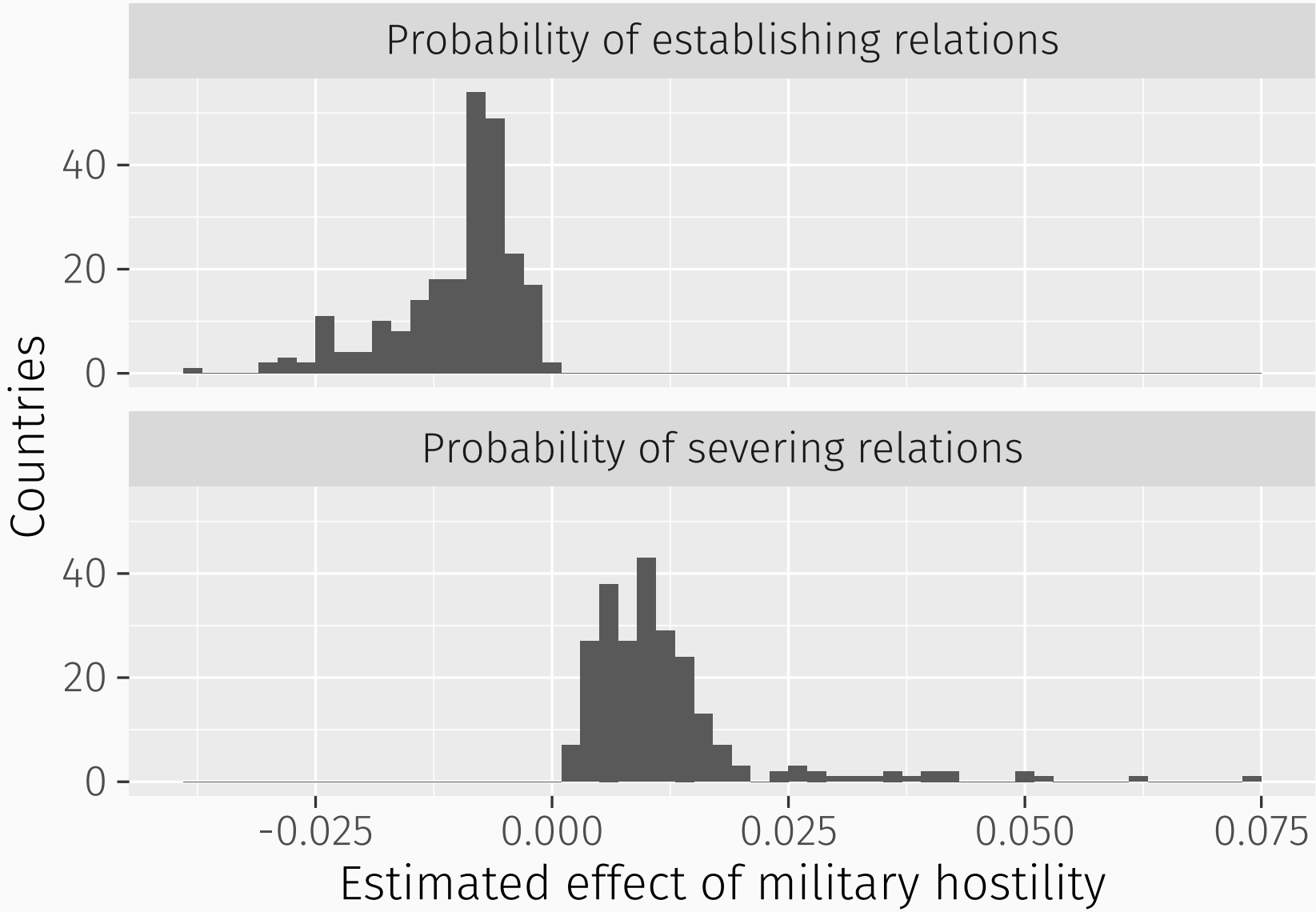
Full Analysis: Effects of Relations on Hostility Actions



Full Analysis: Diplomatic Action Payoffs

Parameter	Estimate	Std. Error	$p < 0.05$?
Establishing new relations			
θ_{01}	-6.3	0.1	✓
$\theta_{01 \times disp}$	4.3	0.4	✓
Cutting off relations			
θ_{10}	-6.3	0.1	✓
$\theta_{10 \times disp}$	-2.4	1.0	✓

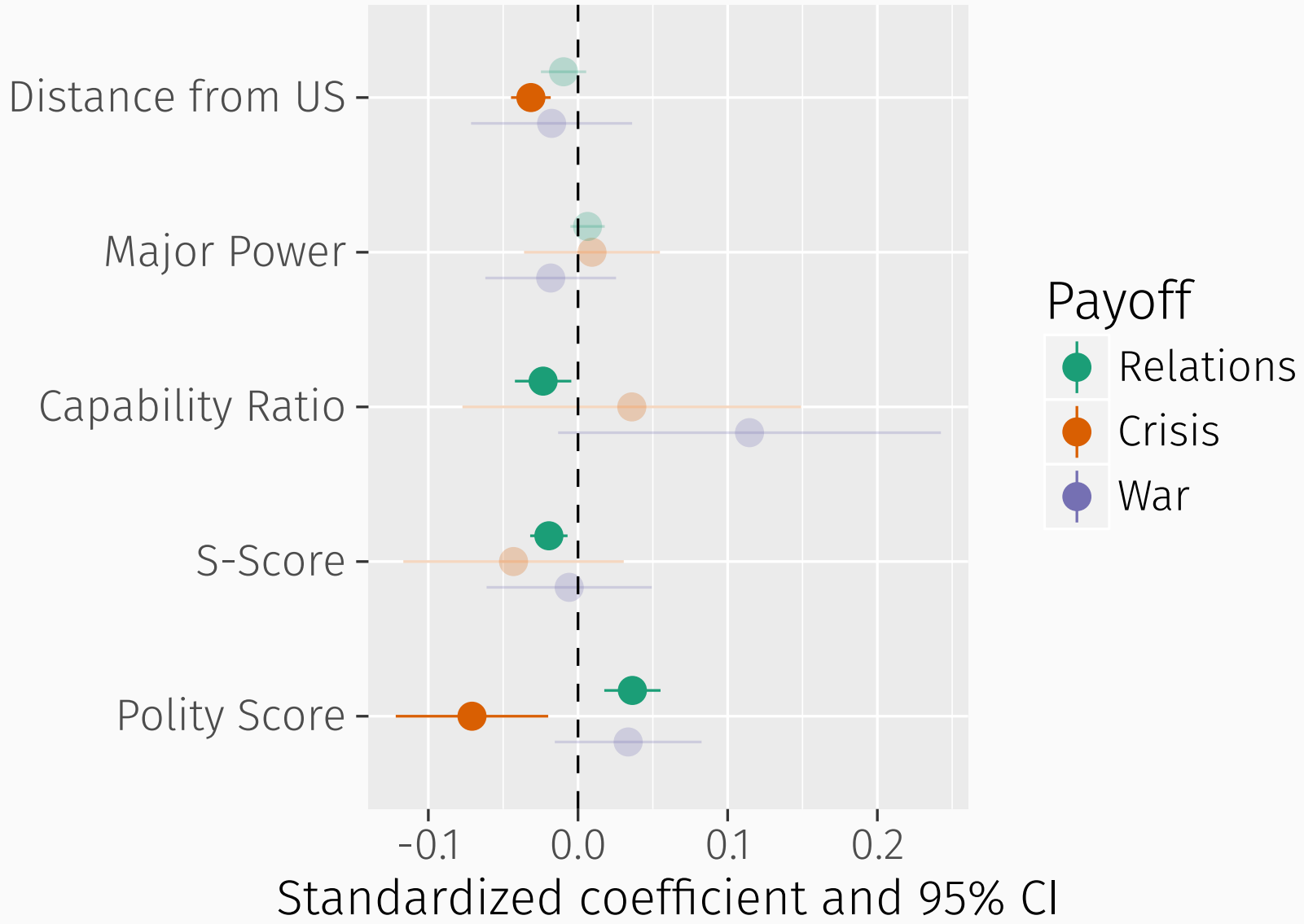
Full Analysis: Effects of Hostility on Diplomatic Actions



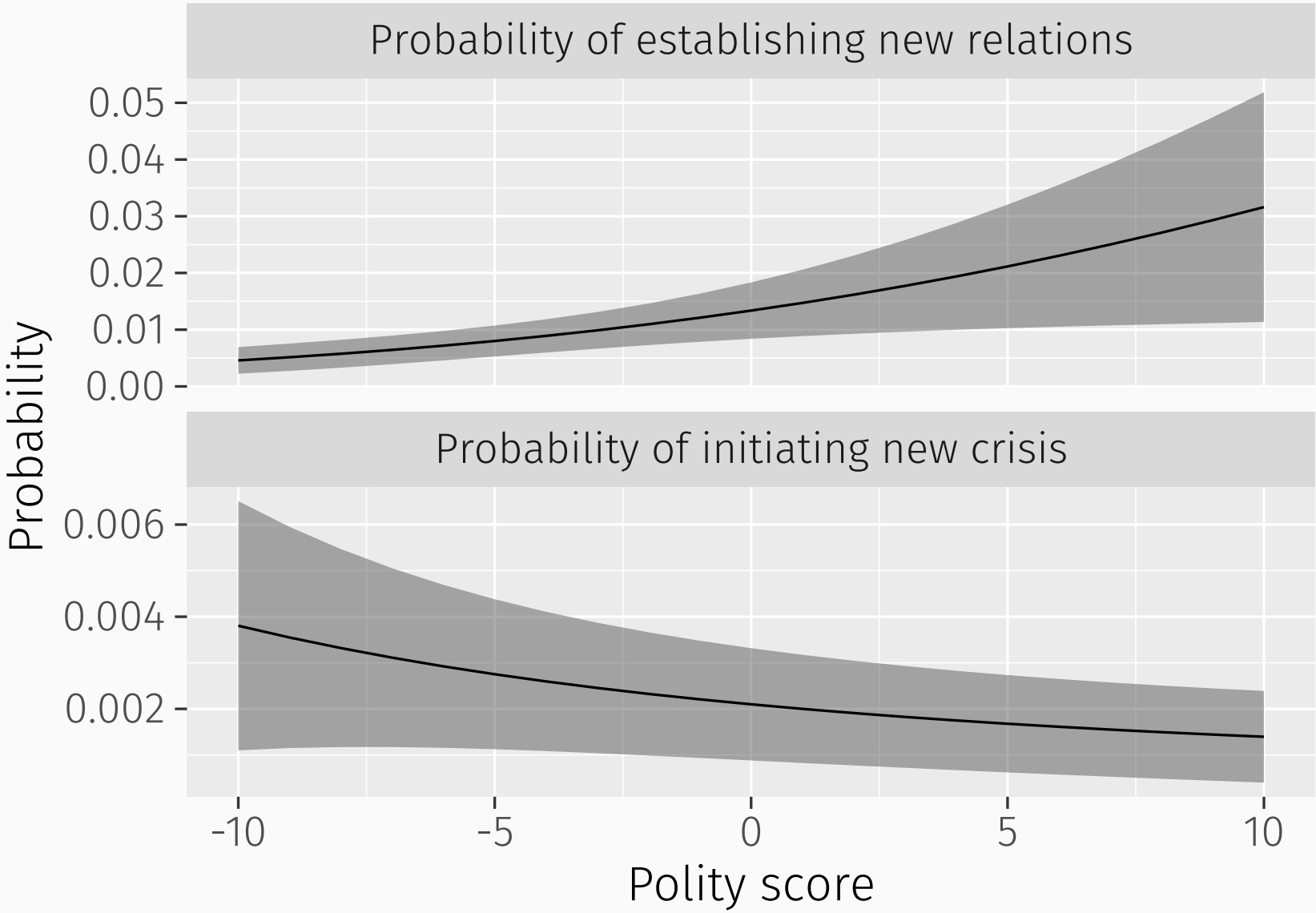
The Upshot

- Diplomacy does have pacific effects
  - Discernible and strong effect on crisis de-escalation
  - Discernible but weak effect on crisis initiation
  - No discernible effect on crisis escalation
- Also a reverse effect — ongoing hostility reduces the chance of establishing or maintaining diplomatic relations

Full Analysis: Covariates



Full Analysis: Effects of Regime Type



Conclusions

What I've done:

- Proposed unified theoretical and empirical model of diplomacy and conflict management
- Collected new data to estimate the model
- Found evidence that formal diplomatic ties reduce chances of conflict

Conclusions

Directions for future work:

- Discern among mechanisms by which diplomacy might cause peace
  - Information transmission
  - Information collection
  - Persuasion, changing preferences
- Extend analysis to have global scope
- Incorporate strategic interdependence
  - Model other country as strategic actor
  - Compromise: allow transition function to vary by country?

Thank you!

Working paper:
bkenkel.com/data/dyndip.pdf

Feedback:
brenton.kenkel@vanderbilt.edu

Continuation Value Functional Equation

$EV(\cdot, \cdot)$ is the unique solution to the functional equation

$$EV(S, a) = \sum_{S'} E\left[\max_{a'} \left\{u(S', a') + \epsilon(a') + \delta EV(S', a')\right\}\right] \pi(S' \mid S, a)$$

where π is the state transition function,

$$\pi(S' \mid S, a) = \Pr(S_{t+1} = S' \mid S_t = S, a_t = a).$$

Per Rust (1987), if each $\epsilon_t(a)$ is i.i.d. Type 1 Extreme Value, the functional equation becomes

$$EV(S, a) = \sum_{S'} \left[\sum_{a'} \exp(u(S', a') + \delta EV(S', a'))\right] \pi(S' \mid S, a).$$

◂ Formal Model: Decision Problem